

**THE LAW AND ECONOMICS OF HEDGE FUND REGULATION:
A COMPARISON BETWEEN THE U.S. AND THE EU**

Hossein Nabilou

Supervisors: Prof. Alessio M. Paces, Prof. Jonathan Klick

**This thesis is drafted within the framework of the European Doctorate in Law
and Economics**



A collaboration between



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA



Universität Hamburg



ACKNOWLEDGEMENTS

Perhaps one of the most pleasant parts of writing a thesis is its acknowledgements. It is an exhilarating moment that reminds the author of so many instances of support, kindness, and generosity. However, in my case, the plentitude of kindness is of such a scale that makes doing justice to all who helped me throughout my PhD a mission impossible.

First and foremost, I would like to extend my most sincere and deepest gratitude to Prof. Alessio Paces who not only was a greatly diligent scientific supervisor, but also an inspiring and encouraging mentor who constantly supported me in all aspects of my academic life over the last three years. Without his contribution, this work could not certainly be accomplished. His guidance and comments on the thesis illuminated my path through the dark and rough alleys of terra incognita of Law and Finance. His generous help, positive attitude, and encouragements were immensely inspired me to lift my spirit and navigate through my research in times of low spirits. Certainly any attempt to appreciate his help is doomed.

I am also very much indebted to Prof. Jonathan Klick for his unconditional and generous support from the time we met at the University of Pennsylvania Law School. I had my first exposure to Law and Economics by taking a course taught by Prof. Klick who played the biggest role in drawing my interest in the fascinating world of Law and Economics. Our lively talks and discussions were always a source of excitement and inspiration to me. His insights and comments on the earlier drafts of the thesis were crucial in constructing its theoretical foundations.

I also take the opportunity to express my gratitude to the PhD Jury, Professors Fabian Amtenbrink, Thomas Eger, and Michael Faure, for their time and thoughtful comments on the thesis.

I am very much obliged to Qi (George) Zhou of the University of Leeds for his inspirations, and kind and continuous support. I learned a great deal from him discussing my thesis and other law and economics issues of the day. The third chapter of the thesis is also greatly benefited from his extensive insights and comments.

It is also a great pleasure to thank the participants of the seminars in which separate chapters of this work were presented over the last three years. Special thanks go to the RILE staff who scrutinized our works in progress during the EDLE seminars in Rotterdam. In particular, thanks to participants in the 5th Joint Seminar on the Future of Law & Economics, and Dr. Sharon Oded and Jaroslaw Kantorowicz who enriched the third chapter of this thesis by giving their in-depth comments. I also thank Prof. Dan Awrey of the University of Oxford, and Prof. Christa Tobler of the University of Basel for their contribution to my thought process.

I would also like to thank the EDLE coordinators in the University of Bologna (Prof. Luigi Franzoni) and the University of Hamburg (Profs. Patrick Leyens and Stefan Voigt) who made our times of brainstorming a pleasant and memorable experience.

My gratitude also goes to the European Commission for the generous funding which provided me with the privilege of accessing great Universities and having cultural exposure to so many new worlds. I am also grateful to the EUROPAINSTITUT of the University of Basel for its generous funding and intellectual environment. During my fellowship, I came to know so many inspiring people and benefited from many different points of view which made the period of my fellowship an intellectually inspiring and exhilarating experience.

During my stay in the Rotterdam Institute of Law and Economics (RILE), I hugely benefited from an academically rich, competitive, and stimulating environment and enjoyed the company of great academic staff and peers. I am very grateful to Prof. Michael Faure, Dr. Ann-Sophie Vandenberghe, and Drs. Wicher Schreuders of the RILE for all their encouragements. Thanks to Marianne Breijer, Simone Rettig, Lisa Verniti, and Shuela Subrizi to whom I frequently referred for organizational and bureaucratic issues and every time they generously extended their helping hands in sorting them out. I am also thrilled by my joyous peers in the EDLE and RILE whose moral support was insurmountable.

Last but not least, I have to thank my wife, Mahsa Shabani. Her love, charm, resourcefulness, and patience are always a great support for me. I also thank my family for their unconditional and continuous love and support during the research.

Acknowledgements are always necessary, but never sufficient. I apologize to all whom I could not cover in this brief acknowledgment. Of course, all errors are my own.

CONTENTS

ACKNOWLEDGEMENTS	I
LIST OF ABBREVIATIONS	XI
INTRODUCTION	1
1. Problem definition	4
2. Research questions	8
3. Methodology	9
4. Scope and limitations of the research	13
5. Structure of the dissertation: A roadmap	15
CHAPTER 1: HEDGE FUNDS AND MARKET FAILURE: A NEED FOR REGULATION?	21
Introduction	21
1. What is a hedge fund? The challenge of definition	21
2. Are hedge funds special? A case for <i>ex-ante</i> special regulatory treatment of hedge funds	26
3. Market failure and financial market regulation	33
3.1. Externalities and systemic risk	36
3.2. Information	39
3.2.1. Asymmetric information in credit markets	41
3.2.2. Information externalities	42
3.2.3. Two-sided asymmetric information problem	43
3.2.4. Asymmetric information and coordination failure	44
3.2.5. Hedge fund's transparency deficit	45
3.2.6. Information regulation in financial markets	47
3.3. Competition	51
3.3.1. Economies of scale	51
3.3.2. Network Economies	55
3.3.3. Government licenses and franchises	56
3.4. Competitive equity and the problem of regulatory arbitrage	58
3.4.1. Regulatory arbitrage: Definition and dynamics	62
3.4.2. Regulatory Arbitrage: A historical retrospect	64

3.4.3.	Causes of regulatory arbitrage	66
3.4.3.1.	<i>Differential regulatory treatment of homogenous financial activities</i>	66
3.4.3.1.1.	<i>Regulatory competition</i>	67
3.4.3.1.2.	<i>Partial industry regulation</i>	72
3.4.3.2.	<i>Definitional problems, legal interpretation and regulatory arbitrage</i>	74
	Conclusion	77

CHAPTER 2: SYSTEMIC RISK: CAUSES, CONSEQUENCES, AND IMPLICATIONS FOR HEDGE FUND REGULATION	80
Introduction	80
1. What is systemic risk?	81
1.1. Causes of systemic risk	84
2. Potential sources of hedge fund systemic risk	86
2.1. Hedge funds as Systemically Important Financial Institutions	87
2.2.1. Hedge funds: The size of the industry	87
2.2.1.1. <i>Theory: Potential to become too-big-to-fail</i>	88
2.2.1.2. <i>Data on hedge fund size</i>	89
2.3. Hedge fund leverage	94
2.3.1. Hedge fund leverage: Theory	97
2.3.1.1. <i>Leverage and liquidity</i>	97
2.3.1.2. <i>Hedge fund leverage, stakeholders, incentives and strategies</i>	102
2.3.2. Data on hedge fund leverage	104
2.3.2.1. <i>Estimates of Hedge fund leverage</i>	106
2.3.2.2. <i>Lessons from the empirical evidence on hedge fund leverage</i>	109
3. Hedge fund interconnectedness	110
3.1. Hedge funds and the prime finance industry	111
3.1.1. Economies of scale and scope and network effects in prime finance industry	115
3.1.2. Prime brokers & hedge funds: lending & borrowing-incentives and concerns	116
4. Hedge fund Herd Behavior	118
4.1. Theory	118
4.2. Empirical evidence	122

5. Addressing market failure and the systemic externalities of hedge funds: Economic theory and public policy responses	124
Conclusion	127

CHAPTER 3: THE HEDGE FUND REGULATION DILEMMA: DIRECT VS. INDIRECT REGULATION

	131
Introduction	131
1. Regulatory strategies and techniques for hedge fund regulation	132
2. Direct regulation of hedge funds and its shortcomings	133
2.1. Direct regulation and regulatory arbitrage by hedge funds	136
2.1.1. Hedge funds' closure rate and reputational costs of regulatory arbitrage	137
2.1.2. Transparency, reputational costs and regulatory arbitrage by hedge funds	139
2.2. Placebo effects of direct regulation	141
2.3. Heterogeneity of hedge funds and one-size-fits-all direct regulation	143
3. Indirect regulation of hedge funds	145
3.1. Existence of suitable 'surrogate regulators'	149
3.2. Indirect regulation is less likely to result in regulatory capture	154
3.3. Indirect regulation and regulatory competition among surrogate regulators	155
3.4. Indirect regulation as decentralized regulation	156
3.5. Indirect regulation is more feasible and less costly	159
4. Shortcomings of and remedies for indirect regulation of hedge funds	162
4.1. Use of multiple prime brokers by hedge funds	163
4.2. Competition among prime brokers and ineffectiveness of indirect regulation	163
4.3. Lack of transparency in prime finance industry	165
4.4. Collateral rehypothecation and its effects on the relationships between hedge funds and prime brokers	167
4.5. Moral hazard spillovers arising from bank regulation	168
4.6. Costs of indirect regulation for the intermediated regulators	170
5. The need for a comparative approach	171
Conclusion	174

CHAPTER 4: HEDGE FUND REGULATION IN THE U.S. (I): THE DIRECT REGULATION APPROACH

	176
Introduction	176
1. Hedge fund regulation prior to the Dodd-Frank Act	179
1.1. The Investment Company Act of 1940	181
1.2. The Investment Advisers Act of 1940	184
1.3. The Securities Act of 1933	185
1.4. The Securities Exchange Act of 1934	187
1.5. Other Regulations	188
1.5.1. The Commodity Exchange Act and the rules promulgated by the Commodity Futures Trading Commission	189
1.5.2. Blue-Sky Laws	189
1.5.3. Employees Retirement Income Security Act of 1974	190
1.5.4. Anti-Fraud Rules	190
1.5.5. USA PATRIOT Act of 2001	190
1.5.6. The Hart-Scott-Rodino Antitrust Improvements Act of 1976 (HSR Act)	191
1.5.7. The SEC rule 13e3	191
1.5.8. Regulations indirectly applying to hedge funds	191
2. The Dodd-Frank Act and the direct regulation of hedge funds	192
2.1. Addressing information problems and transparency requirements	195
2.1.1. Elimination of the private adviser exemption (Advisers solely to private funds)	198
2.1.2. Exemptions	199
2.1.2.1. <i>Limited foreign private adviser exemption</i>	200
2.1.2.2. <i>Venture capital fund advisers</i>	202
2.1.2.3. <i>Family offices</i>	205
2.1.3. Record keeping and reporting requirement	206
2.1.4. Miscellaneous disclosure requirements	208
2.2. Collection of systemic risk data: Disclosure and examinations	209
2.2.1. Required information	212
2.2.2. Examination of records and confidentiality	213
2.3. Assessment of information regulation in the Dodd-Frank Act	215

2.4.	Contingent direct regulation of hedge funds (Prudential regulation of SINBFCs)	218
2.4.1.	Direct measures to address leverage and portfolio liquidity	223
2.4.2.	Position limits	223
2.4.3.	Stress tests	225
	Conclusion	225

CHAPTER 5: HEDGE FUND REGULATION IN THE U.S. (II): THE VOLCKER RULE AND THE INDIRECT REGULATION APPROACH 229

	Introduction	229
1.	The Volcker Rule: A historical retrospect	230
2.	The Volcker Rule: Motivation and objectives	235
2.1.	Managing systemic risk by closing contagion channels	235
2.2.	Managing conflict of interest	239
2.3.	Limiting cross-subsidization	241
3.	The Volcker Rule prohibitions	243
3.1.	Prohibitions on proprietary trading	243
3.1.1.	Proprietary trading exceptions (Permitted activities)	245
3.1.1.1.	<i>Underwriting</i>	246
3.1.1.2.	<i>Market Making</i>	247
3.1.1.3.	<i>Risk-mitigating hedging</i>	248
3.1.1.4.	<i>Other transactions on behalf of customers</i>	250
3.1.2.	Backstops or limits on permitted activities	250
3.2.	Restrictions on investment in hedge and private equity funds	252
3.2.1.	Permitted Activities	256
3.2.1.1.	<i>De Minimis Investments</i>	258
3.2.1.2.	<i>Prohibition on ‘covered transactions’</i>	259
3.2.2.	Limits on permitted activities	262
4.	The Volcker Rule: A success story?	262
5.	Miscellaneous indirect measures for regulating hedge funds	267
5.1.	Leverage and portfolio liquidity	267
5.2.	Self-regulation for addressing hedge fund liquidity and leverage	269

5.3. Margins in derivative trades	269
5.4. Hedge fund runs on prime brokers and collateral restrictions	271
5.5. The Dodd-Frank Act and hedge fund herding	273
Conclusion	277

CHAPTER 6: HEDGE FUND REGULATION IN THE EU: THE ALTERNATIVE INVESTMENT FUND MANAGERS DIRECTIVE 280

Introduction	280
1. Regulation of hedge funds in the EU: Between systemic risk and investor protection	284
2. The AIFMD and regulation of hedge funds in the EU	289
3. The AIFMD: Direct or indirect regulation of hedge funds?	290
4. The AIFMD and direct regulation of hedge funds	293
4.1. Authorization	294
4.2. Definitions and scope	295
4.3. Size of hedge funds (Exemptions from definitions)	300
4.4. Addressing information problems and transparency requirements	304
4.4.1. Reports to competent authorities	306
4.4.2. Disclosure to investors	310
4.4.3. Disclosure of information to third countries	312
4.4.4. Transfer and retention of personal data	313
4.4.5. Exchange of information relating to potential systemic consequences of the activities of AIFMs	314
4.5. Capital Requirements	315
4.6. Limits for leveraged funds	316
4.7. Risk Management	323
4.7.1. Risk limits	324
4.7.2. Assessment, monitoring and review of the risk management systems	327
4.7.3. Functional and hierarchical separation of the risk management function	328
4.7.4. Safeguards against conflicts of interest	329
4.8. Liquidity Management	330
4.9. Investment in securitization positions	333

4.10.	Remuneration	337
4.11.	Valuation	341
5.	The AIFMD and indirect regulation of hedge funds	342
5.1.	Hedge fund depositaries and prime brokers	342
5.1.1.	Monitoring and reporting by depositaries	344
5.1.2.	Indirect regulation of hedge funds through their depositaries	346
5.1.3.	Delegation of depositary functions	348
5.2.	Passport mechanism and regulatory arbitrage	350
	Conclusion	352
	CONCLUSION	356
1.	Hedge funds and market failure	356
2.	Contribution of hedge funds to financial instability	358
3.	Hedge fund regulation: Direct v. indirect regulation	360
4.	Hedge fund regulation in the U.S.	361
5.	The indirect regulation of hedge funds in the U.S.	364
6.	The AIFMD and the regulation of hedge funds in the EU	366
	SUMMARY	370
	BIBLIOGRAPHY	372

LIST OF ABBREVIATIONS

AIF	Alternative Investment Fund
AIFM	Alternative Investment Fund Manager
AIFMD	Alternative Investment Fund Managers Directive
AIMA	Alternative Investment Management Association
AMEX	American Stock Exchange
ASB	Accounting Standards Board
ATSA	Aviation and Transportation Security Act
AUM	Assets under Management
BCBS	Basel Committee on Banking Supervision
BHC	Bank Holding Company
BVCA	British Private Equity and Venture Capital Association
CAR	Capital Adequacy Requirements
CDO	Collateralized Debt Obligation
CDS	Credit Default Swap
CFD	Contract-for-Difference
CFPB	Consumer Financial Protection Bureau
CFTC	Commodity Futures Trading Commission
CISDM	Center for International Securities and Derivatives Markets
CRD	Capital Requirements Directive
CRMPG II	Counterparty Risk Management Policy Group II
CTA	Commodity Trading Advisor
DMA	Direct Market Access
Dodd-Frank Act	Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010
ECB	European Central Bank
ECOFIN	Economic and Financial Affairs Council
ERISA	Employee Retirement Income Security Act
ERM	Exchange Rate Mechanism

ESMA	European Securities and Markets Authority
ESRB	European Systemic Risk Board
FATF	Financial Action Task Force
FCA	Financial Conduct Authority
FCM	Futures Commission Merchant
FDIC	Federal Deposit Insurance Corporation
Fed	Federal Reserve
FHC	Financial Holding Company
FINRA	Financial Industry Regulatory Authority
FIR	Full-industry Regulation
FOIA	Freedom of Information Act
FSA	Financial Services Authority
FSF	Financial Stability Forum
FSOC	Financial Stability Oversight Council
FTC	Federal Trade Commission
G7	Group of Seven
GAO	Government Accountability Office
GP	General Partner
GSE	Government-sponsored Enterprise
HFACS	Hedge Funds as Counterparties Survey
HNWI	High-Net-Worth Individual
HFR	Hedge Fund Research
HSR Act	Hart-Scott-Rodino Antitrust Improvements Act of 1976 (Hart-Scott-Rodino Act)
ICAAP	Internal Capital Adequacy Assessment Process
IMA	Investment Management Association
IOSCO	International Organization of Securities Commissions
IPO	Initial Public Offering
ISFL	International Financial Services London
JOBS Act	Jumpstart Our Business Startups Act of 2012

LBO	Leveraged Buyout
LCFI	Large Complex Financial Institution
LCR	Liquidity Coverage Ratio
LLC	Limited Liability Company
LLP	Limited Liability Partnership
LOLR	Lender of Last Resort
LP	Limited Partner
LTCM	Long-Term Capital Management
LTF	Legal Theory of Finance
MBS	Mortgage Backed Security
MFA	Managed Funds Association
MiFID	Markets in Financial Instruments Directive
MMMF	Money-Market Mutual Funds
MSP	Major Swap Participants
NAPF	National Association of Pension Funds
NASDAQ	National Association of Securities Dealers Automated Quotations
NAV	Net Asset Value
NBFC	Nonbank Financial Company
NOW Account	Negotiable Order of Withdrawal Account
NSFR	Net Stable Funding Ratio
NSMIA	National Securities Markets Improvement Act
NYSE	New York Stock Exchange
OCC	Office of the Comptroller of the Currency
OFR	Office of Financial Research
OLA	Orderly Liquidation Authority
OTC	Over-the-counter
OTS	Office of Thrift Supervision
PBR	Principles-based Regulation
PIR	Partial-industry Regulation

PRA	Prudential Regulation Authority
Private Fund Act	Private Fund Investment Advisers Registration Act of 2010
PWG	President’s Working Group
RIA	Regulatory Impact Assessment
SEC	Securities and Exchange Commission
SIBHC	Systemically Important Bank Holding Company
SINBFC	Systemically Important Nonbank Financial Company
SIFI	Systemically Important Financial Institutions
SIV	Structured Investment Vehicle
SME	Mid-sized Enterprise
SOX	Sarbanes-Oxley Act of 2002
SRO	Self-regulatory Organizations
TBTF	Too-Big-To-Fail
TITF	Too-Interconnected-To-Fail
UCITS	Undertakings for Collective Investment in Transferable Securities
USA PATRIOT Act	Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001
VaR	Value at Risk

INTRODUCTION

The history of economic regulation is as long as the history of civilization itself. Historians' reports are replete with clashes between private enterprises and public intervention leading to pendulum swings of economic policies between private and free enterprises and centrally-planned economies.¹ The triggering events for reversing the direction of the pendulum have usually been failures of markets or governments² culminating in an economic or financial crisis. Indeed, it is an omnipresent feature of financial regulation that new regulations, though desperately needed, are not introduced until a dramatic event occurs. The procyclical nature of financial regulation is partly to be blamed for this particular attribute of government intervention. During periods of economic boom in which regulation is needed the most, building a political coalition for stricter regulation is hard to come by.³ Public reaction to regulations running counter to the demands of booming markets which enlarge the size of the economic pie⁴ will make regulators reluctant to "take away the punch-bowl, just when the party gets going".⁵ In other words, "introducing regulation during a boom is like fighting a preemptive war—there is very little political reward for it."⁶

¹ One of the earliest examples of the controversial debates about public and private power is documented in ancient Egypt where the Nile's passenger and freight traffic was under private management subject to state regulation. See Will Durant, *The Story of Civilization: Our Oriental Heritage*, Vol. 1, (New York: Simon & Schuster, 2011a). Such a dichotomy is also documented in ancient India, China (depicted in the ideologies of Confucius vs. Lao Tse), Greece (Athens), and the Roman Empire. For more details, See Will Durant, *The Story of Civilization: The Life of Greece*, Vol. 2, (New York: Simon & Schuster, 2011b).

² Heidi Mandanis Schooner, "Private Enforcement of Systemic Risk Regulation," *Creighton Law Review* 43 (2010), pp. 1000-1004.

³ As the politician and philosopher of the late 15th and early 16th century, Niccolò Machiavelli, puts: "[I]t is a common defect in man not to make any provision in the calm against the tempest." See Niccolò Machiavelli, *The Prince*, trans. W. K. Marriott (Chapel Hill, North Carolina: The Project Gutenberg, 1515), Chapter XXIV, Chapter XXIV.

⁴ Luigi Zingales, "The Future of Securities Regulation," *Journal of Accounting Research* 47, no. 2 (2009), pp. 399-400

⁵ Markus Brunnermeier et al., *The Fundamental Principles of Financial Regulation: Geneva Report on the World Economy* (London: ICMB International Center for Monetary and Banking Studies, 2009), p. 63.

⁶ Zingales, *The Future of Securities Regulation*, pp. 399-400. The procyclicity of regulation stems from regulators' tendency to be 'time-inconsistent', or as it is sometimes called 'dynamic inconsistency'. In Loewenstein's terms, this is called 'empathy gap' or 'hot-cold empathy gap'. See George Loewenstein, "Because it is there: The Challenge of Mountaineering . . . for Utility Theory," in *Exotic Preferences: Behavioral Economics and Human Motivation*, ed. George Loewenstein (New York: Oxford University Press, 2007), 5-32. Regulatory time inconsistency has its roots in the politics of regulation. This time inconsistency partly stems from public pressure which is partly emanated from the (five-stage) 'issue-attention cycle' thorough which some social problems pass. See Anthony Downs, "Up and Down with Ecology: The Issue Attention Cycle," *Public Interest* 28, no. 1 (1972), 38-50.

In contrast, during financial crises - when regulation is needed the least - the political coalition can readily be made in its favor, because the demand for regulation is at its peak.⁷ Unfortunately, this time inconsistency comes at a hefty price. It often gives rise to the ‘boom–bubble–bust–regulate cycle’⁸ inhibiting “the healthy ventilation of issues that occurs in the usual give-and-take negotiations over competing policy positions, which works to improve the quality of decision-making”.⁹ History of financial regulation shows that the hasty and premature regulations, however benignly intended and crafted, are often counterproductive and replete with regulatory errors.¹⁰

In addition, rushed responses to financial crises often leave behind many unanswered, yet important questions. Not surprisingly, this was the case of the financial regulatory reforms after the global financial crisis.¹¹ Many questions being unanswered, these reforms changed the overall landscape of the hedge fund industry and its relationship with the rest of the financial system. In the cacophony of the crisis in which governments under the pressure of the popular discomfort tend to act, it is highly likely that the line between right and wrong, vice and virtue, and guilt and innocence become obfuscated. Indeed, in these times, the harms of rushing to find the culprits might outweigh that of forbearance and in many cases these immature reactions may target the financial institutions, strategies, and instruments that are essential to the well functioning of the economy.

The story of that fox fleeing with much trouble resembles this case, he was asked for the cause of his fear, he replied: ‘I have heard that camels are being forced into the unpaid service.’ They said: “O fool, what connection and resemblance hast thou with a camel? The fox rejoined: ‘Hush. If the envious malevolently say that I am a camel

⁷ Robert Higgs, *Crisis and Leviathan: Critical Episodes in the Growth of American Government* (New York: Oxford University Press, 1987).

⁸ John Braithwaite, *Regulatory Capitalism: How it Works, Ideas for Making it Work Better* (Northampton, MA: Edward Elgar Publishing, Inc., 2008), p. 35.

⁹ In addition, this cycle produces rushed regulatory reforms in financial markets, and leads to the so-called ‘quack corporate governance’. See *Ibid.* See also Roberta Romano, “The Sarbanes-Oxley Act and the Making of Quack Corporate Governance,” *The Yale Law Journal* 114, no. 7 (May, 2005), p. 1528.

For further discussion of this phenomenon in the context of the Dodd-Frank Act, See Stephen M. Bainbridge, “Dodd-Frank: Quack Federal Corporate Governance Round II,” *Minnesota Law Review* 95 (2011), 1779-1821.

¹⁰ For example, it is demonstrated that the Great Depression was prolonged by seven years by the introduction of new regulations. See Milton Friedman and Anna Jacobson Schwartz, *A Monetary History of the United States, 1867-1960* (Princeton: Princeton University Press, 1993).

¹¹ Bainbridge, *Dodd-Frank: Quack Federal Corporate Governance Round II*, 1779-1821. See also Romano, *The Sarbanes-Oxley Act and the Making of Quack Corporate Governance*, 1521-1611.

and I am caught, who will care to release me or investigate my case? Till the antidote is brought from Iraq, the snake-bitten dies.¹²

The introduction of new regulations in the aftermath of the global financial crisis was not an exception to the insight of the story. The enormity of the crisis and its economic and socio-political aftermaths were of such an extent that triggered dramatic shifts in financial regulation in general and hedge fund regulation in particular. Immediately after the financial crisis, economists started to rethink the foundations of their economic thought. The fruit of this revolution in thinking was a voluminous literature harbingering the return of depression economics.¹³ This mode of thinking in economics was almost forgotten by the economists some of whom were even calling for the end of depression-prevention economics.¹⁴ After the global financial crisis, however, conservatives conceded to ‘a failure of capitalism’,¹⁵ and liberals refueled their zeal towards more government intervention in the economy and called for ‘the return of depression economics’.¹⁶

Such academic shifts easily channeled into the policy-making debates. This shift was particularly highlighted in the context of hedge funds the regulation of which was for long on the regulatory agenda on both sides of the Atlantic. Such a paradigm shift eventually echoed in the U.S., leading to calls for hedge fund regulation the boldest and the most outspoken of which asserting that “[h]edge funds are not, should not be, and will not be unregulated”.¹⁷ Against such a hostile background, the sweeping waves of regulatory reforms were nigh.

This dissertation is to assess the potential contribution of hedge funds to systemic risk and financial instability and ascertain how to address such a problem. A hedge fund is a privately organized investment vehicle with a specific fee structure, not widely available to the public,

¹² See Sheikh Muslih-Uddin Sa’di Shirazi, *The Gulistan of Sa’di*, trans. Sir Edwin Arnold (New York: Cosimo Classics, reprinted 2007). Note that the geographical location of the story was Iran.

¹³ Paul Krugman, *The Return of Depression Economics and the Crisis of 2008* (New York: W.W. Norton & Company, Inc., 2009).

¹⁴ See Robert E. Jr Lucas, "Macroeconomic Priorities," *The American Economic Review* 93, no. 1 (2003), 1-14. There were other scholars who warned the coming of a crisis. For example, see Nouriel Roubini and Stephen Mihm, *Crisis Economics: A Crash Course in the Future of Finance* (New York: The Penguin Press, 2010).

¹⁵ Richard A. Posner, *A Failure of Capitalism: The Crisis of '08 and the Descent into Depression* (Cambridge: Harvard University Press, 2009).

¹⁶ Krugman, *The Return of Depression Economics and the Crisis of 2008*.

¹⁷ A Statement by the SEC Chairman Christopher Cox. See Christopher Cox (Chairman of the U.S. Securities & Exchange Commission), *Testimony Concerning the Regulation of Hedge Funds: Before the U.S. Senate Committee on Banking, Housing and Urban Affairs*, July 25, 2006).

aimed at generating absolute returns irrespective of the market movements, through active trading, and making use of a variety of trading strategies.¹⁸ Hedge funds' contribution to systemic risk is often materialized through systemic externalities. An externality exists wherever the activities (or inactions) of an agent influence the utility function or production possibilities frontier of another agent (third party) who neither pays nor receives any compensation for that effect.¹⁹ For an externality to be systemic, it should involve an event, or a financial risk which simultaneously affects a large number of financial institutions or the financial system at large,²⁰ and ultimately affects the real economy.²¹ In other words, these externalities put at risk the financial stability which is defined as the ability of the financial system "to facilitate economic processes, manage risk, and absorb shocks".²²

1. Problem definition

Since the thesis uses a problem-oriented methodology, it is apposite to expound on the problems that it endeavors to address. The main problem the thesis is to identify is whether hedge funds can become Systemically Important Financial Institutions (SIFIs). The query about the potential contribution of hedge funds to financial instability is a theoretical as well as an empirical inquiry. Therefore, the pivotal part of the thesis on which its theories should be based depends on the theoretical and empirical studies already conducted on potential contribution of hedge funds to systemic risk. The thesis will not conduct an independent study of the assessment of systemic importance of hedge funds. Rather, it will be confined to an overview of the existing literature on

¹⁸ Since the definition of hedge funds is not as straightforward as it seems to be, this definition will extensively be discussed in detail in the first chapter of the dissertation.

¹⁹ N. Gregory Mankiw, *Principles of Microeconomics*, 6th ed. (Mason, OH: South-Western, Cengage Learning, 2012), p. 196.

²⁰ Miquel Dijkman, "A Framework for Assessing Systemic Risk," *The World Bank Open Knowledge Repository* (2010), pp. 5-8.

²¹ See John Kambhu, Til Schuermann and Kevin J. Stroh, "Hedge Funds, Financial Intermediation, and Systemic Risk," *FRBNY Economic Policy Review* (2007), pp. 8-9.

To better understand the concept of systemic risk, it should be put in the context of the main objectives of a financial system. The main objective of the financial intermediation and financial system as a whole is to channel funds from surplus spending units (individuals and households) to deficit spending ones (firms). If an event or shock can affect this process, it is considered as a systemic event or shock. Needless to say, the shock to this process will deprive the firms from access to credit and will affect the real economy. The concept of systemic risk will be examined in the second chapter of this dissertation.

²² Alessio M. Paces and Heremans Dirk, "Regulation of Banking and Financial Markets", in *Forthcoming in 'Regulation and Economics' in Encyclopedia of Law and Economics*, ed. Paces, Alessio, M. & Van den Bergh, RJ, 2nd ed. (Cheltenham: Elgar, 2011), p. 2.

the data and empirical studies about the industry to provide an explanation to the question of hedge funds' destabilizing effects on the overall financial system.

To encounter the problem of identifying potential contribution of hedge funds to financial crisis, the focus will be on four major determinants: 1) hedge funds' size; 2) their level of leverage; 3) their interconnectedness with Large Complex Financial Institutions (LCFIs); and 4) their potential herding behavior. Although hedge funds can become systemically important because of their size, the data suggest otherwise. Additional factor that can give rise to systemic importance of hedge funds is their level of leverage. Again, the data show that compared with the mainstream financial institutions, the leverage of hedge funds is modest.

The third and one of the most important concerns about hedge funds is their interconnectedness with LCFIs. With increasingly sophisticated financial innovations and especially securitization, from which more interconnectedness in the financial system ensues, the risks of hedge funds can easily be transferred to the overall financial system.²³ In other words, the risks associated with hedge funds might not be limited to themselves. To name a few, speculation in credit default swaps, their highly leveraged positions in financial derivatives, and large volume transactions in the subprime mortgages are examples of mechanisms and strategies which can potentially distribute the risks of hedge funds to the overall financial markets.²⁴ Although this risk distribution is economically efficient and can produce huge benefits for individual firms, it is not known whether such distribution of risks would decrease the level of overall risk in the financial markets.

Last but not least, the fourth main problem affecting the potential contribution of hedge funds to financial instability is their herding behavior. Herding happens when funds mimic other funds or financial institutions while their own private information or proprietary models suggest otherwise.²⁵ Finding of any one of the above-mentioned four determinants of the potential

²³ Brunnermeier et al., *The Fundamental Principles of Financial Regulation: Geneva Report on the World Economy*, p. 8.

²⁴ Martin F. Hellwig, "Systemic Risk in the Financial Sector: An Analysis of the Subprime-Mortgage Financial Crisis," *De Economist* 157, no. 2 (2009), pp. 138-139.

²⁵ See Christopher Avery and Peter Zemsky, "Multidimensional Uncertainty and Herd Behavior in Financial Markets," *The American Economic Review* 88, no. 4 (Sep., 1998), 724-748.

They argue that herd behavior occurs due to asymmetric information among traders or investors when trades are sequential. Although the standard economic theory, based on the efficient market hypothesis claims that the price

contribution of hedge funds to financial crisis can provide a justification for their regulation based on the systemic externality argument.

Nevertheless, making such assessments about hedge funds is not without difficulty. The first challenge is to assess hedge funds' potential contribution to financial instability. One of the major obstacles to making such an assessment is hedge funds' opaqueness or transparency deficit. Such challenges were highlighted particularly prior to the new waves of regulatory reforms. This opaqueness is mostly attributable to the fact that hedge funds are not listed companies and they raise capital through private placement mechanisms. Thus, they were not subject to mandatory registration and disclosure requirements similar to those imposed on public companies.²⁶ Taking this into account, the data on the hedge fund industry are not readily available. The lack of reliable data, in turn, creates many ambiguities about the available data and the empirical analyses conducted thereupon. However, the prospect for the future studies on hedge funds is much brighter. This is because of the introduction of new regulations which requires registration and disclosure on both sides of the Atlantic.

Having identified the systemic implications of the hedge fund industry, the next step is to formulate strategies to address its systemic implications. Since the regulations introduced after the global financial crisis are the first regulations that attempt to systematically regulate the hedge fund industry, there is a huge controversy about their effectiveness as well as their welfare effects.

In addition to the problems associated with the assessment of hedge funds' systemic importance, there exists an additional challenge to the thesis which concerns the definition of hedge funds.²⁷ Hedge funds are a product of the legal and financial innovation of the 20th century. It is well acknowledged that one of the driving forces behind financial innovation has been financial

mechanism assures that the long-run choices are optimal and the herd behavior is impossible, the driving force behind herd behavior is that in an imperfect or asymmetric information setting, people may rationally take into account the information revealed or signals sent by others' action.

²⁶ For a discussion of the hedge fund opaqueness and how it affects this financial entity and other financial intermediaries behavior towards them, See Richard Horwitz, *Hedge Fund Risk Fundamentals: Solving the Risk Management and Transparency Challenge*, 1st ed. (Princeton, NJ: Bloomberg Press, 2004), pp. 167-176.

²⁷ Note that the above definition of hedge fund is just a working definition.

regulation.²⁸ Indeed, some of these innovations were “designed to keep regulators in the dark”.²⁹ For example, problems in hedge funds’ legal definition can render regulatory attempts to address their potential systemic risk ineffective. Hedge funds have an established notoriety for placing themselves out of regulatory purview and circumventing regulations by relying on legal technicalities and definitions. In fact, hedge funds are defined by regulatory exemptions and by making room for themselves in the hodgepodge of general rules and exemptions thereof.³⁰ This means that they are defined by reference to what they are not, rather than to what they are.³¹ As it will be shown, such definitional problems create vast opportunities for hedge funds to engage in regulatory arbitrage.

In addition, the dynamism of hedge funds increasingly widens the gap between the reality of hedge funds and their etymological roots. The term ‘hedge fund’ by itself can provide no clue to its appropriate regulatory definition. In addition, the responsive strategies of hedge funds to regulation induce every ‘otherwise non-hedge fund investment pool’ to circumvent the restrictions of regulation by taking refuge under the exceptions that define hedge funds. This move to acquire hedge fund status and make use of statutory exemptions increased the heterogeneity of the funds bearing the hedge fund brand-name.³² Therefore, the term hedge fund applies to many heterogeneous funds with vastly heterogeneous investment strategies complying with the letter of the law. This fact about hedge funds should be taken into account in devising

²⁸ Merton Miller, "Financial Innovation: The Last Twenty Years and the Next," *Journal of Financial and Quantitative Analysis* 21, no. 4 (1986), 459-471. See also Frank Partnoy, "Financial Derivatives and the Costs of Regulatory Arbitrage," *Journal of Corporation Law* 22, no. 2 (1996), pp. 227-228.

²⁹ Jean Tirole, "Lessons from the Crisis," in *Balancing the Banks: Global Lessons from the Financial Crisis*, eds. Mathias Dewatripont, Jean-Charles Rochet and Jean Tirole, trans. Keith Tribe (Princeton, New Jersey: Princeton University Press, 2010), p. 29.

In the same vein, one of the motivating factors of establishing a hedge fund is to form the fund to avoid certain regulatory requirements. Liberal legal and regulatory infrastructure, lenient and loose regulations, and idiosyncratic governance structure opened vast opportunities for hedge funds to take advantage of several innovative strategies which are generally prohibited for other financial market participants. The problems with hedge fund definition come to spotlight in the empirical studies conducted on hedge funds. These studies even cannot agree upon the number of hedge funds within one jurisdiction and in a certain time span or a specific point on time.

³⁰ For more details about how hedge funds could take advantage of regulatory loopholes. See chapter 4 of this thesis.

³¹ *Goldstein v. SEC*, 451 F.3d 873, 884 (D.C. Cir. 2006). See also Gordon De Brouwer, *Hedge Funds in Emerging Markets* (Cambridge: Cambridge University Press, 2001), p. 10.

³² For example, Payne criticizes the Alternative Investment Fund Managers Directive (AIFMD) for failing to adequately differentiate between hedge funds and private equity funds in regulating these two different types of alternative investment funds. See Jennifer Payne, "Private Equity and its Regulation in Europe," *European Business Organization Law Review* 12, no. 4 (2011), p. 584. See also Jacob Rothschild, "Europe is Getting it Wrong on Financial Reform," *Financial Times* April 20, 2010. Arguing that the then proposed AIFMD cast its regulatory net so wide that it captured other firms such as investment trusts in Britain.

regulatory requirements. Since hedge funds are not a pool of homogenous financial institutions, one-size-fits-all regulatory measures are to be avoided.

2. Research questions

Based on the above-mentioned problems and potential contribution of hedge funds to financial instability, the key question of this research is: what is the optimal regulation of hedge funds? Since understanding the optimal regulatory strategies for addressing a problem requires not only the knowledge of the problem itself, but also the regulatory measures introduced to address such problems, this investigation is divided into three main research questions.

1. What are the contributions of hedge funds to financial instability?
2. What is the optimal regulatory strategy to address the potential contribution of hedge funds to financial instability?
3. Do the new regulations in the U.S. and the EU address the contribution of hedge funds to financial instability while conforming to the efficiency criterion?

The first question involves hedge funds' alleged role in financial instability. Since it is assumed that only systemic risk contributes to financial instability, the thesis will be limited to the study of the potential contribution of hedge funds to systemic risk. Explicitly put, the first question of the thesis is whether hedge funds contribute to financial instability or not. In other words, can hedge funds be considered SIFIs? To answer this question, first, the concept of systemic risk will be clarified. Second, the thesis will study potential market failures in the financial system with a specific focus on the systemic externalities stemming from the hedge fund industry and flowing through contagion channels to LCFIs and the real economy.

The second question is how to address the externalities of hedge funds from a law and economics perspective. The study of public policy responses to hedge funds' alleged contribution to systemic risk, and whether such responses can proportionately and adequately address the dangers of hedge funds for the financial markets is at the core of this dissertation. This general question boils down to many smaller and more specific questions. Should there be a public policy response or private/market mechanisms (market-based incentive-compatible mechanisms) in place to deal with the potential contribution of hedge funds to financial instability, or should

hybrid mechanisms be made use of? If public, of what type and nature should the public policy responses be? The answers might include an array of mechanisms, from taxation and regulation, to corporate governance mechanisms.

Further specific questions in this domain are related to the role of financial regulation in addressing the systemic implications of hedge funds. Given hedge funds' role in financial instability, a primary sub-question is what regulatory strategies and instruments are appropriate to cope with the systemic risk of hedge funds. Answering this question requires a brief conceptual study of regulatory strategies and measures appropriate for addressing systemic risk. In this regard, the concept of direct and indirect regulation will be introduced and the primacy of indirect regulation over direct regulation in addressing potential contribution of hedge funds to financial instability will be discussed.

As of this writing, new regulations were introduced on both sides of the Atlantic to address the perceived systemic implications of hedge funds. This thesis investigates the recent regulatory developments in the hedge fund industry. An important legal question is what type of regulatory strategies and instruments were introduced in the U.S. and the EU for regulating hedge funds. Is there any substantial difference between hedge fund regulation in the U.S. and the EU? If so, what are these differences and why do they matter? Which regulatory regime can best address the systemic risk of the hedge fund industry? To answer these questions, the thesis will take an additional step to analyze the EU and the U.S. public policy responses to systemic implications of hedge funds. Answering these questions will involve a systematic review of financial regulatory overhaul in the U.S. and the EU aimed at identifying and analyzing the rules that deal with the systemic risk of hedge funds. Therefore, a comparative analysis of the U.S. and the EU post-crisis regulatory framework will follow.

3. Methodology

The methodology of the thesis is driven by its research questions. The questions of the thesis first involve the factual assessment about the contribution of the hedge fund industry to financial instability. In this regard, there are several major questions to be investigated by the empirical, statistical, or econometric studies about potential contribution of hedge funds to financial

instability. However, due to the opaqueness of the industry, these questions are not readily subject to scientific investigation. Hence, assessing the alleged contribution of hedge funds to financial instability is not straightforward. The bigger problem is that without making such an assessment, further steps can hardly be taken to hypothesize, theorize, and regulate or perhaps relax the regulatory requirements already in place for hedge funds.

Since the research on the systemic risk of hedge funds and the public policy responses to such risk is at the crossroad of different disciplines such as law, economics, and finance, it will be indispensable to employ the methodologies used in all of these disciplines. Therefore, the research will require the positive analysis (analytical approach) as commonly used in economics and finance alongside the normative analysis as mainly used in law and public policy.³³ In the descriptive part or positive analysis, on the one hand, the empirical and analytical research conducted by economists, corporate analysts, and econometricians will be surveyed. On the other hand, the lawyers' and economists' normative valuations of the hedge fund industry and general principles of the regulation of financial institutions, as well as the rules, regulations, and guidelines issued by the international financial institutions and organizations will constitute the normative or prescriptive part of the research.

Nonetheless, the legal analysis in the thesis will be heavily dependent on data. That is why the first two chapters of the thesis deal with the question whether hedge funds in reality can be systemically important. Since the thesis becomes a policy-oriented work mainly starting from the third chapter, the mode of reasoning will be changed from the positive analysis to the normative one, as it is typically the case in law and economics.³⁴ Therefore, both normative and positive analyses will go hand in hand through the entire research.

³³ See Jan M. Smits, "Law and Interdisciplinarity: On the Inevitable Normativity of Legal Studies," *Critical Analysis of Law* 1, no. 1 (2014).

Therefore, this research will require both descriptive and prescriptive approaches to the problems stemming from the hedge fund industry.

³⁴ "The positive (i.e., descriptive) statements of science can be restated as syllogisms of formal logic. Solid syllogistic reasoning leads to each scientific conclusion, making it either true or false. Interpretation and law making, however, are focused on what the law should be, that is, on normative conclusions. Normative conclusions cannot be treated as true or false. In the language of logic they are not truth valued." See Nicholas L. Georgakopoulos, *Principles and Methods of Law and Economics: Basic Tools for Normative Reasoning* (New York: Cambridge University Press, 2005), pp. 11-12.

In sum, in the descriptive part, the thesis will be limited to surveying the existing literature which endeavors to assess the hedge fund industry's impact on financial markets by observation and measurement, hypothesizing, and testing the hypotheses. The aim of the thesis, however, is not to stop in the positive economics which involve "what is", but it is to take a step forward to study "what ought to be". Since normative economics cannot be independent of positive economics,³⁵ any policy recommendations proposed in the thesis will, to the extent possible, be based on the empirical studies and their implications for hedge fund regulation. In other words, the policy conclusions of the thesis will depend on the predictions about alternative policy recommendations. Such predictions will necessarily be based on positive economics.³⁶

It follows that the analyses in the thesis will be of consequentialist nature. Thus, the merits of the relevant regulations will be evaluated in terms of the ability to accomplish the intended goals. Such an analysis will clear the way for the cost-benefit analysis. Therefore, the traces of the cost-benefit analysis would be found everywhere in the thesis. The goal is to have a regulatory framework maintaining financial stability at the least cost to the efficient functioning of financial markets. Based on that framework, the third chapter of the thesis will provide a normative framework for amending and improving the present financial regulatory framework of hedge funds with an eye to the balance between efficiency and stability.

The role of law in shaping financial markets will be central to the analysis of the thesis in particular in the chapters studying the regulatory structure of financial markets within which hedge funds are operating. Therefore, on the normative side of the analysis, special attention will be paid to the Legal Theory of Finance (LTF). Focusing on the role of law in financial markets, the LTF posits that the financial markets are legally constructed. It introduces the law-finance paradox which holds that in times of financial crises, if the legal commitments are fully enforced, they would result in the self-destruction of the financial system. Therefore, the enforcement of laws in such times is relaxed (law is elastic). In other words, the laws have less enforcement power when they are applied to the institutions at the apex of the financial system (SIFIs) than when they are applied to the institutions at the periphery (this is also called the idea of the

³⁵ Milton Friedman, "The Methodology of Positive Economics (1953)," in *The Methodology of Positive Economics: Reflections on the Milton Friedman Legacy*, ed. Uskali Mäki (New York: Cambridge University Press, 2009), pp. 4-5.

³⁶ *Ibid.*

hierarchy of finance).³⁷ Although this theory is characterized as an inductive theory, it has normative implication for regulating financial institutions.

The insights from the LTF will be employed particularly in the design of regulatory strategies to deal with the hedge funds that can be designated as Systemically Important Nonbank Financial Companies (SINBFCs) in the context of the U.S. regulatory framework. This framework of analysis will also be useful in analyzing the prospect of bailouts for banks and the moral hazard aspects of implicit and explicit government guarantees to banks which can affect the risk-taking behavior in the hedge funds cross-subsidized by banking entities. The strategies for addressing such problems can also greatly benefit from insights of the LTF literature.³⁸

Assumptions are the inevitable part of any economic method. Although the thesis will try to minimize the number of assumptions in order not to lose sight of the reality, there will be certain circumstances under which the complexity of the relationships between financial market participants limits the focus to a few attributes which are important to the analysis. Therefore, to reduce the complexity of the analysis, and make the reality of financial markets the subject of a scientific inquiry, Ockham's razor will inevitably be used to strip away the facts of secondary importance.³⁹

Although the thesis will benefit from the existing empirical literature based on the limited available data, it will mainly use qualitative methods to answer the main questions of the thesis. The lack of reliable data is due to a number of specific attributes of the hedge fund industry. To name a few, absence of an agreed-upon definition of hedge funds, a central registration authority for hedge funds prior to the global financial crisis, a registration requirement in major economies of the world, and the absence of information disclosure requirements are among the attributes of the industry that posed serious limitations on the empirical inquiries about hedge funds. In particular, the absence of registration requirement for hedge funds was the most challenging problem regarding hedge fund regulation. A review of empirical literature on hedge funds clearly shows that there is no agreement among scholars about the number of hedge funds within the same time span and within a specific jurisdiction. Although there were voluntary disclosure

³⁷ Katharina Pistor, "A Legal Theory of Finance," *Journal of Comparative Economics* 41 (2013), 315-330.

³⁸ The study of regulatory arbitrage by the hedge fund industry will benefit from insights of the game theory.

³⁹ Klaus Mathis, *Efficiency Instead of Justice?: Searching for the Philosophical Foundations of the Economic Analysis of Law*, trans. Deborah Shannon, Vol. 84, Springer, 2009), p. 14.

mechanisms in place even prior to recent financial regulatory overhaul and some hedge funds opted for disclosure, the disclosed data were of limited use because of their embedded statistical biases due to the voluntary nature of the disclosure requirements.⁴⁰

In short, as far as the data on hedge funds are concerned, the available is not reliable, and the reliable is not available. At least, this is the current situation. Therefore, this thesis will not exclusively focus on the empirical studies conducted on hedge funds; rather, it will mainly focus on the theoretical aspects of risk sharing characteristics of hedge funds. This implies that the thesis will mostly use deductive rather than inductive methods of reasoning. Nevertheless, the existing data will be used wherever considered adequately reliable and scaled to their biases and distortions.

The two final chapters of the thesis will engage in comparative study of the U.S. and the EU hedge fund regulatory framework. However, the novelty of the topic, because of the introduction of new financial regulatory measures for hedge funds on both sides of the Atlantic, poses several challenges to the assessment of the effects of the financial regulatory overhaul of hedge fund regulatory framework. Hence, the lack of data on the impact of the new regulatory measures will limit the study of newly enacted laws and regulations to a theoretical and qualitative assessment.

4. Scope and limitations of the research

In addition to the specific features of hedge funds as financial institutions, the focus of the thesis will be on their investment strategies which have important consequences for the distribution of risks to other sectors of the financial system and hence contribution of hedge funds to financial instability. Other aspects of the industry, which are less important for the risk characteristics of the hedge fund industry, such as their structure and governance mechanisms will be studied only where necessary. For example, concerns about hedge fund managers' compensation will not be covered unless they have a relationship with the systemic implications of the industry. However, if certain features in the governance or legal structure of hedge funds might create perverse

⁴⁰ Further difficulty about hedge funds' data exists because of the existence of entities such as fund of hedge funds which might sometimes result in double-counting in hedge fund returns and their risk assessment.

incentives, and hence might affect the strategies and risk-taking behavior of hedge fund managers, they will be included in the analysis.

There is a whole host of problems and concerns related to hedge funds. For example, one of the most popular problems about hedge funds is fraud. The transparency deficit and information asymmetry between hedge fund managers and their investors provide opportunities for fraud and give rise to investor protection concerns. Some information about the relationship of hedge funds with their investors are of particular concern, such as the information related to the existence of gates,⁴¹ side pockets,⁴² side letters,⁴³ specific fee structure, and redemption terms. However, the risks to the investors will be excluded from the scope of the thesis upon the assumption that the investors in hedge funds are adequately sophisticated or have enough financial means to fend for themselves. In addition, risks to investors are not externalities because of the existence of contractual relationships between hedge funds and their investors. Nonetheless, where information asymmetry, particularly between hedge funds and their regulators or their major counterparties is considered systemically relevant, it will be covered.

The main problem of the thesis is to ascertain whether hedge funds contribute to the financial instability. To understand the potential contribution of hedge funds to the financial instability, having a system approach to the hedge fund industry within the financial system is a must. Therefore, the scope of the thesis will not be limited to the hedge fund industry itself. To the extent related to the systemic implications of hedge funds, the banking industry and money markets will occasionally appear in the thesis.

The comparative study of hedge fund regulation will be limited to the comparison of the EU and the U.S. hedge fund regulatory regimes. This is because of the size and the number of hedge funds that are established in these two jurisdictions. The hedge fund industry is geographically

⁴¹ To prevent runs on hedge funds by investors, hedge fund managers often use gates or gate provisions which are restrictions on hedge fund investors intended to limit the amount of withdrawals from the fund during a redemption period.

⁴² Side pocket arrangements are referred to mechanisms to segregate parts of a hedge fund's assets to be invested in illiquid and hard to value projects or investments. The assets allocated to the side pockets cannot be redeemed unless the returns on the projects or investments are realized or they become liquid marketable securities again.

⁴³ Side letters are used to sidestep the terms of offering documents (private placement/private offering memorandum). These arrangements allows for differential treatment of investors in a hedge fund. Namely, certain investors in a fund can obtain more favorable rights or entitlements than other investors in terms of the information to be disclosed to investors, amounts of fees, liquidity (lock-up periods), and the most favored nation (MFN) clause.

concentrated and it is estimated that more than \$1 trillion of the AUM is managed by the U.S. hedge funds, about \$325 billion is managed by European hedge funds, and \$115 billion is managed in Asia.⁴⁴ In 2008, about 75% of all hedge fund assets were managed by the U.S. funds, while around 15% of assets were managed by the European hedge funds.⁴⁵ These data show the significance of the U.S. hedge fund industry.⁴⁶ Therefore, almost any regulatory changes in the U.S. will have a dramatic impact on the industry. The second largest jurisdiction for hedge funds is the EU. The recent regulatory initiatives seeking to harmonize hedge fund regulation across the Member States makes the EU a good candidate for the purposes of comparison to the U.S. regulatory framework of hedge funds.

In addition, both of these jurisdictions started engaging in almost the same debate about hedge fund regulation after the global financial crisis. However, in addressing risks emanating from hedge funds, they chose slightly different regulatory paths. Hence, the comparison of these two jurisdictions indeed enriches the thesis, because the EU and the U.S. can be seen as excellent counterfactuals for the purposes of comparison. Other jurisdictions, particularly, the British Virgin Islands, the Cayman Islands, the Islands of Bermuda, and the Channel Islands will not be covered due to their smaller size and limited impact for the global hedge fund industry.

5. Structure of the dissertation: A roadmap

It is apt here to provide a synopsis of the arguments, key themes, and ideas that unites the thesis. This will help connect the dots and concepts introduced in each chapter and will provide the big picture of the overall thesis. The following roadmap also explains the key concepts, and the basic theories of the thesis.

The first chapter discusses the justifiability of the arguments for and against hedge fund regulation. It deals with the question whether hedge funds should be regulated at all or should go

⁴⁴ Roger Ferguson and David Laster, "Hedge Funds and Systemic Risk," in *Financial Stability Review; Special Issue, Hedge Funds*, ed. Banque de France, 2007), p. 46.

⁴⁵ David Stowell, *An Introduction to Investment Banks, Hedge Funds and Private Equity: The New Paradigm* (Burlington, MA: Elsevier, 2010), p. 204.

⁴⁶ Indeed, hedge funds are essentially considered as an Anglo-American phenomenon. It is estimated that the U.S. and the UK host almost 90 percent of hedge fund managers. See Andreas Engert, "Transnational Hedge Fund Regulation," *European Business Organization Law Review* 11, no. 03 (2010), pp. 364-365.

free of regulation. The chapter starts with a standard law and economics approach, which posits that the government intervention is only justified if there is a market failure. Therefore, the basic assumption is that the resource allocation by market mechanisms, under certain assumptions, is optimal (the first fundamental theorem of welfare economics). Accordingly, to develop an argument for possible market failures, the concept of market failure is briefly studied. It is shown that market failure has three distinct sources; incomplete information, imperfect competition, and externalities, including systemic externalities. In line with the above-mentioned theorem, namely the first fundamental theorem of welfare economics, the possibility of market failures in the hedge fund industry and its overall activities within and across markets will be discussed.

The second chapter addresses one of the most controversial issues in the regulation of hedge funds, namely their potential contribution to financial instability. In this chapter, the aim is to study the relevance of hedge funds to systemic risk and ascertain if they can potentially contribute to financial instability. The theoretical models and the empirical findings will be molded in the conceptual framework of this chapter to underlie and reinforce the arguments to be made for or against hedge fund regulation.

The second chapter also takes the following steps to study relevance of hedge funds to the systemic risk and financial instability. In the first step, the study of the notion of SIFI deserves special attention. The aim is to assess whether a hedge fund as an individual entity can become a SIFI. This topic will also include hedge funds falling under the rubric of the too-big-to-fail (TBTF). The question is whether hedge funds are or can potentially become TBTF, or their potential for taking unlimited leverage can make them TBTF. Therefore, two main considerations in studying individual hedge funds as being systemically important are their size and their level of leverage.

The third important consideration is the interconnectedness of hedge funds with LCFIs. Studying the interconnectedness requires special attention to be paid to the role of financial instruments and strategies and their potential for connecting the financial institutions to each other. However, this study will be limited to the role of counterparty risk as a venue for creating systemic risk. In this regard, the relationship between hedge funds and prime broker-dealers deserves special attention. Therefore, the third consideration would be whether hedge funds can potentially become too-interconnected-to-fail (TITF).

The fourth element in studying hedge funds and their importance for financial stability involves hedge funds' potential herding behavior. This part of the chapter two will survey the existing theoretical and empirical studies on hedge funds' herding to establish whether hedge funds are prone to herding. In addition, special attention will be paid to contagion channels while studying the TITF, and herd behavior in the hedge fund industry.

The third chapter studies regulatory strategies and instruments for addressing the potential systemic risk of hedge funds. Due to the implications of the choice of regulatory strategies and instruments in terms of mitigating systemic risk, it focuses on one critical aspect of hedge fund regulation, i.e., direct regulation vs. indirect regulation. Having defined the dichotomy of direct and indirect regulation and mapped its relationship with regulatory techniques and instruments, the arguments for and against direct and indirect regulation of hedge funds are analyzed. It is argued that the indirect regulation of hedge funds through their counterparties and creditors, while being less costly, can specifically better address hedge funds' regulatory arbitrage and potential systemic risk. This policy recommendation is further supported by the economic and organizational structure of hedge funds and differences in the number and composition of their counterparties and creditors.

The first three chapters of the book discuss the potential market failures, systemic risk, and also the regulatory strategies to address those problems. The fourth, fifth, and sixth chapters include a comparative study of hedge fund regulation in the U.S. and the EU. The fourth chapter studies the U.S. direct regulatory measures to address potential contribution of hedge funds to financial instability. The fifth chapter discusses indirect measures to deal with potential systemic risk of hedge funds in the U.S. The sixth chapter investigates the regulation of potential contribution of the hedge fund industry to systemic risk in the EU.

The first part of the fourth chapter will briefly sketch the regulatory environment for hedge funds in the U.S. prior to the enactment of the Dodd-Frank Act.⁴⁷ Then, the second part will analyze

⁴⁷ The U.S. "Dodd-Frank Wall Street Reform and Consumer Protection Act" (the Dodd-Frank Act) was signed into law on July 21, 2010. This Act triggered massive regulatory reforms and resulted in a major overhaul of the regulatory environment of the U.S. financial markets. The main objectives of the Dodd-Frank Act is to promote "the financial stability of the United States by improving accountability and transparency in the financial system, to end 'too big to fail,' to protect the American taxpayer by ending bailouts, [and] to protect consumers from abusive financial services practices." To promote the financial stability and address the systemic risk, the Dodd-Frank Act introduces far-reaching provisions focused on the macro-prudential regulation of financial institutions. This

the relevant provisions of the Dodd-Frank Act intended to address the potential contribution of hedge funds to financial instability with direct regulatory measures. On the one hand, these measures mainly address the information problems in the hedge fund industry through the imposition of registration and disclosure requirements on hedge funds and collection of systemic risk data. On the other hand, as another direct regulatory measure, the Dodd-Frank Act requires the Federal Reserve (Fed) to impose prudential regulation for hedge funds contingent upon their designation as SINBFCs by the Financial Stability Oversight Council (FSOC).

The fifth chapter of the thesis will discuss the indirect regulatory measures crafted to address the potential systemic risk of hedge funds. The main focus of this chapter will be on the Volcker Rule which is a part of the post-financial crisis regulatory reforms aimed at addressing problems associated with the interconnectedness of hedge and private equity funds with LCFIs through prohibiting proprietary trading and banking entities' investment in and sponsorship of hedge and private equity funds. The remaining of the fifth chapter will discuss miscellaneous indirect regulatory measures in the Dodd-Frank Act whose objective is to mitigate the potential systemic risk associated with hedge fund operations. In this part, the focus will be on the provisions of the Dodd-Frank Act that address the concerns arising from the interconnectedness and herding behavior of hedge funds. In this regard, the leverage and portfolio liquidity requirements will be surveyed. Then, the margins for trades in derivatives and collateral requirements aimed at preventing hedge fund herding will briefly be discussed. Finally, the potential self-regulatory measures for addressing hedge funds liquidity and leverage requirements will be examined.

The sixth chapter discusses the regulatory approach to hedge funds in the EU. In the aftermath of the financial crisis, hedge fund regulation was put at the top of European regulators' agenda for the alleged contribution of hedge funds to financial instability. This chapter studies the recently enacted Alternative Investment Fund Managers Directive (AIFMD) in the EU and its attempt to cope with contribution of hedge funds to financial instability in the EU.

The legislative process of the AIFMD suggests that hedge fund regulation in the EU was a politically motivated overreaction to their perceived contribution to financial instability. The

dissertation will focus on the hedge fund-related provisions of the Dodd-Frank Act, particularly its Title IV, Private Fund Investment Advisers Registration Act, the Volcker Rule embedded in the Title VI, as well as the provisions of the Title I regarding the "Enhanced Supervision and Prudential Standards for Nonbank Financial Companies".

main objective of the Directive seems to be the creation of a single market for Alternative Investment Funds (AIFs) rather than addressing systemic risk. The EU regulators' emphasis on the investor protection can also be understood in light of creating a single European market for financial services. Despite the fact that the impetus for the enactment of the AIFMD was mostly the concerns about hedge funds' systemic aspects and their contribution to the financial instability, hedge fund regulation in the EU only marginally addresses systemic risk concerns and more in general, the risks that hedge funds can potentially pose to financial stability.

The sixth chapter also sheds light on the potential future regulations supplementing the AIFMD and the possible future amendments thereto. This chapter argues that the EU's regulatory policy towards hedge funds, particularly in areas involving the direct regulation of hedge funds because of investor protection concerns, should be revised. Instead, the regulatory focus should be shifted towards indirect regulation of hedge funds targeting their interconnectedness with LCFIs and their potential herd behavior. Otherwise, it is suggested that with the high level of protection offered to the investors in the AIFs, the Directive and its implementing measures, or the competent authorities of the Member States can lightly relax the statutory requirements for the investment by retail investors in hedge funds.

Notwithstanding the extraordinary high rate of obsolescence of legal studies of the financial markets due to the introduction of new rules and regulations at a fast pace, the theoretical foundations and the framework of analysis are expected to be the lasting feature of this dissertation. In other words, this thesis is essentially an analysis of a snapshot of an ongoing stream of regulations and could only be useful for a certain period of time. However, the framework and the law and economics insights used to study these specific laws and regulations will not hopefully be lost to the winds of time.

CHAPTER 1: HEDGE FUNDS AND MARKET FAILURE: A NEED FOR REGULATION?

Introduction

In the aftermath of the financial crisis, the quest for bringing the hedge fund industry under official oversight, scrutiny, and regulation gained momentum. In addition, a chain of hedge fund related events reinforced the argument for government regulatory intervention. Yet, the theoretical underpinnings of interventionist approach contain several fundamental and open-ended questions.

In this chapter, after providing a definition of hedge funds and analyzing their role in financial markets, the plausibility of the arguments for and against hedge fund regulation will be discussed. In so doing, the first fundamental theorem of welfare economics, which posits that the resource allocation by market mechanisms, under certain assumptions, is optimal, is the starting point of the analysis. Accordingly, to develop an argument for possible market failures, the concept of market failure is briefly studied. It is shown that market failure has three distinct sources; incomplete information, imperfect competition, and externalities including systemic externalities. In line with this approach, the possibility of market failures in the hedge fund industry and their overall activities within and across markets will be discussed.

1. What is a hedge fund? The challenge of definition

Should you ask me to identify God or his nature, I shall cite Simonides as my authority: when the tyrant Hiero posed the same question to him, he asked for a day's grace to consider it privately, and when Hiero put the same question to him next day, he begged two days' grace. After doubling the number of days repeatedly, and being asked by Hiero why he did this, he answered: "The longer I ponder the question, the darker I think is the prospect of a solution."¹

The term 'hedge fund' in itself is an ambiguous term and needs clarification. It was first coined by Carol J. Loomis in an article of 1966 discussing the structure and investment strategies of the

¹ Cicero, *The Nature of the Gods*, trans. P.G. Walsh (Oxford: Oxford University Press, 1997), p. 23.

investment vehicle originally created in 1949 by Alfred W. Jones.² Prior to the regulatory reforms following the global financial crisis, there was no statutory definition for hedge funds.³ Indeed, hedge funds were essentially the product of statutory and regulatory exemptions and were negatively defined by reference to what they were not, rather than to what they were.⁴

Hedge funds as one of the financial market participants play many roles of intermediation, risk management, and allocation of funds. Though recent, they are at the forefront of the investment industry. Both hedge funds and other mainstream investment companies are collective investment vehicles which manage pools of securities on behalf of their investors. Therefore, from a functional standpoint, hedge funds can hardly be distinguished from traditional investment companies.

To have a better understanding of hedge funds, they have to be viewed in light of their similarities with and differences from other financial institutions. In general, compared with other mainstream financial institutions, hedge funds are more lightly regulated. Indeed, the first distinguishing feature of hedge funds which contributes to their relative success is the lack of legal and regulatory restraints on their investment strategies. Therefore, lighter regulatory treatment of hedge funds is one of their most significant distinctive features.⁵ The implications of

² Carol J. Loomis, "The Jones Nobody Keeps Up With," *Fortune Magazine* 4 (1966).

³ However, the U.S. Private Fund Investment Advisers Registration Act of 2010 (the Private Fund Act) introduces the concept of 'private fund' a subcategory of which can be a hedge fund. In fact, the Private Fund Act follows the path of its predecessors and defines hedge funds by reference to what they are not, rather than to what they are. The Dodd-Frank Act defines hedge funds in 12 U.S.C. § 1851 (h)(2). However, the Dodd-Frank Act and the AIFMD's definitions are criticized for failing to create a clear distinction between hedge funds and other similar funds such as private equity funds. See Payne, *Private Equity and its Regulation in Europe*, p. 584. See also Rothschild, *Europe is Getting it Wrong on Financial Reform*.

Since the complexity and dynamics of financial institutions does not lend themselves to a *per genus et differentiam* definition, searching for an all-encompassing definition which is adequately inclusive and sufficiently exclusive of each and every aspect of hedge funds seems to be a futile endeavor. However precise a definition for hedge funds may be, there will be borderline issues that cannot be escaped. For the limitations of language in providing precise definitions, See H. L. A. Hart, *The Concept of Law*, 2nd ed. (New York: Oxford University Press, 1994), pp. 13-15.

It is also argued that the laws resting upon definitions and criteria involving clear rules and thresholds are prone to legal engineering and regulatory arbitrage. See Doreen McBarnet, "Financial Engineering Or Legal Engineering? Legal Work, Legal Integrity and the Banking Crisis," in *The Future of Financial Regulation*, eds. Iain G. MacNeil and Justin O'Brien (Portland, Oregon: Hart Publishing, 2010), p. 72.

However, for the purposes of Form PF, the SEC recently defined hedge funds in terms of their performance fee, high leverage and short selling. See Commodity Futures Trading Commission and Securities and Exchange Commission, "Reporting by Investment Advisers to Private Funds and Certain Commodity Pool Operators and Commodity Trading Advisors on Form PF," (2011), pp. 22-29.

⁴ *Goldstein v. SEC*, 451 F.3d 873, 884 (D.C. Cir. 2006). See also De Brouwer, *Hedge Funds in Emerging Markets*, p. 10.

⁵ This feature will be discussed in the fourth chapter of this dissertation.

this differential regulatory treatment is that they should not sell their shares to the general public, and their pool of investors should be limited to certain institutional investors and high-net-worth individuals (HNWIs). In addition, since they are not restricted in their investment strategies and their concentration and liquidity policies, they can engage in aggressive investment strategies to exploit certain short-term investment opportunities.

The second most visible difference is the organizational form and legal structure of hedge funds. First, mutual funds, for example, mostly use simple onshore organizational forms while hedge funds often establish complex onshore and offshore structures.⁶ The second unique feature in the organizational structure of hedge funds is that they are organized in the form of limited liability partnership (LLP) or limited liability company (LLC). Such legal structures which are often composed of limited partners (LPs) as well as general partners (GPs) allow for the managerial co-investment in the fund. This characteristic can address many concerns regarding the conflict of interests between managers and investors and the tendency of managers in the hedge fund industry to engage in excessive risk taking.

The third idiosyncratic feature of hedge funds is their fee-structure. This feature of the industry is unique in that in addition to the management fee that they charge on the overall investment in the fund, they often charge additional fees as performance fee or incentive fee. The rate of the fees differs; however, most hedge funds follow the '2 to 20 rule'. Namely, they charge two percent of the investment in the fund as management fee, and twenty percent of the profits as incentive or performance fee.

The fourth distinctive feature of hedge funds is that they often limit redemption rights of the investors in the funds and hence investment in hedge funds is considered relatively illiquid compared to the liquidity that the banks and mutual funds offer to their depositors and investors. In addition, hedge funds can limit the investor redemptions in unconventional ways, such as by using gates and side-pocket arrangements,⁷ which are considered essential for their liquidity

⁶ François-Serge Lhabitant, *Handbook of Hedge Funds* (West Sussex, England: John Wiley & Sons, Ltd., 2006), pp. 85-87.

⁷ To prevent a run on hedge funds, hedge fund managers usually use a gate or a gate provision which is a restriction on hedge fund investors intended to limit the amount of withdrawals from the fund during a redemption period. Side pocket arrangements are referred to mechanisms to segregate parts of a hedge fund's assets to be invested in illiquid and hard to value projects or investments. The assets allocated to the side pockets cannot be redeemed unless the returns on the projects or investments are realized or they become liquid marketable securities again.

management.⁸ Nevertheless, the investment in hedge funds is more liquid than investment in private equity and venture capital funds.

From an etymological perspective, a ‘hedge’ is a mechanism designed to reduce the risk. However, the reality of a hedge fund is far from its bare etymological roots. In other words, the name ‘hedge fund’ does not imply that hedge funds are funds which are necessarily hedged and have limited exposure to the underlying market risks. That is perhaps why it is suggested that a greater misnomer than ‘hedge fund’ can hardly be found, because hedge funds more often speculate than hedge.⁹

As mentioned earlier, the most challenging problem with the legal definition is that there is no statutory definition of hedge funds. This is mainly because hedge funds came into the financial system to avoid ‘onerous’ and heavy regulations. Even if there were definitions of hedge funds, definitions can by themselves be counterproductive. In the words of Judge Randolph, in *Goldstein v. SEC*:

“[t]he lack of statutory definition of a word does not necessarily render the meaning of a word ambiguous, just as the presence of a definition does not necessarily make the meaning clear. A definition only pushes the problem back to the meaning of the defining terms.”¹⁰

Since definitions define boundaries between financial institutions imperfectly, it is suggested that the future of securities regulation is likely to be about the resolution of boundary questions.¹¹ It is

⁸ The above mentioned parameters created a comparative advantage for hedge funds in comparison to the mainstream financial institutions. These features of hedge funds are the result of a labyrinth of regulatory and fundamental economic processes. That regulatory structure which gave rise to the hedge funds will be studied in detail in the fourth chapter which deals with the hedge funds regulation in the U.S. prior to the financial regulatory reforms.

⁹ Franklin R. Edwards, "Hedge Funds and the Collapse of Long-Term Capital Management," *Journal of Economic Perspectives* 13, no. 2 (1999), p. 189.

¹⁰ A statement by Judge Randolph, Circuit Judge, in *Goldstein v. SEC*. See *Goldstein v. SEC*, 451 F.3d 873, 884 (D.C. Cir. 2006).

¹¹ Joel Seligman, "The Obsolescence of Wall Street: A Contextual Approach to the Evolving Structure of Federal Securities Regulation," *Michigan Law Review* 93, no. 4 (Feb., 1995), p. 651.

Though statement is made in the context of Federal securities laws and their relationship with state securities laws (blue-sky laws), and boundaries between those laws, such a statement equally holds in the debate about hedge fund regulation.

also not surprising to observe a consistent pattern to avoid engaging in definitional issues in hedge fund regulation among regulators.¹²

However, given the case law's constant exposure to the ever-changing world of finance, the courts managed to come up with a case law definition of the hedge funds. In *Goldstein v. SEC.*, the D.C. Court of Appeals puts:

“‘Hedge funds’ are notoriously difficult to define. The term appears nowhere in the federal securities laws, and even industry participants do not agree upon a single definition. The term is commonly used as a catch-all for ‘any pooled investment vehicle that is privately organized, administered by professional investment managers, and not widely available to the public’.”

As those with a very little exposure to the hedge fund industry can recognize, the court's definition is far from satisfactory. Although searching for a definition including all aspects of hedge funds while excluding those of other financial institutions seems to be a futile endeavor, there is a need for a working definition to take further steps in studying them. As a working definition, this dissertation considers a hedge fund as a privately organized¹³ investment vehicle with a specific fee structure,¹⁴ not widely available to the public,¹⁵ aimed at generating absolute returns irrespective of market movements (Alpha)¹⁶ through active trading,¹⁷ and making use of a variety of trading strategies.

¹² The problem of definition is ubiquitous in regulation of economic activities. This kind of problem is not limited to the institution-based financial regulation. It also poses challenges to the ‘product-based approach’ to regulation. For example, Willa Gibson shows that how regulation of swap agreements could escape regulation because there is uncertainty and complexities in defining financial products such as securities and futures. Since there are uncertainties about the nature of swap agreements (whether they are securities or futures), she concludes that concerning the swap market, definitional and jurisdictional problems can best be addressed by focusing on the ‘market participant-based regulation’ rather than the classification of swap agreements as futures or securities. See Willa E. Gibson, "Are Swap Agreements Securities Or Futures?: The Inadequacies of Applying the Traditional Regulatory Approach to OTC Derivatives Transactions," *Journal of Corporation Law* 24, no. 2 (Winter 1999), p. 416.

¹³ Hedge funds are mainly structured in the form of a Limited Liability Partnership (LLP) or a Limited Liability Company (LLC).

¹⁴ A typical hedge fund charges 2% of the net asset value under management as management fee and 20% of the profits as performance or incentive fee (certain high-water marks and hurdle rates may apply).

¹⁵ In the U.S., the Jumpstart Our Business Startups Act (JOBS Act) directs the SEC to amend the rule 506 of regulation D to remove the ban on hedge fund general solicitation. However, the sale of hedge fund products is still restricted to the accredited investors. See 15 U.S.C. §77d-1.

¹⁶ William A. Roach Jr., "Hedge Fund Regulation- ‘What Side of the Hedges are You on?’" *The University of Memphis Law Review* 40 (2009-2010), p. 166. See also Engert, *Transnational Hedge Fund Regulation*, pp. 333-335.

Although based on the above definition it is difficult to identify real-world hedge funds, the description of the industry in the next section will provide a better picture and unravel some of the myths and complexities associated with the hedge fund industry.

2. Are hedge funds special? A case for *ex-ante* special regulatory treatment of hedge funds

Around three decades ago, it was argued that banks are special and hence there is a need for special regulatory treatment for banks. In this view, offering transaction accounts, providing backup liquidity for all other financial and non-financial institutions, and banks' role as a transmission belt for monetary policy were three features which distinguished them from other financial and non-financial institutions.¹⁷ Almost two decades later, accounting for the development of close substitutes for bank's services,¹⁹ the same arguments with slight differences were repeated.²⁰ Such an argument for banks' 'specialness' presupposes that even accounting for dynamic behavior of different classes of financial institutions, the financial services industry can be compartmentalized.²¹ This argument is based on the underlying reasoning that the nature and function of financial institutions differentiate one financial institution from the other. Therefore, due to their specialization in certain financial instruments

¹⁷ J. S. Aikman, *When Prime Brokers Fail: The Unheeded Risk to Hedge Funds, Banks, and the Financial Industry* (Hoboken, New Jersey: Bloomberg Press, 2010), p. 60.

In addition, investment in hedge funds is often illiquid and may only be redeemed intermittently. *See Ibid.*

Prior to the Dodd-Frank Act, the absence of registration requirement and legal restraints on their investment strategies were among the defining features of hedge funds. *See United States Securities and Exchange Commission, Implications of the Growth of Hedge Funds: Staff Report to the United States Securities and Exchange Commission* (Washington, D.C.: U.S. Securities and Exchange Commission, September 2003), p. 3.

See also Houman B. Shadab, "The Law and Economics of Hedge Funds: Financial Innovation and Investor Protection," *Berkley Business Law Journal* 6 (2009), p. 245.

¹⁸ E. Gerald Corrigan, *Are Banks Special?*, *Federal Reserve Bank of Minneapolis*, 1982).

¹⁹ *See* Alan J. Marcus, "Deregulation and Bank Financial Policy," *Journal of Banking & Finance* 8, no. 4 (12, 1984), 557-565.

²⁰ E. Gerald Corrigan, "Are Banks Special?: A Revisitation," http://www.minneapolisfed.org/publications_papers/pub_display.cfm?id=3527.

However, other scholars do not agree with the 'specialness' argument for banks. For example, *see* Anat R. Admati and Martin Hellwig, *The Bankers' New Clothes: What's Wrong with Banking and what to do about It* (Princeton, New Jersey: Princeton University Press, 2013).

²¹ Richard S. Carnell, Jonathan R. Macey and Geoffrey P. Miller, *The Law of Banking and Financial Institutions*, 4th ed. (New York: Aspen Publishers, 2009), p. 60.

and strategies, different financial institutions yield heterogeneous benefits, become subject to idiosyncratic risks, and impose different risks to the financial system.

Contemporary history of financial regulation abounds with the examples of fragmented regulation. For example, the U.S. Glass-Steagall Act separated commercial banking from investment banking activities and subjected the commercial and investment banks to two different regulatory regimes and agencies (the Office of the Comptroller of the Currency (OCC) and the Federal Reserve (Fed), and the Securities and Exchange Commission (SEC) respectively). Although the rationale behind such a separation was manifold, the most important reason was to prevent the conflict of interest and inhibit the growing risk-taking behavior stemming from the amalgamation of commercial and investment banking. In other words, since investment banking is different from commercial banking in terms of its functions and potential risks, consolidation of these two activities together in one financial firm can create severe conflicts of interest.

Likewise, the compartmentalization argument can be offered for differential regulatory treatment of hedge funds. Such a differential treatment can best be understood in light of hedge funds' functions in the financial system and their potential costs and benefits for the financial markets. Indeed, hedge funds occupy a relatively *sui generis* position in financial system and provide financial systems with 'special' and idiosyncratic benefits that other financial institutions, given their nature and function, are unable to provide.²²

Hedge funds provide diversification benefits for financial markets.²³ This means that investing in hedge funds can improve the risk-return relationship for investors. In addition, during periods of negative equity returns, investing in hedge funds can decrease the volatility of a portfolio by offsetting market movements.²⁴ For example, an allocation of 10 to 20 percent of portfolio to

²² Needless to say, these *sui generis* functions are made possible first and foremost by the special regulatory treatment of hedge funds by the financial regulators.

²³ Wouter Van Eechoud et al., "Future Regulation of Hedge Funds—A Systemic Risk Perspective," *Financial Markets, Institutions & Instruments* 19, no. 4 (2010), pp. 275-278.

²⁴ Thomas Schneeweis, Vassilios N. Karavas and Georgi Georgiev, "Alternative Investments in the Institutional Portfolio," *CISDM Working Paper Series* (2002)

alternative investments, which include hedge funds, is recommended as an ideal allocation of investments for pension funds that strive for a long-term strategy of low risk and low returns.²⁵

Moreover, hedge funds are sources of liquidity.²⁶ This function of hedge funds is especially notable in niche markets and in times of liquidity crises.²⁷ By investing in the sub-markets which are “less liquid, more complex and hard-to-value,” such as convertible bonds, distressed debt, and credit default swaps markets, hedge funds can complete and deepen financial markets.²⁸ In fact, the growth and development of some niche markets such as unsecured and subordinated debt in recent years is attributed to or correlated with the growth of hedge funds willing to take risks that other traditional financial institutions such as banks are unwilling to take.²⁹

In addition, hedge funds’ focus on generating alpha, which comes from outperforming markets, is mostly achieved through exploiting market imperfections and discrepancies.³⁰ This function of hedge funds is beneficial to financial markets because it facilitates and accelerates the price discovery mechanism in financial markets by eroding arbitrage opportunities.³¹ Furthermore, the legal protections for hedge funds’ proprietary information induce them to invest in the acquisition of private information to which almost no disclosure requirement is applied. Such an investment enables hedge funds to spot and exploit mispriced assets and securities, which can lead to more efficient markets by pushing the securities prices to their true or fundamental values.³² Moreover, such proprietary investment in information acquisition can significantly increase the role of hedge funds in disciplining the underperforming firms³³ and in some cases

²⁵ William F. Sharpe, "Asset Allocation: Management Style and Performance Measurement," *Journal of Portfolio Management* 18, no. 2 (Winter 92, 1992), 7-19.

²⁶ See Robert J. Bianchi and Michael E. Drew, "Hedge Fund Regulation and Systemic Risk," *Griffith Law Review* 19, no. 1 (2010), pp. 13-15. See also Francesco Franzoni and Alberto Plazzi, "Hedge Funds’ Liquidity Provision and Trading Activity," (2012).

²⁷ The provision of liquidity by hedge funds in niche markets became mostly possible because of the differential regulatory treatment applied to them in terms of the lack of limits on the amount of leverage, investment concentration, short selling, and use of structured products and derivatives.

²⁸ Eeouchoud et al., *Future Regulation of Hedge Funds—A Systemic Risk Perspective*, pp. 275-278.

²⁹ Bianchi and Drew, *Hedge Fund Regulation and Systemic Risk*, pp. 13-15.

³⁰ In fact, the lack of legal restrictions on hedge funds’ use of financial instruments, strategies, and their investment concentration enables them to use a wide range of techniques to exploit market imperfections.

³¹ Andrew Crockett, "The Evolution and Regulation of Hedge Funds," in *Financial Stability Review; Special Issue, Hedge Funds*, ed. Banque de France, 2007), p. 22.

³² Roach Jr., *Hedge Fund Regulation- “What Side of the Hedges are You on?”*, p. 173.

³³ Lucian A. Bebchuk, Alon Brav and Wei Jiang, "The Long-Term Effects of Hedge Fund Activism," *SSRN Working Paper Series* (2013).

uncovering fraudulent activities. Therefore, it is argued that the larger the number and the size of hedge funds, the more efficient the financial markets.³⁴

In addition, it is relatively easier for hedge funds to take contrarian positions in financial markets. Again, the unlimited use of leverage, short selling,³⁵ limited investor liquidity (limited redemption rights or longer lock-ups), unlimited possibility of investment in derivatives, and unrestrained investment concentration potentially enable hedge funds to take positions in financial markets that other financial institutions cannot take due to their regulatory capital requirements. This contrarian function of hedge funds can smooth and reduce market volatility and reduce the number and the volume of asset price bubbles.³⁶ Not surprisingly, empirical evidence suggests that the leverage of hedge funds is countercyclical to the leverage of listed financial intermediaries, meaning that given the pro-cyclicality of leverage in other financial institutions, hedge funds' leverage has an inverse relationship with leverage of other major financial market participants.³⁷ In other words, when the leverage of the mainstream financial institutions increase during a financial boom, the leverage of hedge funds tend to decrease, while in the financial bust or credit crunch, the leverage of mainstream financial institutions decrease while hedge fund leverage tend to increase. This feature coupled with the unlimited capability of hedge funds to leverage their contrarian positions amplifies the effects of such positions. As a result, contrarian position taking by hedge funds can smooth the volatility of financial markets. Indeed, the nature of hedge funds' contrarian strategies enables them to be active traders during financial crises. This feature of hedge funds can potentially form a price floor in distressed markets. Financial institutions such as banks cannot play such a role especially because of Basel-like capital adequacy requirements (CARs) to which all depositary institutions are subject.³⁸ Therefore,

³⁴ Crockett, *The Evolution and Regulation of Hedge Funds*, pp. 22-23.

³⁵ In order to take a short position, the trader usually borrows the securities from a dealer and sells them to the market with the expectation that price of the securities will be lower at certain point in the future at which the trader will again buy them back and return them to the dealer. By doing so, the short seller pockets the difference between higher sale price and lower purchase price at which he has bought them back and returned them to the dealer.

³⁶ Eechoud et al., *Future Regulation of Hedge Funds—A Systemic Risk Perspective*, pp. 275-278.

³⁷ This means that hedge funds can be liquidity providers in times of liquidity crunch. See Andrew Ang, Sergiy Gorovyy and Gregory B. van Inwegen, "Hedge Fund Leverage," *Journal of Financial Economics* 102, no. 1 (2011), 102-126.

Their empirical study suggests that, unlike other financial institutions such as banks, hedge funds' leverage decreased prior to the start of the financial crisis.

³⁸ Jón Daniélson and Jean-Pierre Zigrand, "Regulating Hedge Funds," in *Financial Stability Review; Special Issue, Hedge Funds*, ed. Banque de France, 2007), p. 30.

hedge funds provide a significant stabilizing influence by providing liquidity and spreading risk across a broad range of investors.³⁹

More importantly, hedge funds' investor base and the mechanisms used to lock-up capital for longer periods enable hedge funds to sustain their contrarian positions against market perceptions and movements.⁴⁰ Unlike mutual funds and banks, hedge funds are not required to redeem the investment on investor demand or within a very short period of time. The right to redeem in alternative investments is often governed by private contracts which may impose a longer lock-up periods on investors' capital. In particular, gates and side-pocket arrangements within the purview of private ordering provide an additional tool for hedge funds to restrict investor liquidity. This freedom from liquidity constraints gives hedge funds additional tools and techniques to better manage liquidity risk and enables them to have long-term horizons in their investment strategies.⁴¹

Partly because of all those benefits, it is argued that since the emergence of hedge funds as major market participants, markets have become more resilient in times of market turbulence, such as the burst of the technology (dot-com) bubble, the recession of 2001-2002, the 9/11 events, two wars in Iraq and Afghanistan, and the shocks caused by corporate scandals.⁴² Although the severity of the recent financial crisis and the collapse of some hedge funds during the crisis shed substantial doubts on these claims, evidence suggests that many other hedge funds were launched to take advantage of price dislocations in securitized markets.⁴³

All in all, hedge funds can substantially contribute to the "capital formation, market efficiency, price discovery, and liquidity".⁴⁴ Regulatory agencies have consistently acknowledged the

³⁹ Jean-Pierre Mustier and Alain Dubois, "Risks and Return of Banking Activities Related to Hedge Funds," *Banque De France, Financial Stability Review; Special Issue, Hedge Funds* (April 2007), pp. 88-89.

⁴⁰ Crockett, *The Evolution and Regulation of Hedge Funds*, p. 22.

⁴¹ In terms of maturity transformation, hedge funds stand in between banks, mutual funds (with higher maturity transformation) on the one hand, and the pension funds, private equity funds and venture capital funds on the other hand. Despite arguments to the contrary, it seems that hedge funds play a limited role in liquidity transformation. See Eechoud et al., *Future Regulation of Hedge Funds—A Systemic Risk Perspective*, pp. 275-278. However, it is suggested that recently hedge fund are engaging more and more in liquidity transformation. Payne, *Private Equity and its Regulation in Europe*, p. 573.

⁴² Roger T. Cole, Greg Feldberg and David Lynch, "Hedge Funds, Credit Risk Transfer and Financial Stability," in *Financial Stability Review; Special Issue, Hedge Funds*, ed. Banque de France, 2007), pp. 11-12.

⁴³ Dixon Lloyd, Noreen Clancy and Krishna B. Kumar, *Hedge Funds and Systemic Risk* (Santa Monica, CA: RAND Corporation, 2012), pp. 47-49.

⁴⁴ Roach Jr., *Hedge Fund Regulation- "What Side of the Hedges are You on?",* p. 173.

benefits of hedge funds to financial system.⁴⁵ Even after the financial crisis, the International Organization of Securities Commissions (IOSCO) suggested that hedge funds should be compensated for their intermediary functions and willingness to take such risks that other financial market participants are unwilling to take.⁴⁶

Not only do hedge funds' special functions and benefits make them special in financial systems, thereby requiring special regulatory treatment, but also design-based *ex-ante* regulation of hedge funds justifies their differential regulatory treatment. By design, hedge funds have limits on the number and qualifications of their investor base. For example, regulatory requirements for hedge fund investor base rules out any further regulation on the grounds of investor protection, while such an argument does not hold for banks, mutual funds, pension funds, and insurance companies. This is mainly because the investors in these financial institutions are unsophisticated investors. On the other hand, the choice of organizational form (LLP or LLC) automatically triggers certain mandatory rules such as the general partners' (managers') co-investment in hedge funds and their potential liability. These features substantially align managers' incentives with the interest of the investors in hedge funds. If not circumvented one way or another, such an organizational form automatically rules out the need for imposing corporate governance standards on hedge funds that are required for banks and mutual funds.

To recapitulate, hedge funds provide several benefits to financial markets. They are sources of diversification⁴⁷ and liquidity.⁴⁸ Furthermore, by investing in 'less liquid, more complex and hard-to-value' markets such as convertible bonds, distressed debt, and credit default swaps markets, they complete and deepen financial markets.⁴⁹ More importantly, hedge funds' focus on

⁴⁵ United States Securities and Exchange Commission, *Implications of the Growth of Hedge Funds: Staff Report to the United States Securities and Exchange Commission*, p. 4.

⁴⁶ Bianchi and Drew, *Hedge Fund Regulation and Systemic Risk*, pp. 13-15.

In this perspective, the special regulatory treatment of hedge funds can be considered as a compensation package for hedge funds' benefits to the financial system such as liquidity provision in illiquid markets, helping the price discovery mechanism to become more efficient, risk distribution, contribution to financial integration, and diversification benefits.

⁴⁷ Eechoud et al., *Future Regulation of Hedge Funds—A Systemic Risk Perspective*, pp. 275-278.

See Schneeweis, Karavas and Georgiev, *Alternative Investments in the Institutional Portfolio*.

See also Sharpe, *Asset Allocation: Management Style and Performance Measurement*, 7-19.

⁴⁸ Bianchi and Drew, *Hedge Fund Regulation and Systemic Risk*, pp. 13-15.

⁴⁹ Eechoud et al., *Future Regulation of Hedge Funds—A Systemic Risk Perspective*, pp. 275-278. See also Bianchi and Drew, *Hedge Fund Regulation and Systemic Risk*, pp. 13-15.

generating alpha is rooted in exploiting market imperfections and discrepancies.⁵⁰ This facilitates the price discovery mechanism in financial markets by eroding arbitrage opportunities.⁵¹ In addition, hedge funds are considered contrarian position-takers in financial markets.⁵² The mechanisms used to lock-up hedge funds' capital such as investors' limited redemption rights (gates and side-pocket arrangements) enable them to further sustain their contrarian positions.⁵³ Such a function can potentially decrease market volatility and reduce the number and magnitude of asset price bubbles.⁵⁴

Despite their benefits, hedge funds can potentially pose risks to financial systems and contribute to financial instability. Although their role in financial instability is highly contested,⁵⁵ hedge funds' size, leverage, their interconnectedness with Large Complex Financial Institutions (LCFIs) and the likelihood of hedge funds' herding are among the features that can make them systemically important. The data on hedge funds' size⁵⁶ and leverage⁵⁷ show that these features are far from being systemically important. Nevertheless, empirical evidence on hedge fund interconnectedness and herding (e.g., a run on their prime brokers)⁵⁸ is mixed and they remain to

⁵⁰ In fact, the lack of legal restrictions on the use of financial instruments, strategies, and investment concentration of hedge funds enables them to use a wide range of techniques to exploit market imperfections.

⁵¹ Crockett, *The Evolution and Regulation of Hedge Funds*, p. 22. See Roach Jr., *Hedge Fund Regulation- "What Side of the Hedges are You on?",* p. 173. See also Crockett, *The Evolution and Regulation of Hedge Funds*, pp. 22-23

⁵² Ang, Gorovyy and van Inwegen, *Hedge Fund Leverage*, 102-126.

⁵³ Crockett, *The Evolution and Regulation of Hedge Funds*, p. 22.

⁵⁴ Eechoud et al., *Future Regulation of Hedge Funds—A Systemic Risk Perspective*, pp. 275-278.

⁵⁵ Nicolas Papageorgiou and Florent Salmon, "The Role of Hedge Funds in the Banking Crisis: Victim Or Culprit," in *The Banking Crisis Handbook*, ed. Greg N. Gregoriou (Boca Raton, FL: CRC Press, Taylor & Francis Group, 2010), 183-201.

⁵⁶ Data on hedge fund size demonstrates its relatively modest size compared with the mainstream financial institutions. One of the recent estimates of the size of the hedge fund industry in March 2012 indicates that the hedge fund industry's assets under management (AUM) amount to \$2.55 trillion. See Citi Prime Finance, *Hedge Fund Industry Snapshot*, 2012)

Consistent with the industry's modest size, hedge fund liquidation had overall very limited impact on financial markets. See Ben S. Bernanke, "Hedge Funds and Systemic Risk: Remarks Delivered at the Federal Reserve Bank of Atlanta's 2006 Financial Markets Conference—Hedge Funds: Creators of Risk." 2006).

This dissertation will discuss the size of the industry as a possible source of systemic risk in the second chapter.

⁵⁷ The leverage of hedge funds is significantly lower than that of the depository institutions, listed investment banks, and broker dealers. See Anurag Gupta and Bing Liang, "Do Hedge Funds have enough Capital? A Value-at-Risk Approach," *Journal of Financial Economics* 77, no. 1 (2005), 219-253. See also Ang, Gorovyy and van Inwegen, *Hedge Fund Leverage*, p. 121.

⁵⁸ Herding happens when funds mimic other funds or financial institutions while their own private information or proprietary models suggest otherwise. See Avery and Zemsky, *Multidimensional Uncertainty and Herd Behavior in Financial Markets*, 724-748.

Herd behavior occurs due to asymmetric information among traders or investors when trades are sequential. Although the standard economic theory, based on the efficient market hypothesis, claims that the price mechanism assures that the long-run choices are optimal and the herd behavior is impossible, the driving force behind herd

be a major concern for regulators.⁵⁹ The externalities and potential systemic risk of hedge funds will be studied in detail in this and the next chapter. Suffice it to say here that sustaining hedge funds' *sui generis* role in financial markets and addressing their potential risks thereto call for their special regulatory treatment.

After a brief definition of hedge funds and their role in financial markets, in the next sections an overview of potential market failures in the hedge fund industry is offered to specifically identify the justification for regulation of hedge funds. Such an analysis will be useful not only for the discussion about whether to regulate hedge funds or not, but also for the discussion about how to regulate hedge funds.

3. Market failure and financial market regulation

Although there are different justifications for economic regulation, in law and economics the dominant approach is based on the market failure argument.⁶⁰ As the first (fundamental) theorem of welfare economics posits, all mutually beneficial trades in a perfectly competitive market will result in an economically efficient allocation of resources. The immediate offshoot of such a proposition is that regulation and other types of government interventions are considered

behavior is that in an imperfect or asymmetric information setting, people may rationally take into account the information revealed or signals sent by others' action.

⁵⁹ Nicole M. Boyson, Christof W. Stahel and René M. Stulz, "Hedge Fund Contagion and Liquidity Shocks," *Journal of Finance* 65, no. 5 (10, 2010), p. 1814.

Fung and Hsieh find evidence of hedge fund herding in the European Exchange Rate Mechanism (ERM) crisis and evidence of herding in the Asian Crisis; however, they could find little evidence of systematically causal relationship of hedge funds behavior and deviation of market prices from economic fundamentals. See William Fung and David A. Hsieh, "Measuring the Market Impact of Hedge Funds," *Journal of Empirical Finance* 7, no. 1 (2000), 1-36.

⁶⁰ For non-economic justifications for regulatory intervention which is not the focus of this study, see Cass R. Sunstein, *After the Rights Revolution: Reconceiving the Regulatory State* (Cambridge (MA): Harvard University Press, 1990).

Sunstein studies in detail a spectrum of non-economic substantive goals offered for justifying regulatory intervention, these reasons range from public-interested redistribution, reducing social subordination, promoting diversity of experience, preventing harm to future generations, embodying collective desires to shaping endogenous preferences. Furthermore, Shliefer proposes another explanation for the ubiquitous regulation and that is the failure of courts. See Andrei Shleifer, "Efficient Regulation," *NBER Working Paper* 15651 (2010), p. 23.

justified if there exists a market failure. In other words, assuming that the market allocates resources most efficiently, it should be left to its own devices.⁶¹

However, the weakest joint in the chain of the above argument is its strong assumption, i.e., ‘a perfectly competitive market’. The microeconomic analysis, mostly based on the partial equilibrium theory, basically overlooks the interrelationships between economic facts and players and hence turns a blind eye to the problem of externalities. In other words, partial equilibrium theory mainly analyzes the economic phenomena in the absence of external effects that might be generated by economic agents. While another prong of the microeconomic analysis, i.e., general equilibrium theory, takes account of these external effects. Nevertheless, to abstract from the complexities of the real world and to make it subject of the study of the economic science, the theory of general equilibrium, developed in the 1960s, is based upon the hypothesis of a complete or perfect competitive market and its underlying assumptions. Only starting from the 1970s, the theory of incomplete markets has gradually developed. The general claim of this theory was that, in incomplete markets the equilibrium is efficient only in exceptional cases.⁶²

As mentioned above, the general equilibrium theory holds in perfect or complete markets. A complete market is defined as a market without a market failure. In other words, it is the absence of the market failure which defines a complete market. Thus, market clearance or the equilibrium achieved in a market economy is optimal to the extent that there is no market failure. However, if one of the conditions for complete markets does not hold, there is a need for corrective measures. These measures can be private, such as private regulation through Self-regulatory Organizations (SROs), or public policy responses, such as government regulation.

In economic literature, there are three major reasons for market failure:

1. Failure of competition resulting in a monopoly power;

⁶¹ It seems that the regulators also have this fundamental principle in mind while attempting to regulate financial institutions. For example, the FSA suggested that “[w]hen deciding on new policy initiatives, we take an evidence-based approach. We consider carefully whether there is a market failure which needs to be addressed and, if so, whether regulation is the best way to deal with the concern. In deciding whether to make rules, we examine the potential costs and benefits of such regulatory intervention.” See Financial Services Authority (FSA), *Principles-Based Regulation: Focusing on the Outcomes that Matter*, April 2007), p. 3.

⁶² Bernard Salanié, *The Microeconomics of Market Failures* (Cambridge, Massachusetts: The MIT Press, 2000), p. 203.

2. Information asymmetry; and
3. Externalities (including the public goods problem).

These three causes of market failure can readily be applied to financial markets. In this chapter, a brief overview of the causes of market failure in financial markets, with a focus on the hedge fund industry, will be offered. One of the most important market failures in this domain, namely systemic risk in the financial markets and the potential contribution of hedge funds to such risk, will be studied in the next chapter.

Financial markets, like markets in any sector of the economy, are no exception to market failures. Indeed, they are said to be imperfect by definition. Uncertainty, asymmetric information, interconnectedness, control over money supply, and public and private goods (mixed) feature of financial assets are identified as sources of market imperfections in financial markets.⁶³ The most salient examples of market failure in financial markets, however, have their roots in information problems (and ensuing adverse selection⁶⁴ and moral hazard problem),⁶⁵ imperfect competition, and externalities.

The externalities are considered to be the source of most market failures. In other words, the existence of externalities leads to market failures.⁶⁶ That is to say, all of the above mentioned failures are types of externalities or are results of such externalities.⁶⁷ And as an overview of the

⁶³ Paccos and Dirk, *Regulation of Banking and Financial Markets*, pp. 5-7.

It is also suggested that the financial markets are inherently unstable. For the elaboration of the financial instability hypothesis, see Hyman P. Minsky, *Stabilizing an Unstable Economy* (New York: McGraw-Hill, 2008).

⁶⁴ Adverse selection occurs when a better informed person benefits from trading with a less-informed person who does not know or knows less about the unobserved characteristic of the informed person.

⁶⁵ Moral hazard originates from information asymmetry between transacting parties. Moral hazard occurs when an informed person takes advantage of less informed person through an unobserved action. The well-known examples of moral hazard are shirking (in employment contracts) and reckless behavior (in insurance industry). For more details, see Jeffrey M. Perloff, *Microeconomics: Theory & Applications with Calculus* (Boston, MA: Pearson Education, Inc., 2008), pp. 535-536.

⁶⁶ There are allegations against the well functioning of the market discipline in the financial markets. For example, Brunnermeier argues that "Market discipline does not operate in booms". See Brunnermeier et al., *The Fundamental Principles of Financial Regulation: Geneva Report on the World Economy*, p. xviii.

Hellwig believes that market discipline "as a mechanism of corporate governance is intrinsically biased in favour of strategies that involve greater risk taking." See Hellwig, *Systemic Risk in the Financial Sector: An Analysis of the Subprime-Mortgage Financial Crisis*, p. 163.

⁶⁷ Richard O. Zerbe Jr. and Howard E. McCurdy, "The Failure of Market Failure," *Journal of Policy Analysis and Management* 18, no. 4 (1999), p. 561.

literature on regulation demonstrates,⁶⁸ externality has been a major reason for the introduction of public policy responses and corrective measures in markets in the form of regulation.⁶⁹ To put it differently, regulation in these circumstances is justified because it can achieve what markets cannot.⁷⁰

3.1. Externalities and systemic risk

As discussed above, market failures can take many forms. A possibly non-exhaustive list can include externalities, monopolies, and information problems. Intuitively speaking, an externality exists whenever the activities (or inactions) of an agent influence the utility function or production possibilities frontier of another agent (third party) who neither pays nor receives any compensation for that effect.⁷¹ Externalities are one of the main reasons that cause a divergence of private marginal costs/benefits from social marginal costs/benefits. It is mostly because individual economic agents engage in activities which maximize their own marginal benefits regardless of their social costs created by their activities.

This thesis adheres to the definition of externalities which is proposed by Baumol and Oates. In their view,

⁶⁸ It is appropriate to note here at the outset that in this dissertation, following Morgan and Yeung, regulation will be viewed as a “broad and open-ended category” which includes any intellectual inquiry or activity relating to the “purposive shaping of social behaviour”. In this approach regulation can include both intervention in the markets by state and interventions by non-state entities to correct market failures using any means which can influence the shape or design and the functioning of the markets (market enhancing mechanisms) and market participants. Therefore, this approach to regulation includes legislation by legislatures (such as setting and enforcing property rights), regulation in its narrow sense by the executive, the decisions of the courts (judicial law-making) in resolving disputes between parties as well as private regulation such as regulation laid down and implemented by Self-regulatory Organizations (SROs). Needless to say, this can include even the constitutional provisions. It accordingly follows that this thesis will not restrict the scope of regulation to its narrow sense which traditionally was the realm of the executive branch of government. The regulation in that sense is a concept which is especially adopted in countries with civil law system, while in common law countries this distinction is mostly blurred and can include any public policy response to the anomalies in the markets or society. For more info about such an approach to regulation, see Bronwen Morgan and Karen Yeung, *An Introduction to Law and Regulation: Texts and Materials* (New York: Cambridge University Press, 2007), p. xiv.

⁶⁹ See Anthony Ogus, *Regulation: Legal Form and Economic Theory* (Oxford and Portland, Oregon: Hart Publishing, 2004b), pp. 15-46. See also Joseph E. Stiglitz, "Government Failure vs. Market Failure: Principles of Regulation," in *Government and Markets: Toward a New Theory of Regulation*, eds. Edward J. Balleisen and David A. Moss (New York: Cambridge University Press, 2010), 1-28.

⁷⁰ Morgan and Yeung, *An Introduction to Law and Regulation: Texts and Materials*, p. 18.

⁷¹ Mankiw, *Principles of Microeconomics*, p. 196.

“An externality is present whenever some individual’s (say A’s) *utility* or *production* relationships include real (that is, nonmonetary) variables, whose values are chosen by others (persons, corporations, governments) without particular attention to the effects on A’s welfare.”⁷²

The above definition of externalities excludes pecuniary externalities⁷³ from the definition of externalities. Since many of the externalities flow through the price system, Viner’s distinction between pecuniary and technological externalities becomes critically important in financial markets. In Viner’s view, to the extent that an effect on the third party does not generate resource misallocation, that effect is not an externality. In his view, there are circumstances in which the activities of one agent affect the financial circumstances of another party; however, these activities do not produce misallocation of resources in a purely competitive market. The reason is that these externalities do not create a shift in the production possibilities frontier or the third parties’ utility function. In this thesis, whenever the word externality is used, it will correspond to the “Pareto-relevant externality”, i.e., technological/true externalities and not pecuniary externalities, unless otherwise noted.⁷⁴

⁷² William J. Baumol and Wallace E. Oates, *The Theory of Environmental Policy*, 2nd ed. (New York: Cambridge University Press, 1988), pp. 17-18.

Baumol and Oates offer a two-pronged definition of externality of which I adhere to one. The second condition offered to the externalities definition is as follows: “The decision maker, whose activity affects others’ utility levels or enters their production functions, does not receive (pay) in compensation for this activity an amount equal in value to the resulting benefits (or costs) to others.” However, as they themselves admit, it is better to define an externality to be present whenever condition 1 holds.

As in other segments of the real economy, externalities can emerge in the financial markets. An externality in the financial market is defined as an externality caused by a financial institution which imposes costs on or offers benefits to other financial institutions or other economic agents outside the financial system. *See* Wolf Wagner, “In the Quest of Systemic Externalities: A Review of the Literature,” *CESifo Economic Studies* 56, no. 1 (2010), p. 97. *See also* Garry J. Schinasi, “Private Finance and Public Policy,” *IMF Working Paper* (2004), pp. 22-23.

⁷³ Pecuniary externality is produced in and flows through price mechanism, i.e., it is a result of changes in the prices of inputs and outputs in a given economy and it takes the form of a movement along the production possibilities frontier instead of a shift in the frontier. *See* Baumol and Oates, *The Theory of Environmental Policy*, pp. 29-31

In other words, the pecuniary externalities create third-party effects by affecting the relative prices or asset prices. This means that it does not lead to a misallocation of resources and hence resource allocation will remain optimal. It is worth emphasizing that the essence of the distinction between technological and pecuniary externalities “is *not* that a pecuniary externality affects only the values of monetary, rather than real, variables.” Put differently, “the introduction of a technological externality produces a *shift in* the functions relating quantities of resources as independent variables and output quantities or utility levels of consumers as dependent variables.” *See Ibid.* In this view, pecuniary externality does not create misallocation of resources and hence does not require regulation. It is further argued that the existence of pecuniary externalities is necessary for the market efficiency and public policy response to pecuniary externalities often lead to misallocation of economic resources. *See* Randall G. Holcombe and Russell S. Sobel, “Public Policy toward Pecuniary Externalities,” *Public Finance Review* 29, no. 4 (2001), 304-325.

⁷⁴ Externalities can also be divided into two major categories according to their depletable or non-depletable. An externality is depletable (private) if the consumption of an externality by one agent diminishes its consumption for

Systemic risk as a form of externality is another reason for financial regulation which came to the fore of the financial regulation literature particularly in the aftermath of the global financial crisis. Prior to the financial crisis, although there were efforts to study, analyze, and account for systemic risk and financial instability, it was not central to the finance literature. It was only after the global financial crisis that financial analysts could realize how interconnected the financial markets became within the last few decades. The interconnectedness and possibility of contagion of financial shocks pose serious challenges to risk management strategies and techniques. Today, at the heart of the ongoing debates about financial regulation are the mechanisms that can reduce systemic risk and ensure soundness and integrity of the financial system as a whole. Though historically speaking the main reason for financial regulation was the consumer or investor protection, it was the systemic concerns that created the most sweeping regulations of the financial markets. In most countries, episodes after the financial panic were the crux of financial regulation.

Systemic risk is said to be created by the systemic events. These events create risks which involve a substantial number of financial institutions and subsequently channels into the real economy through the inter-linkages of financial institutions.⁷⁵ It goes without saying that these events weaken and endanger the financial stability. Financial stability is the ability of financial system “to facilitate economic processes, manage risk, and absorb shocks.”⁷⁶ Whenever there is a

other agents. In other words, this externality can be called rivalrous externality. For instance, dumping waste on the neighbor’s property is a depletable externality, because the consumption of the waste on the neighbor’s property will eat up the waste and will prevent others from suffering the same problem. Whereas a non-depletable (public) externality is an externality the consumption of which by an agent does not diminish its consumption by other agents. Most externalities are non-depletable. This means that they are non-rivalrous, such as positive externalities of education and negative externalities of air pollution. In addition, there is a special case of “shiftable externality” as a subset of non-depletable externality in which the victim of an externality can shift the externality to a third party. See Baumol and Oates, *The Theory of Environmental Policy*, pp. 25-26.

Shiftable of externalities deserves special attention in addressing the potential externalities in financial markets which opens door for market mechanisms in addressing such externalities based on the Coase theorem.

⁷⁵ There are different definitions for systemic events or risks which will be studied in the second chapter.

⁷⁶ Paccos and Dirk, *Regulation of Banking and Financial Markets*, p. 2.

Financial stability is defined as “a situation in which the financial system is capable of satisfactorily performing its three key functions simultaneously. First, the financial system is efficiently and smoothly facilitating the intertemporal allocation of resources from savers to investors and the allocation of economic resources generally. Second, forward-looking financial risks are being assessed and priced reasonably accurately and are being relatively well managed. Third, the financial system is in such condition that it can comfortably if not smoothly absorb financial and real economic surprises and shocks.” See Garry J. Schinasi, *Safeguarding Financial Stability: Theory and Practice* (Washington DC: International Monetary Fund, 2006), p. 82.

malfunctioning in any of these functions, the entire financial system and possibly the real economy may suffer from its malfunctioning.

The structure and organization of the financial markets are such that idiosyncratic and individual risks may easily spill over and endanger the entire financial system. Hence, failures in the operation of the financial sector not only have adverse consequences for individual investors but also stock market crashes, bank failures, and financial market distress may endanger the health of the entire economy.⁷⁷ The following sections will expand on problems of asymmetric information and imperfect competition and given the important of systemic externalities, the second chapter of this dissertation will discuss the potential systemic risk concerns arising from the hedge fund industry.

3.2. Information

Information problems and the optimal provision of information for the well functioning of markets are extensively studied in economics literature. Regulatory literature is also rich in studying the information problems and the methods of addressing them. Standard economic theory suggests that in the absence of externalities, the competitive forces of market will lead to the optimal provision of information. However, due to certain attributes of financial markets, the provision of information in financial markets more often than not is not optimal. Hence, information problem in financial markets is an acute problem. Most of this thesis will be devoted to addressing information problems and their contribution to market failures in financial markets. Therefore, delving into information problems in financial markets can help develop the arguments for and against hedge fund regulation.

In economic theory, with respect to informational imperfections, product and services are categorized into three broad groups:

1. ‘Search goods’ are those the quality of which can be inspected upon purchase;

⁷⁷ *Ibid.*

2. 'Experience goods'⁷⁸ are goods the quality and value of which can only be assessed after the purchase and the use of the good or service; and
3. 'Credence goods' are those the quality of which cannot be assessed even after purchase and use, or whose quality might not be assessable at all.⁷⁹

Most of the financial products and services are considered credence goods whose quality is not ascertainable even after the purchase.⁸⁰ The credence goods nature of financial services deepens the information problem in financial markets. Hence, it is argued that there is a need for mandatory disclosure requirements to make the provision of information optimal. The non-observability of the quality of these services also requires expertise in valuation of financial instruments and institutions. The information asymmetry between transacting parties can cause severe adverse selection⁸¹ and moral hazard problems. These two problems are abundant in insurance and credit markets because there is a wide information asymmetry between insurance companies and insured parties and between creditors and borrowers. The end result of these two problems negatively affects the well functioning of the entire financial market.⁸²

In addition to the information asymmetry, another typical feature of financial transactions is their intertemporal nature and the need for maintaining trust in the financial system in order to attract, concentrate, and channel dispersed investors' savings into productive activities. Maintaining trust in intertemporal transactions can be considered as a public good. Public goods are goods which

⁷⁸ For more details see Philip Nelson, "Information and Consumer Behavior," *Journal of Political Economy* 78, no. 2 (1970), 311-329. Nelson was the one who first coined the search and experience goods.

⁷⁹ For search goods, the information problem is not as severe as the latter two and hence the market forces can restrain the opportunistic behavior of the sellers. For the second category of the goods, the severity of information problem lies somewhere between the two extremes of search goods and credence goods. However, for credence goods, the information is of crucial importance because market forces cannot effectively discipline the suppliers of the product. In the market for second and third categories, there is a significant likelihood of the market failure due to information problems giving rise to the 'lemons problem'. In the existence of the lemons problem the bad quality drives out good quality and in the end, the market for good quality products as well as bad ones would collapse. See George A. Akerlof, "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism," *The Quarterly Journal of Economics* 84, no. 3 (1970), 488-500.

⁸⁰ Paces and Dirk, *Regulation of Banking and Financial Markets*, pp. 9-10. See also Alessio Paces, "Financial Intermediation in the Securities Markets: Law and Economics of Conduct of Business Regulation," *International Review of Law and Economics* 20, no. 4 (2000), 479-510.

⁸¹ See Akerlof, *The Market for "Lemons": Quality Uncertainty and the Market Mechanism*, 488-500.

⁸² Hal R. Varian, *Intermediate Microeconomics: A Modern Approach*, 7th ed. (New York: W. W. Norton and Company, 2006), pp. 695-702.

In addition, traditionally, one of the main arguments for the need for financial regulation is the need for protection of small and unsophisticated investors or depositors. Since investors have contractual relationships with financial institutions, the need for investor protection cannot be justified on the grounds of the existence of externalities. Therefore, the case for regulation because of externalities in such a setting is not sufficiently compelling.

are both non-excludible and non-rivalrous. Namely, on the one hand, others cannot be excluded from the consumption of that good, and on the other hand, the consumption of the public good by one individual will not decrease its availability for other individuals. Therefore, leaving it to the forces of markets can result in the under-provision of this good. Such a suboptimal provision of information which can hardly breed trust in the financial system provides another reason for a public policy response. Thus, the trust deficit in financial markets can pave the way for government intervention, as it does in other sectors of the economy.⁸³

These information problems were the enduring concerns in financial markets and especially felt after the Great Depression in the U.S. The New Deal regulations identified the causes of the crisis in the financial system and introduced mechanisms such as licensing, registration, information disclosure or transparency requirements to address the information asymmetry and ensuing adverse selection, moral hazard, and in its extreme, financial fraud. Market failure because of information asymmetry has many facets. In the following sub-sections, some of the main reasons for the market failure stemming from information problems will be discussed.

3.2.1. Asymmetric information in credit markets

The asymmetric information problem is especially rampant and particularly severe in credit markets both in the relationship between banks and individuals, and in the interbank repo markets. The problems of information usually cause disequilibrium in the loan markets. For example, in the context of banks offering loans to individuals, since the bank has less information about different probabilities of repayment from different borrowers, they cannot distinguish good borrowers from bad ones, and hence the probability that the bad borrowers applying for loans will be higher (adverse selection). The adverse selection occurs when a better informed person benefits from trading with a less-informed person who does not know or knows less about the unobserved characteristic of the informed person. In this case, the remedy for banks is to increase interest rates (as well as collateral the aim of which is to mitigate adverse

⁸³ For example, it is demonstrated how in the cross section of countries, higher distrust breeds higher level of government intervention even though the subjects and players know that the government itself is corrupt. See Philippe Aghion et al., "Regulation and Distrust," *The Quarterly Journal of Economics* 125, no. 3 (2010), 1015-1049.

selection problem) for average borrowers without making any distinction between good and bad borrowers. This result in turn drives creditworthy borrowers out of the credit market.⁸⁴

The alternative solution to these problems can much efficiently be achieved through the introduction of mechanisms which can structurally improve market forces, such as introducing credit rating agencies or having specialized financial intermediaries such as banks that are more capable of data collection and monitoring of borrowers and engaging in long-term relationships with customers.⁸⁵ Financial intermediaries' role in channeling financial resources to productive activities where they are most valued is mostly based on the fact that they can reduce information costs in a given economy.⁸⁶

This function of financial intermediaries is essential to every economic system.⁸⁷ The importance of such a function, which is normally invisible, comes to the fore in financial crises where the customers of failing banks are denied access to credit due to the loss of information on the creditworthiness of the borrowers associated with the bank failure. If the bank failure results in the loss of information on the borrowers, including individual and entities issuing bonds, this would result in loss of welfare and it will especially hurt the less well-known borrowers about whom there is less information available in the market.⁸⁸

3.2.2. Information externalities

Another major reason for the market failure in providing adequate information is the problem of externalities. In financial economics and financial regulation literature the problem of suboptimal provision of financial disclosure is studied in detail. It is shown that even though the disclosure might be socially optimal, it might not privately be so.⁸⁹ In this case, externalities create a

⁸⁴ Joseph E. Stiglitz and Andrew Weiss, "Credit Rationing in Markets with Imperfect Information," *American Economic Review* 71, no. 3 (1981), 393-410. The alternative solution to this problem can be credit rationing instead of raising interest rates.

⁸⁵ E. Philip Davis, *Debt, Financial Fragility, and Systemic Risk* (Oxford: Clarendon Press, 1995), pp. 141-143.

⁸⁶ In other words, introducing such mechanisms is an example of employing market-based approaches in addressing the information problem in the financial markets aimed at enhancing market mechanisms already in place.

⁸⁷ See Ross Levine, "Financial Development and Economic Growth: Views and Agenda," *Journal of Economic Literature* 35, no. 2 (1997), 688-726.

⁸⁸ Paces and Dirk, *Regulation of Banking and Financial Markets*, p. 14.

⁸⁹ See C. Leuz and P. Wysocki, "Economic Consequences of Financial Reporting and Disclosure Regulation: A Review and Suggestions for Future Research," (2008).

divergence between privately and socially optimal levels of disclosure. As an example, Admati and Pfleiderer show that in a model of voluntary disclosure by firms in financial markets, externalities arise when firm values are correlated. In such a setting, information disclosed to the market not only can be used in the evaluation of the disclosing firm, but also it can be used in the evaluation of other firms the prices of which is related to the disclosing firm's securities prices.⁹⁰ In other words, the costly disclosure of one firm can be used in the valuation of other firms creating the free-rider problem. In this case, Admati and Pfleiderer demonstrate that the amount of disclosure is often suboptimal and hence there is a scope for disclosure regulation to improve social welfare.⁹¹ Similar to the problem of commons or 'impure public goods' nature of information,⁹² this problem exists due to the externalities arising from non-excludability of the information when it is disclosed to the market. Due to the presence of positive externalities, the information producers would not be able to reap all the benefits generated from the production of information; hence, they will lack sufficient incentives to produce and disclose information to the market.

3.2.3. Two-sided asymmetric information problem

In addition to the above mentioned information problems, some financial institutions, especially banks might be subject to a two-sided asymmetric information problem. This might happen due to the fact that both banks and their customers may have private information which can be disguised from each other. On the asset side of the bank balance sheet, the bank does not know enough about the borrowers' ability to repay and meet their contractual obligations they have towards the bank in the form of repayment of loans.⁹³ In addition, on the liability side, the true liquidity needs of depositors which are essentially their private information are not known to the bank. Indeed, there is a two-sided asymmetric information problem in the relationship between

⁹⁰ Therefore, the positive externalities produced by the firm diminish the firms' incentives to produce information, because other market participants cannot be excluded from those positive externalities. In this case, socially suboptimal provision of information might be privately optimal. Such a divergence in the social and private optimality of the provision of information will result in market failure and in the presence of market failure, the provision of information in the markets will not be optimal.

⁹¹ Anat R. Admati and Paul Pfleiderer, "Forcing Firms to Talk: Financial Disclosure Regulation and Externalities," *Review of Financial Studies* 13, no. 3 (2000), pp. 512-513. See also M. B. Fox, "Retaining Mandatory Securities Disclosure: Why Issuer Choice is Not Investor Empowerment," *Virginia Law Review* 85 (1999), 1335.

⁹² Ogus, *Regulation: Legal Form and Economic Theory*, p. 34.

⁹³ Other depositors (or creditors) of banks also may not be able to observe and monitor this risk.

the bank and its depositors and borrowers. To drive home the point, this should be considered alongside the fact that the depositors have the right to withdraw their deposits upon demand while the banks cannot arbitrarily recall the loans they have made to the customers. Banks are historically considered fragile because of the liquidity problems arising from the maturity mismatch between their assets and liabilities.⁹⁴ Namely, if the depositors of banks collectively withdraw their deposits, the bank might face liquidity risk.⁹⁵ And in worst case scenarios such collective withdrawals can give rise to the fire sales and drive banks to bankruptcy.

3.2.4. Asymmetric information and coordination failure

Given the information problems that a bank faces, a simple coordination failure or an unfortunate accident can give rise to a (systemic) bank run. However, this problem is alleviated by the deposit insurance schemes and other explicit and implicit guarantees by governments. It is suggested that in the last 80 years, there were almost no serious bank runs on the major banks of the developed industrial countries by depositors because the government guarantees made the deposits information insensitive.⁹⁶ Although the traditional bank runs rarely occur, the same logic underlying bank runs might be the underlying reason for the runs in a slightly different form in the interbank repo markets.⁹⁷ Since the bank financing (especially short-term financing) occurs in money markets and the loans made in these markets, similar to demand deposits, can be withdrawn without any prior notice and simply by not rolling over the financial institutions' liabilities, there is possibility of runs in these markets.

Moreover, since there is no insurance coverage for these liabilities, such as commercial paper, repurchase agreements (repos), certificates of deposits, and claims on money market funds, whenever there is uncertainty about the ability of the financial institution to repay the loans,

⁹⁴ The function of banks in transforming short-term liabilities to long-term assets is called maturity transformation.

⁹⁵ Paces and Dirk, *Regulation of Banking and Financial Markets*, pp. 12-13.

⁹⁶ See: Gary B. Gorton, *Slapped by the Invisible Hand: The Panic of 2007* (New York: Oxford University Press, 2010a), p. 5.

However, even in the recent global financial crisis, there were instances of runs on banks such as the run on the Northern Rock.

⁹⁷ *Ibid.*

creditors will immediately withdraw their funds. Sometimes it might be the case that a rumor, or a simple guess or doubt causes a bank failure because of self-fulfilling prophecies.⁹⁸

This situation is not different from that of uninsured depositors running on a bank. As these short term funds in the money markets are not insured, the creditors (or parties to the repo) know that only a small part of the assets in the bank's balance sheet can be liquidated to meet the withdrawals. Since the repo markets withdrawals - similar to those of the depositors - work on a first-come-first-served basis, this will give additional incentives for the creditors to run on the bank on these markets. The only difference between a run on repo and a traditional bank run is that the run on repo is invisible and takes place much faster. Due to banks' interconnections in repo markets, such a run has the potential to spread around the world covertly and with an unprecedented pace.⁹⁹

3.2.5. Hedge fund's transparency deficit

One of the main features of hedge funds is their opaqueness. The opacity of hedge funds is mostly attributed to the fact that until recently they were not under any mandate to disclose information. Even though after the financial crisis new financial regulations introduced registration and disclosure requirements, hedge funds still remain opaque in many aspects.¹⁰⁰

There were at least three main reasons why hedge funds did not disclose their information. The first reason concerns the special regulatory treatment of hedge funds. Until recently, hedge funds were not required by laws and regulations to mandatorily disclose their positions and strategies including their performance information, detailed asset allocations, and earnings. The unique features of hedge funds' regulatory environment exempted them from the disclosure

⁹⁸ As Chari and Jagannathan's model suggests, bank runs can start with simple fears of insolvency of particular banks and subsequently spread to other sectors and institutions. Similarities or investor beliefs in similarities in the financial institutions' portfolio holding play an equally important role in bank runs. See V. V. Chari and Ravi Jagannathan, "Banking Panics, Information, and Rational Expectations Equilibrium," *Journal of Finance* 43, no. 3 (1988), 749-761.

For a classic explanation of bank runs and how to address those problems, see Walter Bagehot, *Lombard Street* (London: H.S. King, 1873).

⁹⁹ Paccos and Dirk, *Regulation of Banking and Financial Markets*, pp. 12-13.

¹⁰⁰ The details about how opaque hedge funds are and what new regulations brought about in hedge fund regulation with regard to information problems will be discussed in the third, fourth, and fifth chapters involving hedge fund regulation, here what matters is the elaboration of information problems embedded in the hedge fund industry.

requirements to which other financial institutions are subject. Therefore, hedge funds, unlike other mainstream financial institutions such as banks, mutual funds, and pension funds that should disclose their positions as well as their strategies mandatorily in their offering memoranda to retail investors, were under almost no mandatory disclosure requirement to report their positions and strategies to investors, markets, or regulators.

The second reason was that detailed disclosure of hedge fund positions can potentially prejudice their profits or expose them to trading risks. There are at least two major risks for hedge funds in disclosing their current positions. Firstly, suppose that a hedge fund is short on the stocks of a given corporation, the detailed disclosure about its short positions might make it vulnerable to a short squeeze¹⁰¹ by its competitors. Second, there is the risk that other managers would copy their strategies which can eliminate the opportunities and potential profits that hedge fund managers expected to pocket pursuing those strategies.¹⁰² Since indiscriminate disclosure requirements would give other market participants access to the hedge fund proprietary information, and may eliminate the value of their proprietary investment models and practices,¹⁰³ there are proposals for delayed disclosure.¹⁰⁴ However, it remains to be seen how effective this kind of disclosure requirements can be.

¹⁰¹ In order to take a short position, the trader usually borrows the securities from a dealer and sells them to the market with the expectation that price of the securities will be lower at certain point in the future at which the trader again will buy them back and return them to the dealer. By doing so, the short seller pockets the difference between higher sale price and lower purchase price at which he has bought them back and returned them to the dealer. However, short squeeze occurs when contrary to the expectations of the short sellers, the stock price of the security being shorted increases. In that case, since short sellers are vulnerable to unlimited losses, they might rush to purchase the securities to be returned to the dealer. The very rush to purchase the securities would contribute to further increase in their price of the shorted securities. This situation is called a short squeeze. Needless to say, imposing disclosure requirements on hedge fund positions will inform their competitors of their positions and make them strategically vulnerable to short squeeze, particularly if the short position is established on securities with limited liquidity or the securities of a company with fewer numbers of outstanding securities.

¹⁰² See Aikman, *When Prime Brokers Fail: The Unheeded Risk to Hedge Funds, Banks, and the Financial Industry*, pp. 69-70.

For example, it is argued that “a fund beginning to accumulate shares with a view to achieving a strategic position in a company would not want to announce publicly what it is doing until it has finished accumulating the position. Nor would a fund short in an illiquid market disclose its holdings, fearing a short squeeze. As an illustration, Lowenstein noted that when Long-Term Capital Management’s problems became known to its Wall Street competitors, the latter began to take trading positions to exploit the difficulties faced by the struggling hedge fund. In that particular case, disclosure of specific positions clearly had a very damaging impact.” See Lhabitant, *Handbook of Hedge Funds*, p. 33.

¹⁰³ Aikman, *When Prime Brokers Fail: The Unheeded Risk to Hedge Funds, Banks, and the Financial Industry*, pp. 69-70.

¹⁰⁴ Zingales, *The Future of Securities Regulation*, p. 393.

The third problem was that in the previous system of hedge fund regulation, some types of disclosure requirements could be considered as public marketing or solicitation that was prohibited for hedge funds. Therefore, hedge funds preferred not to report or reveal their positions to the financial markets, and hence they were not as transparent as their regulated counterparties.¹⁰⁵

In the comparative chapters of the thesis, the disclosure requirements and the regulatory treatment of proprietary information disclosure will be discussed in detail. Suffice it here to say that the absence of registration requirement on hedge funds or a central registry system generated a whole host of problems with regard to the data disclosed voluntarily by hedge funds.¹⁰⁶

The opacity of the hedge fund industry and the anomalies in hedge fund data gave rise to regulatory concerns regarding the potential systemic risk of hedge funds. The problem was that the opaqueness and anomalies stalled any informed regulatory response with regard to the potential systemic risk of hedge funds. Accordingly, the regulators on both sides of the Atlantic opted for imposing mandatory registration and disclosure requirements on hedge funds to which the thesis will return in chapters five and six.

3.2.6. Information regulation in financial markets

The mere absence of perfect information cannot justify government intervention. Given that the provision of information is costly, achieving a perfect information market condition might not be

¹⁰⁵ The JOBS Act in the U.S. removes this barrier. This Act will be discussed in the fourth chapter.

¹⁰⁶ A literature review of the empirical studies on the data about the hedge fund industry requires some caveats to be taken into account. These data have limitations in capturing the reality of hedge fund leverage, risks, and returns. The voluntary disclosure system in the hedge fund industry affects the reliability of the available data about hedge funds. Since data originating from the recent regulatory changes and the disclosure requirements thereof are not available as of this writing, the recourse of this study is to the available data which belong to the pre-crisis era. The problem of data inaccuracy in the hedge fund industry originate from the shortcomings of the voluntary disclosure mechanisms in place prior to the new regulations on both sides of the Atlantic. This problem is deeply affected by the biases in the data disclosed by hedge funds partly stemming from voluntary disclosure system prior to the regulatory overhaul after the financial crisis. Given the voluntary nature of data disclosure by hedge fund managers, the data is not representative of the entire industry's performance, risk, or leverage. Some of these biases are hedge fund specific and others are commonplace in the financial markets. Hedge funds data usually suffers from the following shortcomings: survivorship bias, stale price bias, instant history bias (backfill bias), self-selection bias, and multi-period sampling bias. For a detailed discussion of these biases and their causes in the hedge fund industry, See Vikas Agarwal and Narayan Y. Naik, "Hedge Funds," *Foundations and Trends in Finance* now Publishing INC, Hanover, MA (2005), pp. 55-56.

possible as well as optimal. Therefore, the aim of regulation is not to create a market with ‘perfect information’, but to provide ‘optimal amount of information’ related to the particular decision-making area. Optimal information in this sense means that the marginal costs of provision of information equals its marginal benefit. Although the precise estimation of ‘optimal’ information is unattainable, it is possible to identify situations in the markets in which the amount of information disclosed voluntarily is sub-optimal which will pave the way for possible interventionist measures.¹⁰⁷

On the other hand, the impure public goods nature of information in financial markets and the role of financial intermediaries and rating agencies in the provision of information suggest that the role of government intervention to provide information is of a complementary nature. In other words, problems associated with information in the marketplace can partly be alleviated by the private provision of information. For example, the role of credit rating agencies in monitoring and rating issuers of bonds can mitigate the severity of this problem. By the same token, banks can partly mitigate the free rider problem and profit from the production of information by screening and monitoring the borrowers and by making private loans which are not tradable in the secondary markets.¹⁰⁸

From among a variety of mechanisms to address the opportunistic behavior stemming from information problems in financial markets, the disclosure requirement as a remedy for market failures is the one which attracted more attention. For example, it is suggested that corporate disclosure can mitigate the adverse selection problem and increase market liquidity by leveling the playing field among investors.¹⁰⁹ It is further argued that mandatory disclosure can benefit the markets in which the product information is relatively difficult to understand.¹¹⁰ The underlying argument for mandatory disclosure requirements is based on the adverse selection which is a type of opportunistic behavior arising from information asymmetry between insiders of the firm and its investors, and among investors in the secondary market. Absent mandatory

¹⁰⁷ Ogus, *Regulation: Legal Form and Economic Theory*, pp. 38-39.

¹⁰⁸ Frederic S. Mishkin, *The Economics of Money Banking and Financial Markets*, 9th ed. (Boston: Pearson, Addison-Wesley, 2010).

¹⁰⁹ Robert E. Verrecchia, "Essays on Disclosure," *Journal of Accounting and Economics* 32, no. 1-3 (2001), p. 132.

¹¹⁰ Michael J. Fishman and Kathleen M. Hagerty, "Mandatory Versus Voluntary Disclosure in Markets with Informed and Uninformed Customers," *Journal of Law, Economics, & Organization* 19, no. 1 (2003), 45-63.

disclosure, the uninformed investors would have legitimate concerns in trading with better informed investors or insiders.

In the absence of reliable information, uninformed investors cannot tell the ‘lemons’ from the ‘peaches’. Therefore, to hedge against the potential losses from trading with informed investors, the uninformed or poorly-informed investors will discount the buying price of the securities or increase their selling price. The discount rate by the investors will reflect the probability of trading with informed investors multiplied by the potential information surplus of the counterparty. This price protection will result in a higher bid-ask spread in the market.¹¹¹ The higher bid-ask spread reduces the volume of trade and decreases the liquidity of the assets being traded, and in the extreme cases brings the financial markets to a standstill. In short, adverse selection problem prevents the desirable transactions and results in market failure. As a result, it leads to smaller size of the market or in some cases it totally brings about its collapse.¹¹²

Empirical studies on the market incentives of the firms to disclose are usually divided into two broad categories; firm specific benefits, and market benefits of disclosure. Market benefits arising from the information disclosure include enhanced liquidity, lower cost of capital, and better firm valuation. Given the benefits of the disclosure requirements, in the chapters discussing the regulation of hedge funds in the EU and the U.S., a detailed account of mandatory disclosure mechanisms imposed on hedge funds will be offered and their effectiveness in the assessment of systemic risk originating from the hedge fund industry will be discussed.

However, there is a particular concern about imposing mandatory disclosure requirements on hedge funds which concerns their proprietary information. Proprietary information is referred to as any information which includes sensitive, non-public information regarding the investment or trading strategies of investment advisers, analytical or research methodologies, trading data, and computer hardware or software containing intellectual property.¹¹³ Imposing mandatory disclosure requirements on the proprietary information can have negative consequences and

¹¹¹ Leuz and Wysocki, *Economic Consequences of Financial Reporting and Disclosure Regulation: A Review and Suggestions for Future Research*.

¹¹² Adverse selection is rampant in the insurance industry where the insurers know less about the to-be-insured. In this case, insurance companies have to charge higher insurance premiums or stop insuring altogether. Furthermore, information asymmetry about the features of a product can create almost the same problems created by the information asymmetry about the knowledge of the contracting parties.

¹¹³ 15 U.S.C. § 80b-4(b)(10)(B)

particularly can deprive financial markets from the benefits of hedge funds. Therefore, disclosure of such information receives special regulatory treatment such as requirement to maintain its confidentiality by regulators to whom such disclosure is made, and the exemption from the Freedom of Information Act (FOIA).¹¹⁴ Therefore, the regulatory dilemma is that the imposition of sweeping information disclosure on hedge funds undermines their benefits - such as diversification, liquidity, facilitation of price discovery mechanism, and their contrarian position taking function - to the financial system. Such benefits partially rest upon their ability to generate profits from proprietary information and special legal protections offered to such information in terms of its confidentiality.

In the aftermath of the recent financial crisis the opaqueness in the hedge fund industry came under fierce criticism due to their perceived contribution to financial instability. Proposals are put in place such as delayed disclosure system¹¹⁵ and the use of secure multi-party computation mechanisms¹¹⁶ for disclosure of hedge funds information to address their potential systemic risk. However, the effectiveness of both mechanisms is questioned. The thesis suggests that indirect information regulation of hedge funds through their counterparties, creditors, and investors aimed at harnessing market discipline is the second-best solution to address the under-provision of information by hedge funds.

The next section of this chapter will review the problems associated with imperfect competition in financial markets and will study its effects on hedge funds and other financial institutions. It is argued that competitive pressures coupled with differential regulatory treatment of identical financial instruments and institutions can give rise to regulatory arbitrage which in the long run can render regulations designed to address systemic risk toothless.

¹¹⁴ This is mostly due to the fact that such information is of critical importance for some market participants such as hedge funds most of whose profits originate from their investment in proprietary information and exploitation of market inefficiencies.

¹¹⁵ It is argued that such a delay can reduce the competitive cost of disclosure. See Zingales, *The Future of Securities Regulation*, p. 393.

¹¹⁶ For a detailed discussion of the methods that can be employed to disclose data while preserving the privacy involved therein, See Emmanuel A. Abbe, Amir E. Khandani and Andrew W. Lo, "Privacy-Preserving Methods for Sharing Financial Risk Exposures," *American Economic Review* 102, no. 3 (2012), 65-70.

3.3. Competition

Imperfect competition is one the classical examples of the barriers that does not allow the markets to arrive at their competitive (general) equilibrium. The failure of the competitive forces of the marketplace might ultimately culminate in monopolies. A monopolistic market is a market in which there is only one supplier for a good which has no close substitute.¹¹⁷ There are five major sources of monopoly: economies of scale, network economies, government license or franchise, control over important inputs, and patents.¹¹⁸ In this thesis, the two latter causes of monopoly, i.e., the control over inputs and patents will not be included. This is because they can hardly be relevant in the discussion about hedge fund regulation. In what comes next, a concise background for market failures arising from the competition problems is offered.

3.3.1. Economies of scale

As Stigler concisely puts; “[t]he theory of the economies of scale is the theory of the relationship between the scale of use of a properly chosen combination of all productive services and the rate of output of the enterprise.” The theory of economies of scale and scope is of significant importance in shaping and structuring markets “for it underlies every question of market organization and the role (and locus) of governmental control over economic life.”¹¹⁹ This theory briefly implies that “the greater the level of output, the lower the average cost of production”.¹²⁰ There are at least two major reasons why growing large generally reduces per unit costs. First, specialization of labor force which makes it more skillful and consequently raises the economic productivity. The second reason relates to the higher start-up and fixed costs in the large scale industrial economies. In such industries, having small scale can cause diseconomies of scale due to higher fixed costs which may adversely affect the price of the marginal unit and can result in lower surplus both for the producer and the consumer. In such industries, once the means of production established and the fixed costs consumed, the marginal costs will be very low. In this case, extending the scale of the firms will result in higher marginal benefits.

¹¹⁷ See Perloff, *Microeconomics: Theory & Applications with Calculus*, p. 363.

¹¹⁸ See Robert H. Frank, *Microeconomics and Behavior*, 7th ed. (New York: McGraw-Hill, 2008a).

¹¹⁹ George J. Stigler, "The Economies of Scale," *Journal of Law and Economics* 1 (1958), p. 54.

¹²⁰ R. Cooter and T. Ulen, *Law and Economics*, 3rd ed. (New York: Addison Wesley Longman, Inc., 2000), p. 31.

Although diseconomies of scale may appear with a high variance in different firms, there is a point for the firms beyond which diseconomies of scale would outweigh the economies of scale. In other words, beyond that output level the long-run average total cost will rise and stifle the economies of scale. Therefore, depending on the industry, there is a point beyond which the economies of scale will turn into diseconomies of scale. According to this theory, there exist a maximum and minimum efficient size for any economic firm, the firms below the minimum efficient size have higher per unit costs and the firms larger than that efficient size cannot maximize their profits.¹²¹

If there are economies of scale in a certain industry, ‘one’ firm can produce any level of output in a lower cost than ‘many’ firms.¹²² In other words, “when the long-run average cost curve (given fixed input prices) is downward sloping, the least costly way to serve the market is to concentrate production in the hands of a single firm” which paves the way for the emergence of natural monopolies.

The same logic for economies of scale in the real economy can be applied to financial markets. There are at least two major factors which give rise to economies of scale; huge start-up costs keeping potential competitors out of the market, and dramatic fall in the per unit production costs. Though there is almost no clear-cut empirical evidence for considerable economies of scale in the financial sector,¹²³ it seems that financial sector displays, to a certain extent, economies of scale and network economic effects through cross-selling. These two effects, hand in hand, might weaken the competition in markets and create natural monopolies or concentrated markets which can pose systemic risk by reinforcing the financial institutions tendency to become TBTF.

¹²¹ Taking advantage of the economies of scale is one of the characteristics of the oligopolistic markets in which in the supply side, there are few suppliers and they can meet the needs of the whole market. See J. Gwartney et al., *Microeconomics: Private and Public Choice*, 11th ed. Thompson/South western, 2006), pp. 241-242.

Regarding the economies of scale, it should also be noted that there are differences between the markets subject to study. Based on the industrial, agricultural, and service economies, the ideal firm size may vary. The industrial economies tend to be larger, while the two others tend to be smaller.

¹²² Cooter and Ulen, *Law and Economics*, p. 31.

¹²³ See Admati and Hellwig, *The Bankers' New Clothes: What's Wrong with Banking and What to Do about It*.

As pre-1990s empirical studies suggest, smaller banks were more profitable than the larger ones.¹²⁴ However, with increasing use of the Internet, computer and communication technologies in the financial industry, a whole host of opportunities for huge economies of scale and scope emerged. The increasing use of financial software in risk management made calculations related to most sophisticated financial transactions and services increasingly easier.¹²⁵ It goes without saying that these advantages did spill over to the information-related services, such as servicing loans and other extensions of credit, investment and financial advising, providing book keeping or data processing services, and management and consulting for unaffiliated banks.

Another problem that can give rise to anti-competitive effects in financial markets is the existence of “natural monopolies” on information production. One of the basic functions of financial intermediaries is their screening and monitoring function of the borrowers. Since there are economies of scale in the production of information, this will lead to the reduction in the costs of production of information. On the other hand, since duplication of the already acquired information by another financial institution is socially wasteful, a case can be made for the monopolization of the production of such information which might result in natural monopolies.¹²⁶

Due to a need for innovation, expertise of highly qualified financial engineers, ever-changing technologies, and the need for more sophisticated facilities, the start-up investments in financial industry entail huge costs. Once established, the marginal cost of producing financial products and services nears zero. Thus, theoretically speaking, large financial institutions gain huge

¹²⁴ These studies should be taken into account in light of the fact that they mostly failed to account for the role of innovations and technologies in the financial industry and the ensuing economies of scale. From the standpoint of technological advances, the banking era can be divided into pre and post-1990s. Before 90s, most banking profits were based on traditional banking activities such as relationship lending. The reliance on the traditional business lending made the retailers and local financial industries, those who were focused on providing local services in the banking and overall financial industry, be more profitable in their business activities. Furthermore, since the ratio of retail loans to total loans was higher in smaller banks’ portfolios, it contributed to the profitability of the smaller banks. These empirical studies also show that the large banks were neither more profitable nor more cost effective than smaller ones.

¹²⁵ Back office operations processing, delivery of services, credit and market risk management, marketing and development of new services, and marketing for retail lending are among the ones mostly affected by these technological innovations.

¹²⁶ Mathias Dewatripont and Jean Tirole, *The Prudential Regulation of Banks* (Cambridge, Massachusetts: MIT Press, 1994).

advantages over smaller ones.¹²⁷ Empirical evidence also shows substantial economies of scale in banking.¹²⁸ For example, because of the high start-up costs in the prime brokerage business,¹²⁹ the new entrants in this business need to improve their platforms and services compared to existing leading prime brokers to attract new hedge fund customers. Otherwise, hedge funds will select their prime brokers from among the few ‘elite’ prime brokers.¹³⁰

Although there exist economies of scale in the prime brokerage business, the hedge fund industry itself does not display such a phenomenon. Firstly, because there are almost no or negligible statutory or legal entry and exit barriers in the hedge fund industry. Secondly, hedge funds size and investor base are normally small because of the legal restrictions on the investor qualifications. Third, the size does not play a role in hedge fund success, i.e., investment strategies employed by hedge funds are not scalable.¹³¹ In other words, the crucial venues

¹²⁷ Not only did the use of these technologies create opportunities for economies of scale in the domestic financial markets, but also they paved the way for converging global financial market and created new venues for economies of scale in financial institutions in a greater scale. Furthermore, these developments contributed to a greater extent to the concentration in the securities trading and foreign exchange markets. Therefore, concentration is no longer limited to banking sector and it can be seen in other financial institutions and intermediaries such as broker-dealers, mutual funds, pension funds, and hedge funds. These huge economies of scale made the financial markets prone to the emergence of huge monopolies which needed to be torn down by anti-trust laws.

¹²⁸ Joseph P. Hughes and Loretta J. Mester, "Who Said Large Banks Don't Experience Scale Economies? Evidence from a Risk-Return-Driven Cost Function," *Journal of Financial Intermediation* (4 July, 2013).

However, it is suggested that big banks' profitability might not be attributable to efficiencies in scale, but it should be studied in light of the implicit guarantees offered to TBTF banks. The distortive effect of these guarantees is such that some mergers in the banking sector were motivated by achieving TBTF status and gaining access to implicit government guarantees. See Elijah III Brewer and Julapa Jagtiani, "How Much did Banks Pay to Become Too-Big-to-Fail and to Become Systemically Important?" *Journal of Financial Services Research* 43, no. 1 (2013), 1-35. Furthermore, in the aftermath of the global financial crisis, another concern for the failure of competition emerged; i.e., regulators and central bankers' concerns about systemic risk and the failure of big financial institutions and spill-overs to the real economy pushed concerns about competition aside. One of the unintended consequences of bailing out the financial institutions was significant reduction in the competition, more concentration in the banking sector, and rising TBTF concerns. Some financial institutions arising from the post-crisis reorganizations, initially initiated to save the financial system from the dangers and risks of failure of TBTF banks, became so large that gave rise to concerns about the financial institutions becoming too-big-to-save. See Brunnermeier et al., *The Fundamental Principles of Financial Regulation: Geneva Report on the World Economy*, pp. 2-3.

¹²⁹ Prime brokers as part of major investment banks are broker-dealers that clear and finance customer trades executed by one or more other broker-dealers, known as executing brokers. See President's Working Group, *Hedge Funds, Leverage, and the Lessons of Long-Term Capital Management*, 1999), p. B-4.

Prime brokerage services are the services offered by investment banks and securities firms to their prime clients such as hedge funds and other professional investors. These services include securities lending, repo financing, acting as custodian of customers' securities, clearing of the customers' transactions, capital raising for customers, and providing seed investment for their prime clients. Prime brokers also offer execution brokerage services, such as services related to trade execution, transition management, commission sharing arrangements, direct market access (DMA), and research. See Aikman, *When Prime Brokers Fail: The Unheeded Risk to Hedge Funds, Banks, and the Financial Industry*, p. 31, 125-126.

¹³⁰ *Ibid.*

¹³¹ Lhabitant, *Handbook of Hedge Funds*, p. 34.

through which hedge funds can successfully operate and gain profits are managerial skills and available investment opportunities and these two factors are not scalable, meaning that they do not yield economies of scale.¹³²

3.3.2. Network Economies

On the demand side of certain markets, the value of certain products or services depends on the number of consumers using that product. Network externalities arise when greater numbers of users join to a network. The theory of network effects suggests that “the utility that a given user derives from a good depends upon the number of other users who are in the same “network” as is he or she.”¹³³ At its extreme, the functioning of network economies is similar to the economies of scale in creating natural monopolies. The theories of economies of scale and network economies traditionally were used to explain natural monopolies such as utility companies; however, the appeal to this argument has been increased in financial system with the advent of network economies arising from a single clearing house¹³⁴ with monopoly power over providing certain clearing services. The concern in this case is that those having control over the access to this network can seek huge economic rents from those trying to join the network.¹³⁵

The primary concern with network effects as related to this study does not concern hedge funds themselves, but it is mainly about the network economic effects in the prime finance industry. Network effects arise in this context because prime brokers can enjoy increased fees for providing services to more hedge funds and hedge funds can use techniques such as cross-selling that may occur in the course of their business with other hedge funds doing business within the

¹³² In addition, taking account of the fact that hedge funds are known for their short-term investments, instead of increasing the number of their investors or clients, hedge funds can increase the size of their investment by taking more leverage should new opportunities emerge. However, the successful application of some strategies needs larger size. For example, in multi-strategy funds which actively deploy capital as market opportunities emerge, size might be an advantage. *See Ibid.*

¹³³ Katz, M. & Shapiro, C., "Network Externalities, Competition, and Compatibility," *The American Economic Review* 75, no. 3 (1985), p. 424.

Needless to say, the network economic effect is the flip side of the economies of scale. *See Frank, Microeconomics and Behavior.*

¹³⁴ A clearing house is a financial institution that provides clearing and settlement services for securities transactions. It stands between parties to a transaction and plays a major role in mitigation of the counterparty risk in the settlement of the financial obligations.

¹³⁵ Brunnermeier et al., *The Fundamental Principles of Financial Regulation: Geneva Report on the World Economy*, pp. 2-3.

same network through the medium of the same prime broker. Thus, the more hedge fund clients a prime broker has, the greater the returns for both hedge funds and prime brokers will be. In this relationship, these network economies would essentially create a *de facto* barrier to entry into the prime brokerage business and render the market for prime brokers monopolistic or oligopolistic.

On the other hand, what amplifies the effects of network economies in prime brokerage is that prime finance industry is very likely to project the features of a platform in which the relationship between hedge funds and their prime brokers creates a two-sided market.¹³⁶ This is mostly because of the possibility of rehypothecation¹³⁷ of the collateral provided by hedge funds to prime brokers. Rehypothecation of the collateral makes the prime brokers consumers of goods and services provided by hedge funds and on the other hand, the services provided by prime brokers to hedge funds make hedge funds the consumers of the services provided by prime brokers. Put differently, in return for access to liquidity and leverage that prime brokers provide for hedge funds, hedge funds provide prime brokers with collateral which can be rehypothecated and hence can help prime brokers to meet their liquidity needs. This two-sided market reinforces the effects of network economies in the prime finance industry and makes this market vulnerable to be taken over by monopolies.

3.3.3. Government licenses and franchises

There are markets in which anyone but a government licensed firm or a franchisee is prohibited from doing business. In such cases, the government license or franchise value creates monopoly over the production of goods and services subject to the franchise agreement, which in effect creates an economic rent. In most cases licensing and franchising is a disguised demonstration of

¹³⁶ A two-sided market is “one in which 1) two sets of agents interact through an intermediary or platform, and 2) the decisions of each set of agents affects the outcomes of the other set of agents, typically through an externality... The distinguishing feature in this case is whether the seller is paid based on the success of the platform with the buying side.” See Marc Rysman, "The Economics of Two-Sided Markets," *The Journal of Economic Perspectives* 23, no. 3 (2009), 125-143.

¹³⁷ Rehypothecation occurs when an intermediary holding securities on behalf of investors grants a security interest or encumbers those securities to obtain financing for itself. Steven L. Schwarcz, "Distorting Legal Principles," *Journal of Corporation Law* 35, no. 4 (Summer 2010, 2010), pp. 699.

In the context of the relationship between hedge funds and prime brokers, rehypothecation is the reuse of hedge funds' collateral by prime brokers in other transactions with other financial intermediaries completely unrelated to the original transaction. See Gorton, *Slapped by the Invisible Hand: The Panic of 2007*. See also James Aitken and Manmohan Singh, *Deleveraging After Lehman--Evidence from Reduced Rehypothecation (EPub)*, Vol. 9, International Monetary Fund, 2009).

economies of scale. However, there are instances in which governments require licensing that do not seem to be related to the economies of scale. Most occupational licensing for physicians, lawyers, and other similar occupations might fall in this category which is usually based on the protection of general public from incompetence. Whatever the reason behind licensing, its effect is the restriction of entry to a given market which may give rise to monopolies and associated social welfare losses.

In the hedge fund industry, at least at first blush, it seems that since government licensing was not a requirement, there seems to be no need for the study of licensing and the value it creates for certain financial institutions. However, as the study of regulatory arbitrage will suggest in the next section, the government licensing of some financial institutions would be of crucial significance in maintaining the boundaries between heavily regulated and lightly regulated financial institutions. The importance of licensing becomes highlighted when the charter value created by government licensing can protect the heavily regulated institutions from competing with lightly regulated financial institutions. As Gorton suggests, financial deregulation within the last forty years resulted in the decrease in the charter value of banks and the emergence of the shadow banking system the activities of which is perceived to be one of the major culprits of the recent global financial crisis.¹³⁸ Hence, it is argued that certain structural regulation is needed to prevent the systemic risk stemming from the weakening of bank charter value.¹³⁹

¹³⁸ The shadow banking (also known as securitized banking) is a system of credit intermediation involving activities and institutions outside the traditional banking system. See Financial Stability Board, *Progress in the Implementation of the G20 Recommendations for Strengthening Financial Stability: Report of the Financial Stability Board to G20 Finance Ministers and Central Bank Governors*, 2011).

The shadow banking also refers to the origination, acquisition, and pooling of debt instruments into diversified pools of loans and financing the pools with short term external debt. See Nicola Gennaioli, Andrei Shleifer and Robert W. Vishny, "A Model of Shadow Banking," *NBER Working Paper no. 1711* (2011).

It is mostly because of this function that the shadow banks are given the label of "non-banks performing bank-like functions". See Financial Stability Board, *Progress in the Implementation of the G20 Recommendations for Strengthening Financial Stability: Report of the Financial Stability Board to G20 Finance Ministers and Central Bank Governors*.

It is also due to its financial intermediation function that the shadow banking system is considered as an alternative term for market finance because it "decomposes the process of credit intermediation into an articulated sequence or chain of discrete operations typically performed by separate specialist non-bank entities which interact across the wholesale financial market". See European Repo Council, *Shadow Banking and Repo*, 2012). See also European Commission, *Green Paper: Shadow Banking*, 2012).

Needless to say, not only does the shadow banking include MMMFs, but also it includes hedge funds, private equity funds, proprietary trading desks of traditional banks and other similar institutions essentially engaging in maturity and liquidity transformation. See Gennaioli, Shleifer and Vishny, *A Model of Shadow Banking*.

¹³⁹ Gary B. Gorton, *Slapped by the Invisible Hand: The Panic of 2007* (New York: Oxford University Press, 2010b).

3.4. Competitive equity and the problem of regulatory arbitrage

In regulation of economic activities the alternatives are no longer between the two polar extremes of *laissez-faire* capitalism and government central planning.¹⁴⁰ The complexity of modern economies automatically boils down the alternatives to no more than one, i.e., a mixed economy within which free economic activities are intermingling with government intervention; together playing a major role in shaping economic incentives. Although based on the ideology and the dynamics of different economic systems, the level of government intervention ebbs and flows, the consequences of such interventions are not to be underestimated. One of the challenging problems arising from having a mixed economy in place is drawing the boundaries between regulated and unregulated markets on the one hand, and lightly regulated and heavily regulated markets on the other hand. In addition, multinational firms have to operate their business in a patchwork of fragmented regulatory regimes at the global level. It is in such a context that regulatory arbitrage opportunities arise due to the firms' desire to maximize their profits by exploiting the regulatory discrepancies that such a differential regulatory context creates. Hence, in addition to comingling of regulated economic activities with unregulated ones,¹⁴¹ regulatory arbitrage is a by-product of fragmented regulatory systems.

In this section, it is argued that the competitive forces in financial markets push financial institutions and markets towards efficiency. To be able to become and stay competitive, financial institutions have to decrease their costs of business. One of the main venues for cutting costs in the financial industry is to cut the regulatory costs. In order to reduce the regulatory costs, financial institutions may engage in regulatory arbitrage and shift the business to the least regulated markets. In financial markets, lightly regulated hedge funds compete for the same financial services with heavily regulated financial institutions such as banks, mutual funds, and pension funds. In such a competitive setting, it is very likely that hedge funds will encourage regulatory arbitrage behavior among heavily regulated financial institutions such as banks.

In this section, the effects of competitive pressures in the market on hedge funds and other financial institutions will be studied in light of the concept of positional externalities. Then, the

¹⁴⁰ Sanford Ikeda, *Dynamics of the Mixed Economy: Toward a Theory of Interventionism* (New York: Routledge, 2003).

¹⁴¹ James W. McKie, "Regulation and the Free Market: The Problem of Boundaries," *The Bell Journal of Economics and Management Science* 1, no. 1 (1970), 6-26.

causes of the regulatory arbitrage by hedge funds will be identified. Regulatory arbitrage by hedge funds is likely to increase the systemic risk particularly when hedge funds engage in activities which traditionally were in the realm of the banking business.

In financial regulation, the asymmetric need for financial regulation requires having boundaries in place. This is critically important when regulation is intended to address systemic risk. For example, some financial institutions are perceived to be systemically important because of their size or interconnectedness and others are not deemed to be so. In this case, it is argued that SIFIs need a set of new tailor-made regulation to prevent the future financial crises. However, the very (re)categorization evolving from the differentiation of financial institutions will lead to the boundary problem¹⁴² and raise the question of how and where to set the new boundaries between SIFIs and the institutions that are not systemically important.¹⁴³

What gives rise to the boundary problem and regulatory arbitrage is best explained by the concept of positional externalities in behavioral economics. Positional externalities arise in a context in which the utility that an economic agent derives from consumption of goods or services depends on their relative and not absolute consumption. Thus, positional goods or services are those whose consumption is related to the context in which those goods or services are consumed.¹⁴⁴ In the context of regulatory arbitrage by hedge funds, these externalities are generated as a result of the asymmetric regulatory treatment of homogenous activities which are inherently similar or identical in nature.

¹⁴² Boundary problem, which is a manifestation of regulatory arbitrage, denotes a situation in which there is substitution flow of financial activities towards less regulated activities when the costs of 'effective regulations' make the regulated activities more costly and hence less profitable. See Charles Goodhart, "The Boundary Problem in Financial Regulation," *National Institute Economic Review* 206, no. 1 (2008), 48-55.

¹⁴³ As an example of one of the proposals for addressing systemic risk through regulating the SIFIs taking advantage of the boundary problem, See Brunnermeier et al., *The Fundamental Principles of Financial Regulation: Geneva Report on the World Economy*.

¹⁴⁴ Robert H. Frank, "Positional Externalities Cause Large and Preventable Welfare Losses," *The American Economic Review* 95, no. 2 (2005), 137-141. See also Robert H. Frank, "Should Public Policy Respond to Positional Externalities?" *Journal of Public Economics* 92, no. 8-9 (8, 2008b), 1777-1786.

Some scholars criticize this concept on the grounds that the positional externalities are not externalities at all, but they are just the result of the normal competitive forces of the marketplace. See Andrew Kashdan and Daniel B. Klein, "Assume the Positional: Comment on Robert Frank," *Econ Journal Watch* 3, no. 3 (2006), 412-434.

In this chapter, whether these effects are externalities or not, is not subject to debate. What matters is the result of such a setting in financial markets, be it the result of positional externalities or the result of the competitive forces of marketplace.

For example, it is well established that the optimal amount of leverage of a given firm depends on the leverage of other firms in the same industry.¹⁴⁵ With increasing banking disintermediation, it is expected that the amount of leverage used by the shadow banking system affects the level of leverage used by traditional banks. New and higher levels of use of leverage might change the context (anchor points) within which the existing level of taking leverage is evaluated. Therefore, having more leveraged positions in some parts of the financial system encourages more leverage in other sectors of that system. To put it differently, the use of leverage by one firm might increase the appetite for the use of leverage in other firms and in the end, increase the overall leverage of the system which eventually may harm the entire system.¹⁴⁶

The positional externality argument about leverage also underscores the fact that the costs of leverage are not limited to the entity or fund employing leverage and its individual costs might be much less than its social costs. This is because taking higher leverage by one firm encourages more leveraged financing by other firms. In times of financial distress overall costs will be much higher if compared to the case in which the leverage is taken as a non-positional good or service. Since the amount of leverage used by firms in the market has a positive relationship to the liquidity of the market, during leverage cycles and in times of boom, leverage contributes to the liquidity of the market. In contrast, in the busts, because of a sudden need for deleveraging by highly leveraged firms, it dries up the liquidity in the market contributing to credit crunch and eventually financial crises. Thus, the more levered the financial institutions are, the higher the probability of a deeper liquidity crisis in times of bust gets.¹⁴⁷ In addition to almost unlimited use of leverage, the other features of the hedge fund industry which may give rise to positional

¹⁴⁵ Andrei Shleifer and Robert W. Vishny, "Liquidation Values and Debt Capacity: A Market Equilibrium Approach," *Journal of Finance* 47, no. 4 (1992), 1343-1366.

¹⁴⁶ Competitive pressures in financial markets will also increase the propensity of financial firms to reduce costs. Assuming that regulation imposes costs on the firms, the firms will try to shift their business to lightly regulated or unregulated financial markets to avoid the costs associated with regulation. Not only do such competitive pressures work in terms of shifting the business to less regulated financial sector, but also these pressures increase the tendency of financial firms in terms of investing in risky assets as well as taking more leverage. In this market setting, it is not easy to forgo the benefits of leverage in bullish markets as the competitors of the firm are enjoying the profits by taking more leverage. Indeed, so far as everybody is competing, everybody else will remain on the scene. In other words, "As long as the music is playing, you've got to get up and dance." See Michiyo Nakamoto and David Wighton, "Citygroup Chief Stays Bullish on Buy-Outs," *Financial Times*, July 9, 2007. <http://www.ft.com/intl/cms/s/0/80e2987a-2e50-11dc-821c-0000779fd2ac.html#axzz2nUQ0BJYk>.

¹⁴⁷ See Markus K. Brunnermeier, "Deciphering the 2007–2008 Liquidity and Credit Crunch," *Journal of Economic Perspectives* 23, no. 1 (2009a), 77-100.

For a general historical perspective of the dangers of using leverage, see Carmen M. Reinhart and Kenneth S. Rogoff, *This Time is Different: Eight Centuries of Financial Folly* (Princeton: Princeton University Press, 2009).

externalities include, inter alia, nearly unrestrained use of financial strategies at the disposal of hedge funds and unlimited investment concentration by the industry.

To recapitulate, the optimal amount of leverage of a given firm depends on the leverage of other firms in the same industry. Since leverage amplifies gains in bull markets, those who take less leveraged positions in good times will certainly underperform and forego substantial amounts of profits on their investment. Lagging behind their competitors, managers will have incentive to take more leverage. A bad equilibrium arising from positional externalities will be a more leveraged financial system. Taking into account the dark side of the leverage in distressed and illiquid markets that can lead to fire sales, increased level of leverage will be significantly cataclysmic in bad times. Given the interconnectedness of shadow banks with other major SIFIs, in times of crises, governments will have no choice other than bailing them out at the expense of the taxpayers. This in turn will give rise to further moral hazard for TITF institutions in the financial system. The result will be the persistence of this bad equilibrium.

From among the financial institutions, hedge funds are historically viewed as paragons of exploiting regulatory discrepancies. Moreover, the recent global financial crisis triggered a debate about their contribution to the financial crisis. Thus far, there is an immense literature studying the potential systemic externalities of hedge funds. Although different explanations are offered for the unprecedented regulatory animosity towards hedge funds,¹⁴⁸ the post-crisis anti-hedge fund sentiment is understandable against a background of gaming regulatory regimes by hedge funds through engaging in regulatory arbitrage.¹⁴⁹

¹⁴⁸ Romano argues that such a move towards regulating hedge funds is understandable against the backdrop of the traditional hostility against short selling activities. See Roberta Romano, "Against Financial Regulation Harmonization: A Comment," *Yale Law & Econ Working Paper No. 414* (2010).

¹⁴⁹ It is in such a context that the boundary problem arises. Boundary problem broadly defined refers to shifting of activities from (heavily) regulated financial sector to unregulated or lightly regulated financial sector. It is one of the unintended consequences of effective regulation. Effective regulation is costly and "it is likely to penalise those within the regulated sector, relative to those just outside, causing substitution flows towards the unregulated." See Goodhart, *The Boundary Problem in Financial Regulation*, 48-55.

In other words, the boundary problem comes to the fore where there is comingling of regulated economic activities with unregulated ones, or where the new innovations, technologies, and organizations emerge trying to cross the boundaries and circumvent the rules in place. See McKie, *Regulation and the Free Market: The Problem of Boundaries*, 6-26.

3.4.1. Regulatory arbitrage: Definition and dynamics

The term arbitrage refers to “the exploitation of price differences between two goods that are essentially the same”.¹⁵⁰ Arbitrage usually takes place where the prices of identical goods are different in two different markets. In addition to the price differentials stemming from market inefficiencies, some of these differentials arise from different regulatory schemes. To understand regulatory arbitrage, regulatory requirements should be viewed as the price of doing certain business activities in a particular jurisdiction. In this context, differential regulatory treatment of homogenous activities in different jurisdictions imposes differential costs on the identical economic activities. Accordingly, the goods and services produced within these two jurisdictions will have different fixed costs. This difference in fixed costs will affect the price of final products and services.

Opportunities for the regulatory arbitrage may arise within one single jurisdiction¹⁵¹ or between two or more jurisdictions. On the one hand, ‘inter-jurisdiction regulatory arbitrage’ arises from differential regulatory treatment of identical business activities in different jurisdictions.¹⁵² In this case, absent international financial coordination, regulatory arbitrage can be conducted across national jurisdictions. The principle of sovereignty in international law which entitles states to independently manage their internal economic affairs and excludes other nation-states from interfering in their domestic affairs is the main reason for differential regulatory treatment of homogenous activities in different jurisdictions.¹⁵³ A firm which is free to choose between two jurisdictions with differential regulatory costs will engage in doing business at lower regulatory costs (price).¹⁵⁴

On the other hand, ‘intra-jurisdiction regulatory arbitrage’ arises where one jurisdiction treats similar financial activities differently. In the presence of such differential regulation, if there are

¹⁵⁰ Engert, *Transnational Hedge Fund Regulation*, p. 357.

¹⁵¹ It seems that what Charles Goodhart dubs the ‘boundary problem’ is equivalent to the ‘intra-jurisdictional regulatory arbitrage’.

¹⁵² *Ibid.*

¹⁵³ Such an independent approach to domestic markets came under immense pressure with rising forces of globalization. In addition to the above considerations for differential regulatory treatment, the role of exogenous factors should not be overlooked. Factors such as lobbying are a permanent feature of financial regulation. For example, Partnoy argues that the structure of existing financial regulation is, in major parts, determined by the securities industry itself. He attributes the existence of regulatory exemptions mostly to the industry lobbying. See Partnoy, *Financial Derivatives and the Costs of Regulatory Arbitrage*, p. 225.

¹⁵⁴ Engert, *Transnational Hedge Fund Regulation*, p. 357.

two methods of achieving the same outcome within one jurisdiction and one method costs less than the other, *ceteris paribus*, a profit maximizing firm will choose the method involving lower costs either by restructuring its legal entity (institutional engineering) or by shifting the business activities towards the method involving the least costs using legal and financial engineering.

In short, firms engage in regulatory arbitrage either by restructuring or reorganizing their legal entity or by shifting their business transactions to the least regulated markets. The latter form is achieved either by manipulating the design of the financial product or by changing the markets in which trades take place. Therefore, in its broadest definition, regulatory arbitrage refers to shifting activities from a heavily regulated financial sector to an unregulated or lightly regulated financial sector with the aim of maximizing profits by taking advantage of the regulatory differentials within or between jurisdictions.

Regardless of its form, regulatory arbitrage is heavily criticized for rendering regulatory efforts to address systemic risk ineffective.¹⁵⁵ Regulatory arbitrage is indeed one of the unintended consequences of effective regulation. Effective regulation is costly and “it is likely to penalise those within the regulated sector, relative to those just outside, causing substitution flows towards the unregulated.”¹⁵⁶ Firms engaged in regulatory arbitrage are often doing so to avoid taxes, accounting standards, securities disclosure requirements, and other regulatory burdens.¹⁵⁷ There are different mechanisms to engage in regulatory arbitrage. The most popular and apparently the least costly mechanism involve the manipulation of the structure of a deal.¹⁵⁸ For instance, most financial derivatives were designed to take advantage of arbitrage opportunities. Derivatives and strategies exploiting such market discrepancies allow market participants to circumvent financial regulations and tax burdens.¹⁵⁹

¹⁵⁵ For example, Acharya and Richardson believe that the regulatory capital arbitrage was at the heart of the recent financial crisis. See Viral V. Acharya and Matthew Richardson, "Implications of the Dodd-Frank Act," *Annual Review of Financial Economics* 4, no. 1 (2012), p. 10.

¹⁵⁶ Goodhart, *The Boundary Problem in Financial Regulation*, 48-55.

¹⁵⁷ Victor Fleischer, "Regulatory Arbitrage," *Texas Law Review* 89, no. 2 (2010), p. 229.

¹⁵⁸ *Ibid.*

¹⁵⁹ Lynn A. Stout, "Betting the Bank: How Derivatives Trading Under Conditions of Uncertainty can Increase Risks and Erode Returns in Financial Markets," *Journal of Corporation Law* 21, no. 1 (Fall 95, 1995), p. 57.

It is well acknowledged that one of the driving forces behind financial innovation has been financial regulation.¹⁶⁰ Indeed, some of innovative financial instruments are “designed to keep regulators in the dark”.¹⁶¹ In this perspective, most financial innovations were strategic responses to regulations. Financial institutions have created an array of innovative derivative instruments to circumvent regulations or decrease the costs of compliance. For example, Gorton and Metrick identify regulatory changes as one of the major factors giving rise to shadow banks, the other being the private innovation.¹⁶² They attribute the rise of the shadow banking to the regulatory and legal changes within the past four decades which gave advantage to three main categories of financial institutions: money-market mutual funds (MMMFs) which captured retail deposits from traditional banks, securitization which helped traditional banks to move assets off their balance sheets, and repurchase agreements (repos) facilitating the use of securitized bonds as money. Needless to say, not only does the shadow banking include MMMFs, but also it includes hedge funds, private equity funds, proprietary trading desks of traditional banks and other similar institutions essentially engaging in maturity and liquidity transformation.¹⁶³

3.4.2. Regulatory Arbitrage: A historical retrospect

Regulatory arbitrage has as long a history as regulation itself and is as ubiquitous as economic regulation. The first instances of regulatory arbitrage are documented in the taxation context. Historical evidence suggests that the tax evasion was a universal phenomenon in ancient Greece. The great lawgiver of ancient Athens, Solon, was criticized on the account that the strong and the clever could escape his laws by twisting those laws to their advantage. Furthermore, the

¹⁶⁰ Miller, *Financial Innovation: The Last Twenty Years and the Next*, 459-471. See also Partnoy, *Financial Derivatives and the Costs of Regulatory Arbitrage*, pp. 227-228.

¹⁶¹ Tirole, *Lessons from the Crisis*, p. 29.

¹⁶² Gary B. Gorton and Andrew Metrick, "Regulating the Shadow Banking System," *Brookings Papers on Economic Activity*, no. 2 (2010), 261-312.

¹⁶³ Gennaioli, Shleifer and Vishny, *A Model of Shadow Banking*. According to the Financial Stability Board (FSB), liquidity transformation is “the issuing of liquid liabilities to finance illiquid assets.” See Financial Stability Board (FSB), *Shadow Banking: Scoping the Issues, A Background Note of the Financial Stability Board*, 12 April 2011), p. 3.

The FSB also defined the liquidity transformation as “a concept similar to maturity transformation that entails using cash-like liabilities to buy harder-to-sell assets such as loans.” See *Ibid*.

systematic circumvention of the Hippocratic code of medical ethics regarding abortion by physicians outsourcing the practice to midwives is well documented.¹⁶⁴

Not so far from Greece, Bartlett illustrates how differential tax treatment of citizens (especially small landowners) and slaves in the Roman Empire induced regulatory arbitrage.¹⁶⁵ Since small landowner citizens were heavily taxed, and slaves were tax exempt, the citizens used to change their civil status from citizen to slave to avoid excessive taxation. He notes how despite the increased tax rates, the tax revenues decreased which ultimately contributed to further decline of the Roman Empire. Ferguson also demonstrates how Jews dominated the financial markets of medieval Europe by interpreting the Bible in a certain way to circumvent its ban on interest.¹⁶⁶ Kuran illustrates how the indigenous Christians and Jews of the Middle East came to dominate the most profitable and lucrative sectors of the local economy, especially in banking and insurance, through the choice of law.¹⁶⁷ Such a freedom to choose to be subject to their own laws enabled them to escape the restrictions posed by Islamic economic institutions while Muslims lacked such an option. Muslims themselves could find ways to circumvent the spirit of the Islamic law. For example, Knoll demonstrates how *Murabaha* transactions and *ijara wa iqtina* (leasing and promise to gift) mechanism were innovated and used to circumvent the ban on Riba (interest)¹⁶⁸ in Islamic finance.¹⁶⁹

Regulatory arbitrage reached its zenith in the globalization and information age. More recently, it is argued that the regulatory arbitrage was one of the main reasons for the fall of the Glass-Steagall wall in 1999.¹⁷⁰ In modern times, the globalization of trade and finance gave traders

¹⁶⁴ Durant, *The Story of Civilization: The Life of Greece*.

Modern equivalents of midwives in finance are the special purpose vehicles (SPVs) designed to enjoy the exceptions from certain bankruptcy requirements (bankruptcy-proof financing).

¹⁶⁵ Bruce Bartlett, "How Excessive Government Killed Ancient Rome," *Cato Journal* 14, no. 2 (1994), pp. 300-301.

¹⁶⁶ Niall Ferguson, *Civilization: The West and the Rest* (New York: Penguin Books, 2011).

¹⁶⁷ Timur Kuran, "Why the Middle East is Economically Underdeveloped: Historical Mechanisms of Institutional Stagnation," *The Journal of Economic Perspectives* 18, no. 3 (Summer, 2004), p. 72.

Indeed, it was impossible for Muslim (punishable by death sentence) to convert to other religions (which is the equivalent of restructuring the business entity) and take advantage of other regulatory jurisdictions. However, such a reorganization or change in civil status was allowed in the Roman Empire.

¹⁶⁸ Kuran believes that the Riba was different from the interest. See Timur Kuran, *The Long Divergence: How Islamic Law Held Back the Middle East* (Oxfordshire: Princeton University Press, 2011).

¹⁶⁹ Michael S. Knoll, "The Ancient Roots of Modern Financial Innovation: The Early History of Regulatory Arbitrage," *Oregon Law Review* 87, no. 1 (2008), pp. 103-107.

¹⁷⁰ Viral V. Acharya, Paul Wachtel and Ingo Walter, "International Alignment of Financial Sector Regulation," in *Restoring Financial Stability: How to Repair a Failed System*, eds. Viral V. Acharya and Matthew Richardson (Hoboken, New Jersey: John Wiley & Sons, Inc., 2009), pp. 368-370.

more informational advantage. Coupled with the absence of global coordination, such a trend amplified the likelihood, magnitude, and the frequency of regulatory arbitrage.¹⁷¹

3.4.3. Causes of regulatory arbitrage

In this section, the causes of regulatory arbitrage are discussed. There are two major causes for regulatory arbitrage; first is the differential regulatory treatment of homogenous business activities, and the second is the problems arising from legal interpretation. Differential regulatory treatment arises from financial market compartmentalization, regulatory competition, and partial industry regulatory strategies. Needless to say, exploring the causes of regulatory arbitrage is essential for understanding and devising the regulatory strategies to address the potential risks arising from regulatory arbitrage.¹⁷²

3.4.3.1. Differential regulatory treatment of homogenous financial activities

It is often argued that similar institutions undertaking similar tasks should be regulated similarly.¹⁷³ Otherwise, the regulatory design which treats identical activities differently risks regulatory arbitrage. In other words, the abuse of regulatory loopholes by hedge funds is an unintended consequence of the regulation which treats identical activities differently or regulation which involves institutional regulation and treats homogenous institutions heterogeneously. Therefore, the main reason for regulatory arbitrage is the fragmentation of the regulatory structure throughout the globe and within individual jurisdictions. Such fragmentation is in fact a mirror image of the financial market compartmentalization.

Regarding the intra-jurisdictional regulatory arbitrage, in most cases, the need for differentiated regulation causes regulatory bifurcation. Although there are benefits for subjecting identical firms and financial products to a single regulator, such as advantages coming from better

¹⁷¹ Put differently, globalization reduced regulators' power by harnessing more regulatory arbitrage opportunities for firms which disapprove of the regulatory policies of their jurisdiction. Jonathan R. Macey, "Regulatory Globalization as a Response to Regulatory Competition," *Emory Law Journal* 52 (2003), p. 1357.

¹⁷² The third chapter of the thesis will discuss this phenomenon in detail.

¹⁷³ Acharya and Richardson, *Implications of the Dodd-Frank Act*, p. 30.

coordination and ‘level playing field’, unequal and differential treatment of the identical components or subsets of an industry has its own merits.

As mentioned above, this thesis argues that differential regulatory treatment of homogenous financial activities has three major reasons: financial market compartmentalization, regulatory competition which aims at enhancing competition between regulators, and partial industry regulation (PIR) which supports the differential regulation to enhance competition between regulated firms. Since financial regulation is a function of financial system itself and to a great extent regulatory fragmentation is a product of financial market compartmentalization, an argument for compartmentalization of financial markets would justify differential regulatory treatment of financial institutions. As demonstrated in the second section of this chapter, hedge funds play a *sui generis* role in financial markets which explains why they should be treated differently from other financial institutions.¹⁷⁴ In the following two sections a detailed account of regulatory competition and the theory of partial industry regulation will be offered which will provide additional arguments for the differential regulatory treatment of almost identical financial institutions.

3.4.3.1.1. Regulatory competition

Just as regulatory arbitrage, regulatory competition has a long history, perhaps longer than regulatory arbitrage. The historian Will Durant reports that in Ancient Athens, to stimulate commerce and industry, Solon started granting citizenship to skillful foreign businessmen and their families.¹⁷⁵ Ferguson demonstrates how unitary government and uniformity led to stagnation in ancient China, while competition between national jurisdictions in divided Europe contributed to the long term development and subsequent domination of Europe.¹⁷⁶ However, prior to the information age and globalization, competition among regulators to attract more businesses was not as fierce as it is in the globalization era. With increased waves of globalization, flow of information, and emphasis on the free movement of goods, services, labor,

¹⁷⁴ See the first chapter of this dissertation, section titled “Are hedge funds special? A case for *ex-ante* special regulatory treatment of hedge funds”.

¹⁷⁵ Durant, *The Story of Civilization: The Life of Greece*.

¹⁷⁶ Ferguson, *Civilization: The West and the Rest*, Chapter 1.

and capital, the capital like “water runs to find its level”¹⁷⁷ with an unprecedented pace. In such a context, the race for attracting more businesses started among turf-seeking regulators.

Regulatory competition is further reinforced by greater technological improvements, use of internet, globalization of finance, and increasingly diminishing transaction costs which make the financial transactions being processed in a matter of a second. In such ‘hyper-connected’¹⁷⁸ global markets, investors become an ‘economic herd’¹⁷⁹ capable of shifting their business across the regulatory borders instantaneously. Such an opportunity for fast regulatory arbitrage induced regulators to compete for businesses. First instances of such conscious competition for businesses are reported across states’ boundaries in federal jurisdictions in the U.S. This might very well explain why the theory of regulatory competition is so inextricably intertwined with the debate about federalism. It was against such a background that regulatory competition emerged as an ‘economic theory of government organization’.¹⁸⁰

Given the public goods nature of regulation,¹⁸¹ in the regulatory competition literature, the original model of provision of public goods has been adapted to explain government output of regulation. Indeed, in the theory of regulatory competition, the provision of laws and regulations is similar to the provision of goods and services by economic firms. These models assume that governments are suppliers of regulation just like suppliers of products and services in the market and they should be disciplined by the same forces.¹⁸²

¹⁷⁷ Bagehot, *Lombard Street*, p. 53.

¹⁷⁸ Thomas L. Friedman and Michael Mandelbaum, *That used to be Us: How America Fell Behind in the World it Invented and how we can Come Back*, First ed. (New York: Farrar, Straus and Giroux, 2011).

¹⁷⁹ Thomas L. Friedman, *The Lexus and the Olive Tree: Understanding Globalization* (New York: Random House INC., 2000b).

¹⁸⁰ Damien Geradin and Joseph A. McCahery, "Regulatory Co-Opetition: Transcending the Regulatory Competition Debate," in *The Politics of Regulation: Institutions and Regulatory Reforms for the Age of Governance*, eds. Jacint Jordana and David Levi-Faur (Northampton, Massachusetts: Edward Elgar Publishing, Inc., 2004), pp. 90-92.

¹⁸¹ The need for regulation arises from market failure. The aim of such regulation should be correcting market failures and imperfections. Regulation itself has a public goods feature and in the absence of third party action, it will not be provided or it will be underprovided. The public goods nature of provision of regulation suggests that the government having monopoly over ‘the legitimate use of force within the given territory’ has to take action to provide it. As the public goods nature of regulation suggests, its rise and the method of its study can be investigated similarly to the other systems of provision of public goods. As the government has the monopoly on the provision of such public goods which requires taking certain actions which private parties cannot, it seems very counterintuitive to speak of the regulatory competition especially within the unitary states. See Tyler Cowen, "Law as a Public Good: *The Economics of Anarchy*," *Economics and Philosophy* 8, no. 02 (1992), 249-267.

¹⁸² One of the first systematic studies of provision of public goods is conducted in the American local government context focusing on the debate about localism vs. regionalism and the state vs. federal government dichotomy context.

In such a context, a unitary regulator is a monopolist and regulatory harmonization or consolidation of regulators is regarded as regulatory cartelization stifling competition and leading to inefficiencies. In contrast, a system consisting of multiple decentralized regulatory agencies competing for the customers (economic firms) is supposed to result in efficient results, namely enhanced quality of regulation with competitive prices.¹⁸³ For example, it is argued that ‘the incessant turf battles’ between American financial regulatory authorities is an equivalent of the competition among private businesses which disciplines regulators by the threat of loss of their market share (regulatory clientele) to other agencies, thereby promoting regulatory diligence and competence among regulators.¹⁸⁴

Advocates of regulatory competition often appeal to the arguments in favor of decentralization. It is argued that decentralization allows for mitigation of information asymmetries, reduced likelihood of regulatory capture, and encourages more experimentation which allows for alternative solutions for similar problems.¹⁸⁵ It also induces more innovation, differentiated and customized services adapted to local circumstances and the needs of the constituency. The decentralized model of provision of public goods increases the economic efficiency by satisfying the differential preferences in the locally needed public goods.¹⁸⁶ Therefore, since the efficient level of output in local public goods is varied in different local jurisdictions, governments can provide a better allocation of local services in a decentralized structure.¹⁸⁷

In the same vein, regulatory arbitrage plays an important role in delivering the benefits of regulatory competition. In contrast to the unitary regulatory systems or regulatory monopolies in which the demand for regulation is inelastic, regulatory arbitrage provides regulatory substitutes for regulated firms and thereby makes the demand for regulation elastic. Such a dramatic change in the elasticity of demand means that if they cannot provide good quality regulations in

¹⁸³ Geradin and McCahery, *Regulatory Co-Opetition: Transcending the Regulatory Competition Debate*, pp. 94-95.

¹⁸⁴ Carnell, Macey and Miller, *The Law of Banking and Financial Institutions*, pp. 65-66.

¹⁸⁵ Geradin and McCahery, *Regulatory Co-Opetition: Transcending the Regulatory Competition Debate*, pp. 90-92.

¹⁸⁶ Richard Briffault, "Our Localism: Part I--the Structure of Local Government Law," *Columbia Law Review* 90, no. 1 (1990), p. 5.

¹⁸⁷ Wallace E. Oates, "An Essay on Fiscal Federalism," *Journal of Economic Literature* 37, no. 3 (1999), pp. 1121-1122.

Although devolution and decentralization which can encourage competition is more likely to generate efficient results, just as markets, there are two conditions for the achievement of goals in such a model of regulatory competition. First, there should be no externalities. And secondly, markets should be and remain open for free entry and exit of capital and labor. See Frank H. Easterbrook, "Federalism and European Business Law," *International Review of Law and Economics* 14, no. 2 (6, 1994), 125-132.

competitive prices, they will be deserted by their regulatees. Hence, such an increased elasticity of demand brings more regulatory accountability towards their clientele. On the other hand, this market or ‘downward accountability’¹⁸⁸ will impose constraints on the regulators and can guard against corruption in regulatory systems. That is why regulatory competition is proposed as a safeguard against regulatory capture.¹⁸⁹ Since regulators have an incentive to increase their market share of regulated entities,¹⁹⁰ and their response to regulatory arbitrage will be in such a way that at least retains their existing regulatory turf, regulatory competition and the possibility of regulatory arbitrage will operate as a check on the regulatory despotism which enables regulated firms to get rid of inefficient regulators.

The elasticity of demand for regulatory services from the regulated firms is a function of alternative regulatory systems available to them.¹⁹¹ In the harmonized regulatory system, the demand for regulatory services will be constant (high), while in the regulatory fragmentation model, *ceteris paribus*, the demand increases with more harmonization and decreases with more fragmentation. Therefore, harmonized regulatory jurisdictions will be less accountable and fragmented jurisdictions will be more accountable to their regulatees.

In addition, it is further argued that enhanced diversity among regulators can be effective in avoiding the conflict of interests in regulatory functions.¹⁹² By the same token, in the context of

¹⁸⁸ Colin Scott, "Accountability in the Regulatory State," *Journal of Law and Society* 27, no. 1 (2000), 38-60.

¹⁸⁹ Ian Ayres and John Braithwaite, *Responsive Regulation: Transcending the Regulation Debate* (New York: Oxford University Press, 1992b), p. 54.

Findings by Grabosky and Braithwaite's (1986) show that regulatory agencies that regulate "(1) smaller numbers of client companies; (2) a single industry rather than diverse industries; (3) where the same inspectors were in regular contact with the same client companies; and (4) where the proportion of inspectors with a background in the regulated industry was high" are more likely to have a cooperative rather than prosecutorial regulatory practice. The empirical findings in that regard confirm the theory that "the evolution of cooperation should occur only when regulator and the regulated firm are in a multi-period prisoner's [sic] dilemma game. Repeated encounters are required for cooperation to evolve."

When an agency regulates a small number of firms in a single industry, the likelihood of the repeated encounters is greater which can pave the way for cooperation and corruption. *Ibid.*

¹⁹⁰ Macey, *Regulatory Globalization as a Response to Regulatory Competition*, p. 1362.

¹⁹¹ *Ibid.*

¹⁹² Cristie L. Ford, "Principles-Based Securities Regulation in the Wake of the Global Financial Crisis," *McGill Law Journal* 55, no. 2 (2010), 257-307.

Some scholars raise questions about regulatory arbitrage argument. For example, Zingales argues that since managers, rather than the shareholders are to choose regulators, such a regulatory regime based on choice of regulators made by managers can potentially suffer from severe agency problems. See Zingales, *The Future of Securities Regulation*, pp. 400-401.

On the other hand, it is suggested that regulatory competition may give rise to a ‘beggar thy neighbor’ competitive approach to regulation and absent financial regulatory coordination, create regulatory arbitrage opportunities for the

financial markets and hedge fund regulation, regulatory competition may create a less friendly environment for the evolution of cooperation and corruption between regulators and regulatees. This is mostly because of the peer pressure among regulators that can decrease the likelihood of the evolution of corruption.

Additionally, it potentially provides market benchmarks or yardsticks against which the regulatory oversight of each regulator can be assessed among different groupings in a regulatory tournament (yardstick competition). Such an arrangement for monitoring regulators works exactly similarly to the mechanism in the labor contracts. In labor contracts and especially in franchise agreements, the franchisor (regulator) is not able (or it is not cost-justified for her) to monitor the level of effort (input) of the franchisee, while the level of output is readily observable. In such a context, there are several methods to deal with this information asymmetry problem. ‘Cost-of-service’ regulation and ‘lagged price adjustment’ are two mechanisms proposed to address this problem. However, both of these mechanisms can be equally inefficient.¹⁹³ Harvard Professor Andrei Shleifer suggests that in such a setting, yardstick competition, can achieve a more efficient outcome than the alternatives.¹⁹⁴

Indeed, when competition involves political agents, the tournament can be adapted to the regulatory competition with the focus on the competition between governments or regulators. Such an application rests on the assumption that the voters (regulatees) lack full information

firms inducing ‘regulatory race to the bottom’ which enables financial institutions to circumvent effective financial regulation. See James R. Barth, Gerard Caprio Jr. and Ross Levine, *Rethinking Bank Regulation: Till Angels Govern* (New York: Cambridge University Press, 2006), p. 68. See also Acharya, Wachtel and Walter, *International Alignment of Financial Sector Regulation*, p. 365.

In addition, there is a trade-off between regulatory capture and regulatory harmonization. Features of regulatory competition that induce regulatory arbitrage decrease the likelihood of regulatory capture. On the other hand, the regulatory harmonization can decrease the likelihood of regulatory arbitrage while inducing the likelihood of regulatory capture.

¹⁹³ Andrei Shleifer, "A Theory of Yardstick Competition," *The Rand Journal of Economics* 16, no. 3 (1985), pp. 319-320.

The equivalent of the ‘cost-of-service’ regulation for regulating regulators is pegging regulator’s pay to her performance (estimating the costs of performance and paying them accordingly), and the equivalent of the ‘lagged price adjustment’ is the deferred compensation schemes for regulators.

¹⁹⁴ See *Ibid.* Recent studies find how incentive based pay schemes outperform fixed pay and how tournament theory is less effective than piece rate in certain settings. For more details, see M. Ali Choudhary, Vasco J. Gabriel and Neil Rickman, "Individual Incentives and Workers' Contracts: Evidence from a Field Experiment," (2012).

about the quality of the input of politicians (regulators) and that they use other politicians' performance as a yardstick or benchmark to judge their own politicians' performance.¹⁹⁵

Likewise, there are several studies emphasizing the welfare enhancing feature of regulatory competition.¹⁹⁶ For example, it is argued that regulatory competition among accounting standards and making the choice of regulators and different formats available for corporations within and across international boundaries will improve the efficiency of the corporate governance and accounting standard-setting and practices, and will lead to lower cost of capital. Thus, competitive accounting regimes are more efficient than monopoly over this regime both domestically and internationally.¹⁹⁷ Moreover, such a cross country regulatory competition can provide alternatives for financial institutions to evade costly regulations resulting in the improvements in capital markets' allocative efficiency (completing the markets) and enhancing global economic growth.¹⁹⁸

3.4.3.1.2. Partial industry regulation

In addition to the arguments offered for the differential regulation on the grounds of industry compartmentalization and regulatory competition, there is an additional argument for differential treatment of homogenous economic activities. Ayres and Braithwaite advocate 'partial-industry regulation' (PIR).¹⁹⁹ PIR means that "government regulates only a part of the industry, leaving another part unregulated."²⁰⁰ Under the partial-industry regulatory schemes, government purposefully treats firms in an industry differently."²⁰¹ This regulatory strategy is viewed as a middle path between full-industry regulation (FIR) and *laissez-faire* policies seeking to take full

¹⁹⁵ William W. Bratton and Joseph A. McCahery, "The New Economics of Jurisdictional Competition: Devolutionary Federalism in a Second-Best World," *The Georgetown Law Journal* 86 (1997), p. 256.

¹⁹⁶ For more information regarding the reasons for the regulatory competition by implementing competitive federalism approach, see Roberta Romano, "Empowering Investors: A Market Approach to Securities Regulation," *The Yale Law Journal* 107, no. 8 (1998), 2359-2430.

¹⁹⁷ Shyam Sunder, "Regulatory Competition among Accounting Standards within and Across International Boundaries," *Journal of Accounting and Public Policy* 21, no. 3 (0, 2002), 219-234.

¹⁹⁸ Joel F. Houston, Chen Lin and Yue Ma, "Regulatory Arbitrage and International Bank Flows," *The Journal of Finance* 67, no. 5 (2012), p. 1846.

¹⁹⁹ See Ian Ayres and John Braithwaite, "Partial-Industry Regulation: A Monopsony Standard for Consumer Protection," *California Law Review* 80, no. 1 (1992a), 13-53. See also Ayres and Braithwaite, *Responsive Regulation: Transcending the Regulation Debate*, Chapter 5.

²⁰⁰ Ayres and Braithwaite also argue that the objections to the PIR based on the concerns about fairness of treating firms differently, predicated upon the equal protection clause, are unfounded. See *Ibid.*

²⁰¹ *Ibid.*

advantage of the virtues of both systems. The proponents of this approach argue that in some regulatory settings “regulating only an individual firm (or a subset of the firms) in an industry can promote efficiency by avoiding the costs associated with industry-wide intervention or laissez-faire”.²⁰²

In contrast to regulatory competition which is to enhance competition among regulators, the aim of PIR is to stimulate competition within the regulated industry. In other words, PIR strategies’ goal is to harness the competitive forces of the market in order to enhance market discipline. The main point of this approach is that it can use regulated firms to effect a behavioral change in other firms in that industry. In addition, this diversified regulatory approach (which sometimes is called ‘regulatory bifurcation’,²⁰³) can provide additional advantages such as mitigating the adverse effects of regulatory errors, providing a competitive check on the decisions of regulatory agencies by preserving the independence of unregulated firms,²⁰⁴ and inducing the monitoring mechanism among regulated firms. Indeed, in such a scheme, the regulated and unregulated sections of an industry can check each other’s abuses. Such a regulatory scheme can eventually harness the ‘market accountability’ or ‘downward accountability’. Put differently, PIR can be viewed as a form of regulatory delegation or indirect regulation in which regulated firms can ensure that the unregulated firm will comply.²⁰⁵ However virtuous the PIR strategies are, their eventual result is a ‘dual governance of individual markets’.²⁰⁶

²⁰² Ayres and Braithwaite, *Partial-Industry Regulation: A Monopsony Standard for Consumer Protection*, 13-53. See also Ayres and Braithwaite, *Responsive Regulation: Transcending the Regulation Debate*, Chapter 5.

²⁰³ See Erich Schanze, "Hare and Hedgehog Revisited: The Regulation of Markets that have Escaped Regulated Markets," *Journal of Institutional and Theoretical Economics (JITE)/Zeitschrift Für Die Gesamte Staatswissenschaft* 151, no. 1 (1995), 162-176.

²⁰⁴ Ayres and Braithwaite, *Responsive Regulation: Transcending the Regulation Debate*, p. 137.

²⁰⁵ Ayres and Braithwaite identify three forms of partial industry regulation: dominant-firm strategies, fringe-firm strategies, and tournament competition strategies. Built on tournament theory, yardstick competition derives some benchmarks from the average industry performance and rewards the firms passing the benchmarks. For example, in labor contracts and especially in franchise agreements, the franchisor is not able (or it is not cost-justified for her) to monitor the level of effort of the franchisee, however, she can observe the level of output. Shleifer suggests that under certain assumptions, the yardstick competition can achieve an efficient outcome in this setting. See Shleifer, *A Theory of Yardstick Competition*, pp. 319-320.

For example, as a cost-cutting strategy, the franchisor, who franchises the activities to several firms, can create a yardstick for the costs of the firms based on the average costs of other similar firms and create a competitive environment by announcing to franchisees that the firms with less costs than the benchmark can win certain prizes. Therefore, such a tournament design can create an environment in which the firm’s profits will depend on their ability to achieve certain output levels with lower costs than its competitors. This kind of intervention makes suppliers’ profits dependent on the conduct of their competitors. See Ayres and Braithwaite, *Responsive Regulation: Transcending the Regulation Debate*, p. 138.

²⁰⁶ *Ibid.*

Therefore, from such a regulatory bifurcation come the two separate playing fields which are subject to separate rules of the game.²⁰⁷ The dual governance, though beneficial, is not without costs. The main problem is that such a system of regulation stimulates strategic responses by the firms to the regulatory fragmentation of the industry. Profit maximizing firms in such a segmented regulatory system will seek to shift their business or structure their business in order to fall under the least costly regulatory regime.

By creating opportunities for regulatory arbitrage, regulatory bifurcation and regulatory competition can inhibit the cooperation among regulators to effectively address the externalities in financial markets.²⁰⁸ Indeed, it is argued that absent more coordination between regulators, such regulatory arbitrage may undercut the attempts to limit excessive risk taking in financial markets.²⁰⁹

3.4.3.2. Definitional problems, legal interpretation and regulatory arbitrage

For years, hedge fund regulation has been thwarted by definitional problems the crux of which was the U.S. Circuit Court decision in *Goldstein v. SEC*.²¹⁰ The definitional problems are one of the main reasons for legal engineering and regulatory arbitrage.²¹¹ As discussed earlier, regulatory arbitrage essentially “exploits the gap between the economic substance of a transaction and its legal or regulatory treatment”.²¹² Such exploitation is made possible due to “legal system’s intrinsically limited ability to attach formal labels that track the economics of transactions with sufficient precision”.²¹³

In addition to the inherent indeterminacy in language,²¹⁴ the prospective generalizations which are the necessary features of law²¹⁵ are another source of indeterminacy and vagueness in

²⁰⁷ Helen A. Garten, *US Financial Regulation and the Level Playing Field* (New York: Palgrave, 2001), p. 147.

²⁰⁸ Engert, *Transnational Hedge Fund Regulation*, pp. 366-367.

²⁰⁹ Acharya, Wachtel and Walter, *International Alignment of Financial Sector Regulation*, 365-376. See also Houston, Lin and Ma, *Regulatory Arbitrage and International Bank Flows*, p. 1848.

²¹⁰ See *Goldstein*, 451 F.3d, 884.

²¹¹ McBarnet, *Financial Engineering or Legal Engineering? Legal Work, Legal Integrity and the Banking Crisis*, p. 72.

²¹² Fleischer, *Regulatory Arbitrage*, p. 229.

²¹³ *Ibid.*

²¹⁴ Hart, *The Concept of Law*, p. 126.

statutory definitions and subsequent interpretations. Regardless of how precise and determinate a rule is, the limits of human foresight implies that even the least vague terms may become vague upon their application to a particular situation which was not predictable at the time of rulemaking.²¹⁶ Therefore, it is argued that “a rule ... is only as good as its interpretation.”²¹⁷ In this sense, the choice of a particular method of interpretation in financial regulation, enforcement, and adjudication can significantly affect the problems arising from boundaries set out by statutory definitions in financial markets.

This limited linguistic ability coupled with problems of interpretation breed opportunities in which the technical compliance with rules and regulations can be achieved while undermining the underlying justifications on which the entire regulatory system or a specific law is predicated. Compliance of this sort, dubbed ‘creative compliance’, which essentially involves “using the law to escape legal control without actually violating legal rules”,²¹⁸ is well-documented in the regulation literature.²¹⁹

Aside from the intrinsic limited ability of legal systems to capture the substance and the economics of transactions, another source of regulatory arbitrage is associated with ‘legal formalism’. Legal formalism, not recognizing the “necessity of choice in penumbral areas of rules”,²²⁰ follows the letter of a rule, even if this fails to serve its purpose.²²¹ The emphasis on literal interpretation and legal formalism highlights the role of definitions in legislation, rule-making and adjudication. Needless to say, contrary to the principles-based regulation the focus of which is on ‘goals’ rather than ‘means’ of achieving the goals, rules-based regulation creates vast opportunities for regulatory arbitrage.²²² Likewise, rules-based direct regulation of hedge funds along with the appeal to the literal meaning of words in adjudication and legal

²¹⁵ Joseph Raz, *The Authority of Law: Essays on Law and Morality* (New York: Oxford University Press, 1979), pp. 214-218.

²¹⁶ Julia Black, *Rules and Regulators* (Oxford: Clarendon Press, 1997).

²¹⁷ *Ibid.*

²¹⁸ D. McBarnet and C. Whelan, "The Elusive Spirit of the Law: Formalism and the Struggle for Legal Control," *Modern Law Review* 54, no. 6 (1991), p. 848.

²¹⁹ See Karen Yeung, *Securing Compliance: A Principled Approach* (Oxford: Hart Publishing, 2004).

²²⁰ Hart, *The Concept of Law*, pp. 124-130.

²²¹ McBarnet and Whelan define formalism as “a narrow approach to legal control – the use of clearly defined, highly administrable rules, an emphasis on uniformity, consistency and predictability, on the legal form of transactions and relationships and on literal interpretation.” See McBarnet and Whelan, *The Elusive Spirit of the Law: Formalism and the Struggle for Legal Control*, pp. 848-849.

²²² McBarnet, *Financial Engineering Or Legal Engineering? Legal Work, Legal Integrity and the Banking Crisis*, p. 72.

interpretation can be used to undermine the very purpose of regulation designed to address hedge funds' externalities.

Accordingly, the necessity for interpretation implies that regulators' reliance on definitions is not necessarily helpful. On the contrary, it can be counterproductive. In the words of Judge Randolph, in *Goldstein v. SEC*, "[t]he lack of statutory definition of a word does not necessarily render the meaning of a word ambiguous, just as the presence of a definition does not necessarily make the meaning clear. A definition only pushes the problem back to the meaning of the defining terms."²²³ Therefore, the direct regulation of hedge funds which cannot avoid using definitions is unlikely to cope with regulatory arbitrage by hedge fund.

Nonetheless, regardless of the subjects of rules and regulations, any kind of regulation necessarily involves definitions and, to a certain degree, is subject to regulatory arbitrage. In other words, direct regulation relying on precise rules and definitions spurs regulatory arbitrage by hedge funds as much as it encourages regulatory arbitrage by hedge funds' counterparties and creditors. However, as it will be argued in the next two sections, the costs of regulatory arbitrage for hedge funds are substantially lower compared to the costs of regulatory arbitrage for banks and mutual funds. Therefore, regulating hedge funds through, for instance, the banks they deal with is less likely to encourage regulatory arbitrage.

Taking all the above-mentioned problems with definitions into account, it is not surprising to observe a consistent tendency of regulators to avoid engaging in definitional issues in hedge fund regulation, especially the issues concerning the hedge fund as an entity.²²⁴ The hassles in defining dynamic and heterogeneous entities such as hedge funds give rise to problems that make direct regulation difficult, if not impossible, to implement. Indeed, regulatory arbitrage is the

²²³ See *Goldstein*, 451 F.3d, 879.

²²⁴ Since the problem of definition is ubiquitous in regulation of economic activities and is not limited to the institution-based financial regulation, entity-based approach to regulation or institutional regulation has its own proponents. In other words, definitional problems also pose almost the same challenges to the 'product-based approach' to regulation. Gibson shows how regulation of swap agreements could escape regulation because there is uncertainty and complexities in defining financial products such as securities and futures. She concludes that concerning swap markets, the regulatory problems such as definitional and jurisdictional problems can best be addressed by focusing on the 'market participant-based regulation' rather than the classification of swap agreements as futures or securities. See Gibson, *Are Swap Agreements Securities Or Futures?: The Inadequacies of Applying the Traditional Regulatory Approach to OTC Derivatives Transactions*, p. 416.

With respect to hedge fund regulation, most regulations opted for an institutional one-size-fits-all regulation for 'alternative investment funds' or 'private funds'.

main obstacle for a rules-based direct regulation of hedge funds. Such problems can better be addressed by using principles-based regulation or even indirect regulation which focuses on financial entities other than hedge funds themselves.

Conclusion

This chapter briefly discussed the concept of market failure and identified its three major sources; namely, externalities including systemic externalities, incomplete information, and imperfect competition. In terms of the market failures associated with information problems, the lack of transparency in the hedge fund industry was highlighted. As a general attribute of financial markets, the socially optimal level of information is not provided in the absence of mandatory disclosure. Multiple factors contribute to such socially suboptimal provision of information in financial markets in general and in the hedge fund industry in particular, such as the problem of externalities. In addition, it was argued that there is a need for the provision of higher levels of information to maintain trust in the financial system because of credence goods nature of financial services and the intertemporal nature of financial transactions. Therefore, similarly to the financial markets at large, in the hedge fund industry minimum disclosure requirements are needed for the well functioning of the markets. The disclosure of aggregate information is also essential for the assessment of the potential systemic impact of the hedge fund industry.

The imperfect competition is often a result of economies of scale and network effects, or some type of government licensing requirements which create monopolies. The primary concern with the economies of scale and network effects as related to hedge fund regulation does not concern hedge funds themselves, but it is mainly related to the prime finance industry. There is a considerable evidence of economies of scale in the banking industry. Moreover, the prime finance industry is very likely to project the features of platforms in which the relationship between hedge funds and their prime brokers creates a two-sided market. This two-sided market reinforces the effects of network economies in the prime finance industry and makes this market prone to monopolies.

This chapter also studied the interplay and dynamics of financial regulation and hedge funds' strategic responses to such regulation which can lead to regulatory arbitrage in the global financial markets and its fragmented regulatory regime. It is argued that the differential regulation of homogenous financial activities giving rise to regulatory fragmentation is the main source of regulatory arbitrage. However, the differential regulatory treatment is not a necessary evil; instead, it yields more efficient outcomes than its alternative (i.e., consolidated regulatory regime) in certain market settings. There are at least three main reasons for differential regulatory treatment of homogenous activities: financial market compartmentalization, regulatory competition, and the possibility of harvesting the benefits of partial industry regulation. These factors, though beneficial, have their own problems. By creating a fragmented regulatory scheme and a dual system of governance, coupled with the definitional and interpretational problems, these factors induce regulatory arbitrage.

In the current financial regulatory patchwork, heavily regulated financial institutions should compete with lightly regulated ones. In the absence of the mechanisms to offset the regulatory costs of heavily regulated firms, it is highly likely that regulatory arbitrage will follow by heavily regulated firms. The problem with the regulatory arbitrage is that it can substantially reduce the effectiveness of the regulations aimed at addressing risks of systemic importance.

In conclusion, it seems that there is a market failure because of the imperfect competition, particularly in the relationships between hedge funds and their prime brokers.²²⁵ In addition, competition between hedge funds and other financial market participants in the broader financial markets will give rise to positional externalities and incentivize regulatory arbitrage and greater risk-taking.

The next chapter will show how these market failures along with some specific features and risks involved in the hedge fund industry can contribute to systemic risk and potentially result in financial instability.

²²⁵ The existence of economies of scale and scope and the potential for prime brokerage platforms to become two-sided markets would give rise to imperfect competition in the prime finance industry which will be elaborated in the second chapter where the thesis discusses the interconnectedness of hedge funds with LCFIs.

CHAPTER 2: SYSTEMIC RISK: CAUSES, CONSEQUENCES, AND IMPLICATIONS FOR HEDGE FUND REGULATION

Introduction

One of the most important issues in the regulation of hedge funds is their potential contribution to financial instability. In this chapter the aim is to study the relevance of the hedge fund industry for systemic risk and understand if they can potentially contribute to financial instability. The existing theoretical models and empirical findings will be covered to underlie and reinforce the argument to be made for or against hedge fund regulation.

The systemic importance of hedge funds will be studied under four main headings. First, the notion of Systemically Important Financial Institutions (SIFIs) will be studied, and it will be determined whether hedge funds can fall under the category of SIFIs. To determine which institution or institutions can be designated as SIFIs, four main criteria will be discussed: size, leverage, interconnectedness, and herding behavior. Hedge funds can become too-big-to-fail (TBTF) merely because of their size or their leverage; but they can also become systemically important because they are too-interconnected-to-fail (TITF) and/or they are systemically important as a herd.

In addition to the size, the second assessment will involve the amount of hedge fund leverage. It will be determined whether hedge funds' potential unlimited leverage and risk taking behavior can make them become SIFIs. The question revolves around the assessment whether hedge funds are or can be TBTF, or potential unlimited leverage can make them become TBTF.

The third important assessment to be made is about the interconnectedness of hedge funds with Large Complex Financial Institutions (LCFIs). Financial instruments can connect the financial institutions to each other and may make them TITF. Therefore, to make such an assessment, the financial instruments and their potential role in connecting financial institutions to each other will be discussed. However, studying financial instruments and all the financial strategies at hedge funds' disposal might derail the focus of this study. Thus, to avoid being strayed in the maze of complex and overwhelmingly complicated financial instruments and strategies, this study will be limited to the role of counterparty risk, functioning as a venue for channeling risks.

In this respect, the relationship between hedge funds and their prime broker-dealers will be of special interest.

The fourth assessment to be made involves hedge funds' potential for herding behavior. It will be determined whether hedge funds are theoretically prone to herding, and if so whether the data on herding behavior of hedge funds support the theory. The concept of contagion and contagion channels will also be covered while studying the TITF and herding behavior in the hedge fund industry.

1. What is systemic risk?

The concept of systemic risk is central to the study of financial market instability. Since a financial crisis is often considered a consequence of systemic events, its study is at the center of the academic debate. 'Systemic risk' is a term subject to academic controversy. Similarly to the term 'hedge fund', it is not specifically defined in any piece of legislation. Nonetheless, most definitions of systemic risk converge on the point that it is a risk in the financial system the effects of which ultimately spill over to the real economy.¹ Systemic risk is said to be created by the systemic events. These events create risks which implicate a substantial number of financial institutions and subsequently channel into the real economy through the inter-linkages of the financial institutions and the real economy.²

A distinction is made between idiosyncratic shocks and systemic shocks. Though there are almost no criteria to distinguish these two types of shocks *ex ante*, *ex post*, an idiosyncratic shock is a shock which affects a single element of a financial system and has limited implications contained within that specific financial institution. However, systemic shock is a shock which simultaneously affects a greater number of financial institutions or the financial system at large. The implications and side effects of such a shock might be at a scale that can spill over to the real

¹ Dijkman, *A Framework for Assessing Systemic Risk*, p. 2.

² For an alternative explanation of the financial crisis, see Minsky, *Stabilizing an Unstable Economy*. Minsky believes that the financial markets are inherently unstable.

economy.³ Thus, a systemic risk, event, or crisis is defined as a financial risk or event which ultimately affects the real economy.⁴

According to the working definition offered by the Group of Ten, “[s]ystemic financial risk is the risk that an event will trigger a loss of economic value or confidence in, and attendant increases in uncertainty about, a substantial portion of the financial system that is serious enough to quite probably have significant adverse effects on the real economy.”⁵ Therefore, a financial rupture or unease which does not have a high probability of causing a disruption in the real economic activities is not considered a systemic risk. The adverse effects of systemic risk appear in the disruptions of payment system, the disruption in credit flows, and the collapse of asset prices.⁶ The emphasis on the disruptions in the real economy is due to the fact that financial disruptions can affect the level of output of the real goods and services and hence result in massive unemployment. Therefore, the key to understanding contagion and systemic risk is to comprehend the notion of financial risk transmission.⁷

One of the crucial concepts intricately related to identifying systemic risk is the concept of contagion within the financial system and between financial system and the real economy. Contagion which lies at the heart of this definition of systemic risk refers to “the mechanisms through which shocks propagate from one element of the financial system to another and from the financial system to the real economy.”⁸ One of the factors contributing to contagion is

³ Dijkman, *A Framework for Assessing Systemic Risk*, pp. 5-8.

⁴ See Kambhu, Schuermann and Stiroh, *Hedge Funds, Financial Intermediation, and Systemic Risk*, pp. 8-9.

To better understand the concept of systemic risk, it should be put in the context of the main objectives of a financial system. The financial intermediation and financial system as a whole is to channel funds from surplus spending units (individuals and households) to deficit spending ones (firms). If an event or shock can affect this process, it is considered as a systemic event or shock. Needless to say, the shocks to this process will deprive the firms from access to credit and will have negative impact on the real economy. For a similar view, see Schinasi, *Safeguarding Financial Stability: Theory and Practice*, pp. 77-97.

⁵ Another definition of systemic risk offered by the Group of Ten is: “a systemic financial risk event can be viewed as a shock whose impact and transmission effects are wide and deep enough to severely impair, with high probability, the allocation of resources and risks throughout the financial and real economic systems.” See Group of Ten, *Report on Consolidation in the Financial Sector* (Basel, Switzerland: Bank for International Settlements, 2001), pp. 126-127.

⁶ The report continues to mention that the systemic risk “[P]erhaps induced by a drastic decline in the aggregate money supply caused by bank runs or by a general decline in the liquidity of financial markets, may induce failures of financial as well as non-financial firms and households, and decrease economic activity through a decline in wealth and an increase in uncertainty.” *Ibid.*

⁷ For a more detailed study of contagion, see Robert W. Kolb, “What is Financial Contagion?” in *Financial Contagion: A Viral Threat to the Wealth of Nations*, ed. Robert W. Kolb (Hoboken, New Jersey: John Wiley & Sons, Inc., 2011), 3-10.

⁸ Dijkman, *A Framework for Assessing Systemic Risk*, pp. 5-8.

incomplete information. When a shock occurs in one sector of the financial industry, it may serve as a signal of a coming shock in another sector. In other words, the crisis in one sector may create self-fulfilling prophecies of a crisis in another sector.⁹ Accordingly, a new shock may change the interpretation of the existing information in the market. Such a reassessment of information can materialize in various forms such as herd behavior, informational cascades, or sudden reappraisal of economic fundamentals.¹⁰

Scholars distinguish between real and information contagion channels. On the one hand, contagion through real channels refers to “the direct “knock-on effects” on other parts of the financial system through direct exposures (such as counterparty exposures) and interconnections (such as through payment systems).” On the other hand, “contagion through information channels occurs when economic agents (including counterparties, investors, and depositors) change their behavior in response to a particular event.”¹¹ For example, contagion through information channels happens when a particular bank is in financial distress. In such cases, creditors and investors of that bank would start thinking about the linkages of the bank with other banks having similar business models, or about potential counterparty risks of similar banks towards the bank in distress. This very speculation about the soundness of the bank caused by a shock posed by another bank will worsen the financial outlook of other banks interconnected with the bank in distress. A bank with deteriorated outlook might have difficulty in raising capital due to its need to pay higher interest pursuant to a possible downgrade by a rating agency.

⁹ Xavier Freixas, Bruno M. Parigi and Jean-Charles Rochet, "Systemic Risk, Interbank Relations, and Liquidity Provision by the Central Bank," *Journal of Money, Credit and Banking* 32, no. 3 (2000), 611-638.

¹⁰ Dijkman, *A Framework for Assessing Systemic Risk*, pp. 5-8.

Nevertheless, some scholars do not agree on the element that for an externality to be a systemic, it needs to afflict the real economy. In their view, systemic event means “many institutions [...] experiencing troubles at the same time”. In this view, for a risk to be systemic, the timing of its happening and the state of the economy at its happening is crucial. See Wagner, *In the Quest of Systemic Externalities: A Review of the Literature*, p. 96.

Acharya has a similar approach in defining a systemic event. According to Acharya “A financial crisis is “systemic” in nature if many banks fail together, or if one bank’s failure propagates as a contagion causing the failure of many banks.” Viral V. Acharya, "A Theory of Systemic Risk and Design of Prudential Bank Regulation," *Journal of Financial Stability* 5 (2009), p. 224.

Daveis associates systemic risk with the disruption of the payments mechanism which undermines the capacity of the financial system to allocate capital. He adds that such patterns should be distinguished from turning-points in the trade cycles, and the theories of the monetary transmission mechanism. See Daveis, *Debt, Financial Fragility, and Systemic Risk*, p. 117.

¹¹ Dijkman, *A Framework for Assessing Systemic Risk*, p. 6.

The importance of this distinction in studying the systemic risk is that while the contagion through direct channels can be assessed *ex-ante*, the contagion through information channels is by far difficult to predict and assess *ex-ante* and hence it is difficult to contain it.

In addition, timing and situational factors prevailing in the market at the time of the shock can play an important role in determining whether a risk can have systemic implications or not. The overall reaction of the financial markets to specific risks hence depends on factors such as the prevailing market sentiment, the state of the real economy, the resilience of the financial institutions, and the responses by the financial policymakers. Therefore, the systemic relevance of a shock or an event is not a static concept. On the contrary, as Dijkman concludes “in as far as contagion effects arising from direct exposures and interconnections are amplified by contagion through the information channel, systemic risk is driven by circumstances. Put differently: whether a crisis affecting a certain financial institution is systemic or not depends to a large extent on the circumstances under which the crisis occurs.”¹²

1.1. Causes of systemic risk

Asset liquidations and especially forced liquidations in the aftermath of a shock can generate systemic risk and contribute to financial instability. The mechanism works through the price system and it is substantially similar to the pecuniary externalities. Nevertheless, the impact of these externalities goes far beyond the collapse in asset prices. They further affect the real output of a given economy. There are two reasons why plummeting asset prices may cause systemic externalities.

First, borrowing constraint is the main reason which can explain why plummeting asset prices can lead to a liquidity crisis and negatively affect other institutions with relatively safe assets in their portfolio. Due to regulatory or transactional constraints, such as assets needed as collateral, a firm’s debt capacity is a function of the amount and the value of the assets that the firm holds.¹³ The collapse of the asset prices of a firm affects the debt capacity of that firm. Furthermore, by

¹² *Ibid.*

¹³ Indeed, collateral requirements add additional constraints on the capacity of a firm to take on debt/leverage. Since most loan agreements are in the form of secured transactions which are collateralized, the financial institutions entering into these contracts have constraints on their ability to take on leverage. Almost the same collateral requirements in secured transactions apply to the interbank repo market.

limiting the debt capacity of the firm, plummeting asset prices can interrupt the future plans and even the daily operations of the firm.¹⁴

The second reason that a shock which causes asset price declines can have systemic implications and contribute to financial instability is the inelastic demand for assets. Suppose a bank wants to liquidate its assets to meet its regulatory capital adequacy requirements (CAR). If the demand for those assets is elastic, namely, if subsequent to a price decline, there is a more than proportional increase in the demand for the assets and vice versa, the prices will be in new market equilibrium. However, if the demand for assets is inelastic, the asset prices will plummet with a less than proportional rise in the demand to cover the price decline. This in turn contributes to further price declines. This falling price may in turn generate additional rounds of selling, further pushing the prices downwards.¹⁵

In this case, the value of assets is determined by the amount of liquidity in the market. In Allen and Gale's 'liquidity-based approach' to financial crises, the central idea is that in incomplete markets, financial institutions may be forced to sell their assets to maintain liquidity.¹⁶ As mentioned above, because of the inelasticity of the supply and the demand for liquidity in the short-run, a small degree of aggregate uncertainty can cause large fluctuations in asset prices.

Under this circumstance, the opportunity cost of holding liquidity is substantially high and the only way to bear the high costs of holding liquidity is by buying assets at fire-sale prices. Therefore, the private provision of liquidity will not be adequate enough to sustain asset price stability and asset price volatility will follow small shocks in the financial markets. Because of

¹⁴ It should be noted that in normal market conditions, the fire sales might not contribute to a liquidity crisis. On the contrary, in these times the sale of assets by an individual bank due to illiquidity may create buy opportunities for other banks. Namely, the situation of fire sale in normal market condition may create a zero-sum game in which the loss of one party constitutes the profit of another party. In addition, it is demonstrated that banks' future expectations of obtaining greater rents following the failure of a competitor makes banks' speculative lending decisions strategic substitute. This means that if some banks are making speculative loans which are risky and may contribute to their failure, others will hold back and will not do so. In other words, other banks may engage in strategies and activities that can offset the effects of the speculative lending. This means that such activities are strategic substitutes. These counterbalancing activities, if accompanied by an active merger policy allowing the takeover of the failed businesses by survivors can reinforce stability and reduce systemic banking crises. See Enrico C. Perotti and Javier Suarez, "Last Bank Standing: What do I Gain if You Fail?" *European Economic Review* 46, no. 9 (2002), pp. 1617-1618

¹⁵ Ilhyock Shim and Goetz von Peter, "Distress Selling and Asset Market Feedback," *Financial Markets, Institutions and Instruments* 16, no. 5 (2007), 243-291. See also Antonio Bernardo E. and Ivo Welch, "Liquidity and Financial Market Runs," *The Quarterly Journal of Economics* 119, no. 1 (2004), 135-158.

¹⁶ Franklin Allen and Douglas Gale, "From Cash-in-the-Market Pricing to Financial Fragility," *Journal of the European Economic Association* 3, no. 2-3 (2005), 535-546.

this volatility, banks will not be able to meet their liabilities, and a banking crisis would ensue.¹⁷ That might very well explain why the Central Bank intervention to inject liquidity in the market and to prevent the collapse of asset prices can be a Pareto improvement.¹⁸

Systemic risk and ensuing financial crisis might have wealth effects on the investors. It might further decrease their propensity to take risks and make them more risk averse than they otherwise would be in normal market conditions. This risk aversion accelerates the velocity of liquidation in the market in distressed times partly because of the “race for liquidity”¹⁹ on the part of risk-averse investors. Needless to say, these liquidated positions can amplify the original shocks and exacerbate the liquidity crises.²⁰

As stated earlier, systemic risk is generally defined as a risk whose effects are not limited to financial system, but spill over to the real economy. There are at least three systemic risk spillovers to the real economy. First, firms financed by failing banks may suffer severely if the bank failures are correlated. Under such a circumstance, since industrial firms cannot roll-over their debt, they may be forced to forego the opportunities that they might otherwise have taken advantage of. Secondly, bank failures may cause knock-on effects on the economy if there is a chain of one financial institution’s output used as another financial institution’s input. And thirdly, the disruption of the payment system might be another cost of the systemic risk spilling over to the real economy.²¹

2. Potential sources of hedge fund systemic risk

In this chapter, four potential sources of systemic risk of hedge funds are identified. The size of hedge funds, the amount of their leverage, their interconnectedness with LCFIs, and their

¹⁷ *Ibid.*

¹⁸ Franklin Allen and Douglas Gale, "Optimal Financial Crises," *Journal of Finance* 53, no. 4 (1998), 1245-1284.

¹⁹ Charles P. Kindleberger and Robert Z. Aliber, *Manias, Panics, and Crashes: A History of Financial Crises*, 5th ed. (Hoboken, New Jersey: John Wiley & Sons, Inc., 2005), p. 104.

²⁰ Albert S. Kyle and Wei Xiong, "Contagion as a Wealth Effect," *Journal of Finance* 56, no. 4 (2001), 1401-1440.

²¹ Excess price volatility might be another cost of the financial collapse in the aftermath of a financial crisis caused by systemic risk. It is argued that “[l]arge price changes will hurt consumers more proportionally than small price changes when consumers are risk-averse (due to the concavity of their utility functions)”. See Wagner, *In the Quest of Systemic Externalities: A Review of the Literature*, p. 107.

potential for herding behavior are among the potential venues through which hedge funds can create or amplify systemic risk in financial markets.

2.1. Hedge funds as Systemically Important Financial Institutions

As mentioned in the introduction, in the aftermath of the financial crisis, there were allegations against hedge funds accusing them for their contribution to financial instability. These allegations were the motivating factor for the hedge fund regulation that ensued. In this section, systemic importance of hedge funds in financial markets due to the size of the industry will be investigated.

2.2.1. Hedge funds: The size of the industry

Measurement of the number and the size of hedge funds suffers from numerous shortcomings which first and foremost have their roots in the problem of hedge fund definition. The first step in measuring the number and the size of the hedge fund industry is to know what is to be measured. However, as discussed in the previous chapter, there is no fairly precise and generally accepted definition of a hedge fund with objective criteria to include certain financial institutions in the hedge fund population and exclude institutions that do not qualify as being a hedge fund. Additionally, the features which can help regulators identify a financial entity as a hedge fund can be made irrelevant by financial institutions that claim to be hedge funds regardless of possessing those features. Put differently, unless it does not comply with the legal and regulatory constraints, every fund can be considered a hedge fund if its managers choose to declare so and market it as a hedge fund; no matter what its legal structure, fee structure, and financial strategies are.

Another source of concern about the data on the size of hedge funds is that parallel to hedge fund management, hedge fund managers may manage privately managed accounts. Moreover, the strategies pursued by the proprietary desks of banks are substantially similar to the strategies pursued by hedge funds. Therefore, it seems that the number of the hedge fund-like funds is greater than the funds and assets under management (AUM) of the funds which are legally and

nominally known as hedge funds.²² Increasing trend among the traditional investment funds towards adopting and implementing more flexible strategies further blurs the hedge fund boundaries and renders the definitions and specifications of hedge funds more and more obsolete.

It is important to note that the biases and shortcomings about the data on hedge fund returns²³ equally apply in estimating the size and leverage of the industry. This is because until recently there were no mandatory registration and reporting requirements and no public sources of data about hedge funds. Therefore, estimating the number of hedge fund managers and the funds under their management in the industry was not a clear-cut task.

Besides these complications, the opaqueness of the hedge fund industry and the voluntary nature of disclosure add further complication to the study of hedge funds. These complications of the data about hedge funds spill over to the estimations of the number and size of hedge funds. Hence the reader is not to be surprised to encounter different estimates of number and size for hedge funds for exactly the same time span within the same jurisdiction.

2.2.1.1. Theory: Potential to become too-big-to-fail

Similarly to other financial institutions, the primary concern for hedge fund systemic importance arises from their size, and their recent but relatively rapid growth. At first glance, it seems that due to the restrictions on the number of hedge fund investors, they cannot grow sufficiently large to become TBTF. However, the reality of hedge funds shows that even in the presence of such restrictions, hedge funds can potentially become TBTF.

Prior to the Dodd-Frank Act, hedge funds were under numerical regulatory restrictions on the number of investors, but not on the size of the investment that those investors could contribute. In addition, there were regulatory limitations on the investment concentration of the institutional investors. However, due to the large number of different institutional investors that could invest

²² Lucas Papademos D., "Monitoring Hedge Funds: A Financial Stability Perspective," in *Financial Stability Review; Special Issue, Hedge Funds*, ed. Banque de France, 2007), pp. 114-116.

²³ For an overview of such biases, see Agarwal and Naik, *Hedge Funds*.

in one hedge fund, these regulatory limitations did not affect hedge funds' ability to attract large funds from different institutional investors.

The legal and regulatory restrictions in this regard can limit the size of hedge fund investor base, the amount of investment in hedge funds as well as potential risks and hazards they can pose on the system. Here, suffice it to say that prior to the Dodd-Frank Act, according to the regulations in the U.S., hedge fund advisers could have 14 funds under their management, and each fund could have 499 investors. Therefore, the number of investors in a single hedge fund could amount to 6,986 investors.²⁴ The introduction of the Dodd-Frank Act changed the regulatory landscape in the U.S., repealed the above mentioned provisions, and brought about a new regulatory framework for hedge funds.²⁵

2.2.1.2. Data on hedge fund size

Apart from the theoretical speculations about the size of the hedge fund industry, it is important to see how large the hedge fund industry is in the real world. The data obtained from the data vendors on hedge funds such as Managed Account Reports Inc., Hedge Funds Research, and Van Hedge Fund Advisors indicate that since the mid-1980s hedge fund industry experienced an explosive growth. Because of the problems in hedge fund data,²⁶ there are different estimates of the number of hedge funds. In this section, chronologically reporting the historical growth of the hedge fund industry from different sources of data vendors and academic studies, the size of the industry and its potential for systemic instability will be investigated.

It seems that before 1990s, the growth in the size and the number of hedge funds went unnoticed and captured less regulatory attention. However, since the 1990s, the hedge fund industry

²⁴ United States Securities and Exchange Commission, *Registration Under the Advisers Act of Certain Hedge Fund Advisers*, 2004), footnote no. 134.

²⁵ These new regulations will be discussed in the fourth chapter of the thesis. It might be argued that the limitations on the number of investors in hedge funds make them very unlikely to be a contributor to systemic risk. However, since every institutional investor can be an investor in a hedge fund, due to their potential huge amounts of investments, it is not practical to limit the risks of hedge funds on the financial system by limiting the number of investors. The regulatory focus should also be on the amount of investments by institutional investors in hedge funds. The relatively loose definition of hedge funds, which was mostly based on the number of investors (at least in the U.S.) and not the size or the concentration of the investment by institutional investors, together with the potentially unlimited leverage capacity might magnify their effects on the financial markets.

²⁶ See Agarwal and Naik, *Hedge Funds*.

experienced an explosive growth. Chadha and Jansen estimated that 140 hedge funds existed in 1968,²⁷ while Hildebrand reports that in 1990 there were 500 hedge funds managing assets around \$40 billion.²⁸

According to Van Hedge Fund Advisors, total number of hedge funds worldwide grew from 1,373 in 1988 to 5,500 in 1997.²⁹ The assets under management (AUM) of hedge funds for the same period of time grew from \$42 billion to approximately \$300 billion.³⁰ Furthermore, Hedge Funds Research estimates that in 1997 there were 3,000 hedge funds with AUM amounting to \$368 billion.³¹ The President's Working Group on Financial Markets also reported that as of mid-1998 between 2,500 and 3,500 hedge funds existed managing funds "between \$200 billion and \$300 billion in capital, with approximately \$800 billion to \$1 trillion in total assets."³² In the same year, Van Hedge Fund Advisors' estimate indicates that more than 300 new funds were formed and the total AUM of hedge funds grew to an estimated amount of \$311 billion.³³

As of 1999, Goldman Sachs and Financial Risk Management Ltd (FRM) estimate the number of hedge funds to be 3,500.³⁴ In October of the same year, Managed Account Reports estimated the number of hedge funds to be 3,000, and their AUM to be around \$205 billion for the year 1999. As for the same date, Von Hedge estimates that there were approximately 5,800 hedge funds in existence and their AUM was estimated to be about \$300 billion.³⁵

In the end of 2001, Stadlmann estimated the total asset positions of the industry to be about \$4 trillion.³⁶ Annual Hennessee Hedge Fund Manager Survey estimates that in 2005 there were 8,050 hedge funds with over \$1 trillion in assets. This number and the volume of industry shows

²⁷ B. Chadha and A. Jansen, "The Hedge Fund Industry: Structure, Size and Performance," in *Hedge Funds and Financial Dynamics*, ed. B. Eichengreen and others (Washington, DC: International Monetary Fund, 1998), 27-41.

²⁸ Philipp M. Hildebrand, "Hedge Funds and Prime Broker Dealers: Steps Towards a "Best Practice Proposal", in *Financial Stability Review; Special Issue, Hedge Funds*, ed. Banque de France, 2007), pp. 69-70.

²⁹ As stated earlier, the reader should get used to the anomalies in the data about hedge funds. Some of these anomalies could be explained in terms of different criteria used in the definition of hedge funds in different data sources while others might be because of the arbitrariness in the disclosure of data and also registration by hedge fund managers.

³⁰ Becker, Brandon and Colleen Doherty-Minicozzi, "Hedge Funds in Global Financial Markets," (2000), pp. 6-7.

³¹ Lois Peltz, "MAR Puts Hedge Fund Asset Base at \$205 Billion,".

³² President's Working Group, *Hedge Funds, Leverage, and the Lessons of Long-Term Capital Management*

³³ Van Hedge, *Number of Hedge Funds Increases for Tenth Consecutive Year*, September 21, 1999).

³⁴ Goldman Sachs & Co. and Financial Risk Management Ltd., "The Hedge Fund Industry and Absolute Return Funds," *The Journal of Alternative Investments* 1 (1999), 11-27.

³⁵ Van Hedge, *Number of Hedge Funds Increases for Tenth Consecutive Year*.

³⁶ M. Stadlmann, *Hedge Funds and Absolute Returns* (London, UK: WestAM Management, 2001).

a five-fold increase in assets “compared to US \$210 billion in 1998 under 3200 managers (and almost a 30-fold rise on the US \$35 billion in assets under 880 managers in 1992).”³⁷

Hildebrand estimates that in 2006, there were approximately 9,000 hedge funds with AUM of \$1.4 trillion net of the pool of capital managed by the proprietary trading desks of global investment banks. However, in essence these proprietary trading desks in terms of their activities, strategies, and compensation schemes are no different than hedge funds.³⁸ According to these estimates, compared to 1995, there was a seven-fold increase in the size of the industry.³⁹

Estimates by the Hedge Fund Research (HFR) indicate that hedge fund industry grew from 610 funds in 1990 with the funds under management of \$39 billion of assets to 3,873 funds with \$490 billion ten years later in 2000.⁴⁰ As Ferguson and Laster suggest, later on, at the end of the third quarter of 2006, there were 9,228 funds managed about \$1.4 trillion which represents an annualized asset growth of 19% since 2000. Their report also shows how geographically concentrated the hedge fund industry is. The report indicates that more than \$1 trillion of the AUM is managed by the U.S. hedge funds, about \$325 billion is managed by European hedge funds, and \$115 billion is managed in Asia.⁴¹ In 2008, about 75% of all hedge fund assets were managed by U.S. funds, while around 15% of assets were managed by European hedge funds.⁴²

The report also suggests that the industry’s growth was accompanied by the growth in the number of extremely large hedge funds. They demonstrate that at the end of the year 2002, the largest hedge fund had \$8 billion in assets, while in 2005 the number of funds having the equal amount of assets grew to 31. This report shows the increasing concentration in hedge fund industry. They report that the asset share of the 100 largest hedge fund managers rose from 54% in 2003 to 65% in 2005.⁴³ Other studies also confirm the increasing trend towards concentration in the industry. For example, it is reported that in 2008, the 100 largest hedge funds managed

³⁷ Jón Daníelsson, Ashley Taylor and Jean-Pierre Zigrand, "Highwaymen or Heroes: Should Hedge Funds be Regulated? A Survey," *Journal of Financial Stability* 1, no. 4 (2005), p. 526.

³⁸ Hildebrand, *Hedge Funds and Prime Broker Dealers: Steps towards a "Best Practice Proposal"*, pp. 69-70.

³⁹ Cole, Feldberg and Lynch, *Hedge Funds, Credit Risk Transfer and Financial Stability*, p. 8.

⁴⁰ To see the discrepancies in the number of hedge funds, compare this number with the above mentioned numbers about the size of the industry for almost the same period of time.

⁴¹ Ferguson and Laster, *Hedge Funds and Systemic Risk*, p. 46.

⁴² Stowell, *An Introduction to Investment Banks, Hedge Funds and Private Equity: The New Paradigm*, pp. 204.

⁴³ Ferguson and Laster, *Hedge Funds and Systemic Risk*, p. 46.

74% of all hedge fund assets. In other words, approximately 1.5% of hedge funds managed about 74% of assets. At the beginning of 2011, the largest hedge funds which constitute 5.2% of all hedge funds, managed 62% of all industry's assets.⁴⁴

As for the spring of 2007, it was estimated that around 9,000 hedge funds controlled assets under management of \$1.4 trillion, which accounted for almost 20% of the total value of the U.S. stock exchange. The ISFL July 2008 report shows that the hedge funds' AUM grew by a compound of 29.4% per year since 1998. This report also estimates that at the end of the year 2007, their AUM accounted for \$2.25 trillion.⁴⁵ The Government Accountability Office (GAO) estimates the number of hedge funds at the end of 2007 to be 11,000. The size of assets managed by the U.S. hedge fund advisers was estimated to be \$1.5 trillion.⁴⁶

The most recent estimates of the size of the hedge fund industry in March 2012 indicate that hedge fund industry's AUM amounts to \$2.55 trillion. Citi Prime Finance suggests that in this time span, the estimates of industry's AUM, depending on the source, ranges from \$2.13 to \$2.55 trillion compared to the Q2 2008 peak which ranges from \$1.9 to \$2.94 trillion.⁴⁷ According to Hedge Fund Research Inc. the hedge fund industry grew from \$2.25 trillion in 2012 to \$2.63 trillion in 2013.⁴⁸

Despite the rapid growth in the hedge fund industry, compared to other mainstream financial institutions, their mere size is far from systemically important and it is very unlikely that a hedge fund can be considered a SIFI because of its size. For example, between 1999 and 2005, 2,187 hedge funds stopped reporting to major data vendors which is a proxy for hedge fund closure. However, none of these closures resulted in a systemic crisis or contributed to the financial

⁴⁴ David Stowell, *Investment Banks, Hedge Funds, and Private Equity*, 2nd ed. (Waltham, MA: Elsevier, 2013), pp. 226-227.

⁴⁵ ISFL, *Hedge Funds 2008* (London: International Financial Services, July 2008).

⁴⁶ United States Government Accountability Office (GAO), *Hedge Funds: Regulators and Market Participants are Taking Steps to Strengthen Market Discipline, but Continued Attention is Needed*. (Washington, DC: 2008) 1-49. See also Michael R. King and Philip Maier, "Hedge Funds and Financial Stability: Regulating Prime Brokers Will Mitigate Systemic Risks," *Journal of Financial Stability* 5, no. 3 (2009), p. 285.

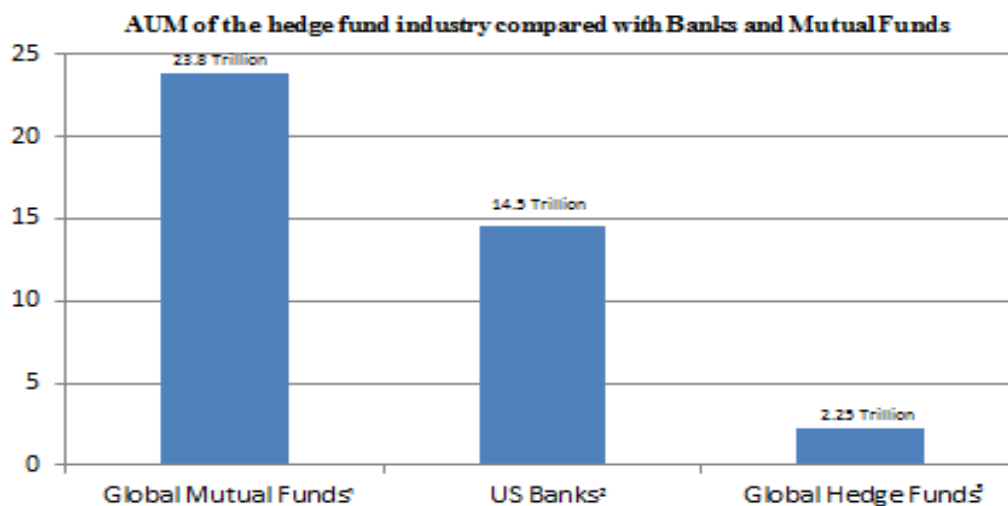
⁴⁷ Citi Prime Finance, *Hedge Fund Industry Snapshot*, p. 3.

⁴⁸ See Jesse Solomon, "Hedge Funds Get Bigger as Returns Get Smaller," *CNNMoney*, sec. Investing, January 22, 2014.

instability.⁴⁹ This limited impact of hedge fund closures and liquidations on financial markets can support the claim that hedge fund's size is not of systemic importance.⁵⁰

To see why hedge funds are unlikely to become TBTF, it is better to compare the size of the AUM of the global hedge fund industry to that of the banking and the mutual fund industry. As the figure shows below, in 2012, the AUM of the global hedge fund industry was \$2.25 trillion. At the same time, the AUM of the U.S. banks amounted to \$14.5 trillion and the AUM of the global mutual fund industry amounted to \$23.8 trillion. Therefore, hedge funds' AUM globally is a tiny fraction of the U.S. banks and global mutual fund industry, and compared with them, hedge funds are hardly to be systemically important. As it will be demonstrated in the next section, the leverage of hedge funds is also significantly lower than the leverage of commercial and investment banks. Therefore, it is very unlikely for hedge funds to become systemically important because of their size.

Hedge Funds' Risks: Size



Sources:

1. The Investment Company Institute (ICI), 2012
2. The US Federal Deposit Insurance Corporation (FDIC), 2012
3. The Managed Funds Association (MFA), 2012

⁴⁹ Cole, Feldberg and Lynch, *Hedge Funds, Credit Risk Transfer and Financial Stability*, pp. 11-12.

⁵⁰ Ben S. Bernanke, *Hedge Funds and Systemic Risk*. in: *Remarks by Chairman Ben S. Bernanke at the Federal Reserve Bank of Atlanta's 2006 Financial Markets Conference* (Sea Island, Georgia, May 16 2006).

2.3. Hedge fund leverage

The optimal amount of the debt of an economic firm is extensively studied in the corporate finance literature and there are significantly opposing views on the effect of leverage on the economic firms and the overall economy. Some scholars argue that debt is overall good for the economy,⁵¹ while conventional approach argues to the contrary.⁵² As for individual firms, leverage amplifies both gains and losses. Therefore, in distressed markets, it does not take a huge price shift to have a huge impact. Even with a slight volatility in asset prices, the leveraged positions can lose or gain dramatically. For these positions, asset price declines can result in margin calls that may cause deleveraging of heavily leveraged financial positions. This deleveraging might create ripple effects because of counterparty exposures especially in the OTC derivatives markets.

The experience of the collapse of Long-Term Capital Management (LTCM) shows that excessive leverage and liquidity problems contributed to its collapse.⁵³ The President's Working Group on Financial Markets Report in 1999 suggests that the excessive leverage was the key factor contributing to the collapse of LTCM. In its height, LTCM's leverage was more than 25 for 1 unit of equity. Accounting for the off-balance sheet derivative positions, it is estimated that the leverage increased to 30 or even 40 for a unit of equity.⁵⁴ However, it seems that in distressed

⁵¹ Michael C. Jensen, "Takeovers: Their Causes and Consequences," *Journal of Economic Perspectives* 2, no. 1 (1988), 21-48.

For example, Modigliani-Miller Theorem suggests that the structure of the capital has no implication for the performance of the firm.

⁵² Guido Lorenzoni, "Inefficient Credit Booms," *Review of Economic Studies* 75, no. 3 (2008), 809-833.

⁵³ President's Working Group, *Hedge Funds, Leverage, and the Lessons of Long-Term Capital Management*.

⁵⁴ According to Perry Mehrling, since LTCM extensively undertook liquidity transformation function in international financial markets, it got caught by a sudden liquidity shock in the aftermath of the default by the Russian government on its debt. Dealing with the liquidity mismatch is typical to dealer's business in financial markets and Central Banks do not hesitate to extend their emergency liquidity facilities to dealers whenever the illiquidity in the markets questions the solvency of the firms and threatens the well functioning of the financial system. However, the instances of hedge funds getting caught by illiquidity shocks which would have systemic implications were unprecedented. Indeed, from Mehrling's standpoint, the troubling aspect of hedge funds is that they can engage almost freely in almost all investment strategies. This freedom in employing investment strategies can enable hedge funds to employ financial instruments and strategies to engage in liquidity and maturity transformation which is traditionally performed by banking entities.

Indeed, in Mehrling's view, the liquidity transformation function of LTCM is the most compelling argument for the bailout of LTCM by a consortium of bankers and investment firms organized by the Federal Reserve Bank of New York. Indeed, what Mehrling highlights in the operations of the hedge fund industry is that they engage in liquidity transformation in the financial markets and that is exactly what makes them systemically important. Put differently, hedge funds' engagement in the liquidity and maturity transformation pushes them from the periphery of the financial system to the apex of the hierarchy of finance. The policy implications of Mehrling's view is that if hedge funds operate as shadow banks they should be directly regulated because of systemic importance of their activities in

and illiquid markets, measures of leverage, quoted as such, can be misleading because this excessive amount of leverage might be a consequence of the erosion of the capital basis of LTCM depending on the losses on its investments.⁵⁵

There are at least three main reasons that the level of leverage in hedge funds can be important. First, within the asset management industry, hedge funds are the ones who make use of leverage the most. Nevertheless, this does not mean that they are in fact more leveraged than other mainstream financial institutions. It solely denotes that the nature of certain hedge fund strategies which may determine the nature and the type of the hedge fund requires the use of high levels of leverage. In other words, the frequent use of leverage is one of the defining features of certain types of hedge funds. For example, hedge funds focusing on exploiting arbitrage opportunities or mispriced assets, due to the nature of their investments, need frequent and sometimes heavy use of leverage. In these strategies, since the amount of the price dislocations and discrepancies are very small, the use of leverage is necessary to magnify the returns.⁵⁶

Secondly, there are concerns about the systemic risks that a failure of a large hedge fund employing high levels of leverage may cause. This concern is especially highlighted in the aftermath of the collapse of LTCM.⁵⁷

the credit markets. See Perry Mehrling, "Minsky and Modern Finance: The Case of Long Term Capital Management," *The Journal of Portfolio Management* 26, no. 2 (2000), 81-88.

In contrast to Mehrling's view which is a 'money view', Franklin Edwards' view on hedge funds tends to lean towards banking or finance view which mostly ignores or pays less attention to the role of liquidity in the potential systemic importance of the hedge fund industry. For Edwards, hedge fund regulation is unjustified. Instead the regulatory focus on hedge funds should be shifted to banking regulation. In other words, Edwards advocates indirect regulation of hedge funds through the regulation of hedge funds' investors, counterparties, and creditors such as banks, mutual funds, pension funds, and other mainstream financial institutions. He starts with the traditional investor protection argument for regulation of hedge funds and repudiates such concerns because of hedge funds' investor base consisting of institutional investors and high-net-worth individuals which enables them to easily fend for themselves. In the end, he argues that the real concern about hedge funds is the systemic risk that they might pose. Nonetheless, even with systemic risk concerns, he does not see the locus of systemic risk in the hedge fund industry itself; instead, he traces the risks (apparently stemming from hedge funds) down to the banking industry. See Edwards, *Hedge Funds and the Collapse of Long-Term Capital Management*, 189-210.

⁵⁵ King and Maier, *Hedge Funds and Financial Stability: Regulating Prime Brokers Will Mitigate Systemic Risks*, pp. 287-288.

Therefore, reporting a snapshot of the level of leverage at a specific point in time cannot capture the effective or actual level of leverage and indeed relying on those data in distressed and illiquid market conditions can lead to exaggeration of the actual level of leverage.

⁵⁶ Ang, Gorovyy and van Inwegen, *Hedge Fund Leverage*, pp. 102-103.

⁵⁷ For a thorough overview of the collapse of LTCM, see Nicholas Dunbar, *Inventing Money: The Story of Long-Term Capital Management and the Legends behind It* (Chichester: Wiley, 2000).

Thirdly, systemic concerns about the failure of hedge funds are amplified by finding (at least some) evidence of herding among hedge fund managers.⁵⁸ This means that in the presence of herding, not only should the individual hedge funds' level of leverage be taken into account, but also the leverage of the entire industry should be accounted for. In addition, higher levels of leverage in the industry can amplify the likelihood of contagion of the financial distress due to the possibility of the liquidity crises, deleveraging, and potential fire sales.

In order to understand how leverage is related to other factors which are sources of systemic risk, it is instrumental to know how hedge funds acquire leverage. Depending on the types of securities traded by hedge funds, their creditworthiness, and the exchange on which the securities are traded, there are two major direct and indirect ways through which hedge funds can obtain leverage. Direct leverage is achieved through borrowing either from individual investors or from financial institutions, often by making use of repurchase agreements. Indirect leverage involves the use of off-balance sheet financing, such as using derivative instruments.

One of the major providers of leverage to hedge funds is the prime brokerage industry; however, not every hedge fund uses prime brokerage services to lever its positions and strategies. The bulk of hedge fund leverage is in the form of short term leverage as they are unable or unwilling to issue long-term debt or secure long-term borrowing. For taking leverage, hedge funds can use their prime broker's loans, or (in the U.S.) they can borrow on margin up to fifty percent of the market value of the securities or the rates set by the relevant regulatory authority, whichever is greater. Alternatively, hedge funds can lever their positions by taking short positions.

Moreover, hedge funds can increase their level of leverage by establishing offshore investment vehicles. Doing so, they can obtain 'enhanced leverage' higher than the levels allowed by the Regulation T⁵⁹ and other regulations in the U.S. To facilitate hedge funds' access to the off-shore borrowing, prime brokers have set up overseas facilities in more liberal and less restrictive

⁵⁸ Nicole M. Boyson, "Implicit Incentives and Reputational Herding by Hedge Fund Managers," *Journal of Empirical Finance* 17, no. 3 (2010), 283-299.

Herding happens when funds mimic other funds or financial institutions while their own private information or proprietary models suggest different strategies. See Avery and Zemsky, *Multidimensional Uncertainty and Herd Behavior in Financial Markets*, 724-748.

⁵⁹ There are limitations on most of the financial institutions' level of leverage. In the U.S., for example, Regulation T (12 C.F.R. § 220.12) requires that "short-sale accounts hold collateral of 50% of the value of the short implying a maximum short exposure of two."

jurisdictions to provide such services for hedge funds. Moreover, portfolio margining, which allows the calculation of margins on a portfolio basis instead of security-by-security basis and embedded leverage in trading in financial derivatives⁶⁰ are among the ways that help hedge funds increase their leverage. Given the variety of methods which can be employed to increase leverage, measuring and monitoring the level of leverage can be an extremely complex endeavor.⁶¹ In addition, as it is clear, obtaining leverage is often what exactly interconnects hedge funds to LCFIs.

2.3.1. Hedge fund leverage: Theory

Banks and many financial institutions have already been regulated with regard to the amount of leverage they are allowed to take, while hedge funds and some other financial institutions like private equity funds have not. These institutions are not also required to disclose their level of leverage to markets or regulators. Although market forces might put some checks on the amount of leverage they can take, theoretically speaking, hedge funds can take unlimited amount of leverage. This might potentially put the financial system at risk.

2.3.1.1. Leverage and liquidity

Liquidity is the ease with which the trade occurs in financial markets without significant price impact in the market. In other words, liquidity is “the ease and speed with which agents can convert assets into purchasing power at agreed prices”.⁶² Liquidity is central to every financial system and one of the crucial aims of a sound financial policy is to secure liquidity for the entire financial system.

The absence of liquidity, i.e., illiquidity can produce negative externalities which would imperil the well functioning of the real economy. Since the level of capital has a positive relationship with the level of production (economic output), any changes in the level of capital can have real

⁶⁰ Ang, Gorovyy and van Inwegen, *Hedge Fund Leverage*, pp. 104-105.

⁶¹ Daníelsson, Taylor and Zigrand, *Highwaymen or Heroes: Should Hedge Funds be Regulated? A Survey*, 522-543.

⁶² Levine, *Financial Development and Economic Growth: Views and Agenda*, 688-726.

effects on the real economy. In addition, liquidity affects the cost of capital; thereby it indirectly affects the real economy. Therefore, liquidity can cause a shift in the production possibilities frontier of the real economy by affecting the level of input and output of the economy. Since illiquidity externality can produce “a *shift in* the functions relating quantities of resources as independent variables and output quantities or utility levels of consumers as dependent variables”,⁶³ it is a technological or true rather than a pecuniary externality. Needless to say, technological externalities are the ones that economic theory is much concerned with.

The economic and finance theory explains how the problems of liquidity can lead to the failure of solvent, but illiquid financial institutions, how liquidity crises can be contagious, and how easily they evolve into systemic crises. For example, suppose a financial institution (a hedge fund) is affected by an external shock which can cause asset price declines. Due to the mark-to-market accounting, such declines in values should be accounted for on its balance sheet. The immediate appearance of the loss of value on the balance sheet primarily makes short term debt financing of that hedge fund more difficult. Furthermore, assuming it has long positions, the hedge fund will be in need of more short-term rather than long-term assets to prepare for the expected illiquidity or distress in financial markets which may lead to investor redemptions by panicked investors observing the signs of distress in the hedge fund. This implies that the hedge fund should deleverage to meet its obligations towards its investors. The deleveraging of the long-term assets will further erode some of their value if all market participants are in need of deleveraging.⁶⁴ Such sales might have a significant price impact and impose costs on other investors who wish to close out their positions on those assets at market prices.⁶⁵ Therefore, sell-side hedge funds should all sell in lower prices. This implies that hedge funds should further deleverage. Since this deleveraging happens in stressed markets, it may result in fire-sales of long-term assets further eroding some of their value.

This fire-sale happens because of uncoordinated simultaneous actions of many hedge funds in need of short term financing. If such an exogenous shock affects all hedge funds or a non-negligible number of hedge funds, it will mean that they will all simultaneously pursue the same

⁶³ Baumol and Oates, *The Theory of Environmental Policy*, p. 30.

⁶⁴ For a thorough review of how deleveraging process works and how it affects the costs of raising capital for financial institutions, See Gorton, *Slapped by the Invisible Hand: The Panic of 2007*.

⁶⁵ Daniélsson, Taylor and Zigrand, *Highwaymen or Heroes: Should Hedge Funds be Regulated? A Survey*, p. 532.

strategy, i.e., a flight to quality. This uncoordinated but individually rational action of significant numbers of hedge funds might be the best strategy for individual hedge funds, but as a prisoners' dilemma emerges in this setting, the result of the individual rationality will be a collective disaster.⁶⁶ This sort of behavior leads to what is often called 'fire-sale externalities'.

Such a scenario is incomplete without taking into account the interconnectedness of hedge funds with LCFIs. Hedge funds are counterparties to other LCFIs that provide them with prime brokerage services. With increased risks in hedge funds, these institutions will see the signals of trouble associated with higher counterparty risks. Accordingly, hedge funds' counterparties will fly away from long-term assets to short-term ones to protect themselves against potential illiquidity.⁶⁷ This in turn will create greater demand for short-term financing while its supply is shrinking. Since hedge funds' counterparties think alike and demand more short-term financing which may result in liquidity hoarding, the liquidity will decrease to a significant degree resulting in a surge in overall liquidity risks in markets. This decline in liquidity and reduced funding will certainly spill over to the real economy by increasing the cost of capital and thereby the level of input to a given economy.⁶⁸

Moreover, this deleveraging signals to the investors that the fund is in trouble. Though due to legal, but mainly contractual restrictions such as gates and side-pocket arrangements, investors in a hedge fund cannot redeem their investment immediately, in the longer time span, the capital base of the fund will be eroded due to investor redemptions.

The need for immediate deleveraging in times of distress along with the fact that certain types of hedge funds tend to be highly levered will raise public policy concerns in times of crisis. In addition, since there is almost no limit on the trading strategies and concentrations of hedge

⁶⁶ John Geanakoplos, "Solving the Present Crisis and Managing the Leverage Cycle," *Economic Policy Review - Federal Reserve Bank of New York* 16, no. 1 (2010), 101-131.

This is the same logic of bank runs in the absence of credible deposit insurance scheme.

⁶⁷ This is one of the reasons that in times of crisis, short-term solutions often prevail over long-term ones.

⁶⁸ In addition, given the effects of securitization on the velocity of money in circulation, it is suggested that the velocity of money in circulation falls when companies and individuals deleverage. Decreasing velocity of money in recession or in financial crises in which governments often try to produce or sustain certain level of inflation to avoid the money hoarding and other adverse effects of deflation means that deleveraging can potentially stall the expected impact of stimulus packages and injection of money or capital into the economy. See Susan M. Philips, "The Place of Securitization in the Financial System: Implications for Banking and Monetary Policy," in *A Primer on Securitization*, eds. Leon T. Kendall and Michael M. Fishman (Cambridge, Massachusetts: The MIT press, 2000), p. 135. See also John Mauldin and Jonathan Tepper, *Endgame: The End of Debt Supercycle and how it Changes Everything* (Hoboken, New Jersey: John Wiley & Sons, Inc., 2011), p. 148.

funds' positions, they are highly engaged in trading financial derivatives with embedded leverage. These factors, i.e., unlimited leverage, unlimited trading strategies, unlimited investment concentration, and heavy trading in the financial derivatives can raise concerns about hedge funds. In particular, if several hedge funds simultaneously need forced deleveraging, the impact on the liquidity in the entire market will be significant. Therefore, central to the analysis of liquidity in this section is its close relationship with the level of leverage and how deleveraging caused by illiquidity can result in systemic risk.

Nevertheless, it is equally likely that hedge funds play the role of contrarian position-takers in financial markets and provide liquidity. When the mainstream financial institutions are forced to sell their assets, mainly due to the leverage limits, hedge funds may see such instance of selling as buy opportunities, take contrarian positions to the positions of the mainstream financial institutions and thereby provide liquidity and enhance the stability of the market.⁶⁹ However, in contrast to the belief that hedge funds are liquidity providers in distressed markets or in assets which are highly illiquid, hard to value, and complex,⁷⁰ they are sometimes accused of 'using up' market liquidity.

It is suggested that the liquidity regulation should address the liquidity risks by focusing on minimizing asymmetric information by effective monitoring of the financial system. In doing so, it is proposed that greater transparency, along with supervision and regulation are needed for addressing such liquidity risks. It is equally important for regulation to distinguish between solvent and illiquid financial institutions and impose regulation and liquidity cushions on the institutions in need of liquidity.⁷¹

⁶⁹ Danielsson, Taylor and Zigrand, *Highwaymen or Heroes: Should Hedge Funds be Regulated? A Survey*, p. 532. One of the distinguishing features of a hedge fund from a UCITS is the fact that a UCITS retains sufficient liquidity to satisfy the regular redemption rights exercised by the investors. See Angus Duncan, Edmond Curtin and Marco Crosignani, "Alternative Regulation: The Directive on Alternative Investment Fund Managers," *Capital Markets Law Journal* 6, no. 3 (2011), pp. 357-358.

In contrast, hedge funds often use lock-up periods and limit redemption rights of the investors. Scholars suggest that to the extent that a hedge fund locks-up the capital of its investors in illiquid investments which can provide an enhanced return in the longer investment horizons, imposing liquidity management requirements on hedge funds seems inappropriate. See *Ibid.*

⁷⁰ Eechoud et al., *Future Regulation of Hedge Funds—A Systemic Risk Perspective*, pp. 275-278. See also Bianchi and Drew, *Hedge Fund Regulation and Systemic Risk*, pp. 13-15.

⁷¹ Kleopatra Nikolaou, "Liquidity (Risk) Concepts: Definitions and Interactions," *ECB Working Paper Series* 1008 (2009), p. 6.

The purpose of liquidity requirements is to ensure that there are high-quality assets that can be sold to meet sudden withdrawals of short-term funding.⁷² The regulatory tools for addressing the problems arising from liquidity is often in the form of stress-tests ensuring that the financial institutions have contingency plans for addressing potential liquidity freeze-ups. Regulators can further impose a ‘short-term funding cap,’ which essentially limits the portion of the balance sheet of the financial institution which can be funded with short-term liabilities.⁷³ The introduction of the net stable funding ratio (NSFR) and the liquidity coverage ratio (LCR) of the Basel III aims to accomplish such goals.⁷⁴ The main aim of these measures is to prevent the short-term liquidity flight which can destroy healthy financial institutions. It is argued that such a strategy can be a promising approach to address systemic risk because it acknowledges that reliance on short-term funding can be highly contagious in the event of exogenous shocks to the system.⁷⁵

Furthermore, mark-to-funding accounting rules and capital charges for liquidity risks are proposed as two additional tools to reduce the frequency and severity of the systemic liquidity events.⁷⁶ Changing accounting rules from mark-to-market to mark-to-funding is proposed as a proper mechanism to measure the liquidity risks of financial institutions. Such a shift in accounting rules takes account of funding risks in measuring the total value of the firm. Mark-to-funding approach suggests that the pools of assets secured by long-term assets do not have to be marked-to-market. If such pools of assets are not marked-to-market, the likelihood of the market illiquidity stemming from the forced sales will be mitigated. In addition, financial institutions engaging in the maturity and liquidity transformation (institutions holding assets with low market liquidity and long-term maturity while funding them with assets with short-term maturity) should incur higher capital charges. Such a mechanism is proposed to internalize the systemic

⁷² Hal Scott, "Interconnectedness and Contagion," *Available at SSRN* (2012), pp. 9-10.

⁷³ *Ibid.*

⁷⁴ For a detailed discussion of these two measures, see Roberto Ruozi and Pierpaolo Ferrari, *Liquidity Risk Management in Banks: Economic and Regulatory Issues* (New York: Springer, 2013), pp. 29-40.

⁷⁵ Hal Scott, "Interconnectedness and Contagion," *Available at SSRN* (2012), pp. 9-10.

The alternative to liquidity requirements is the emergency public lending facilities. However, it is argued that such requirements which can protect against the liquidity-driven runs are of limited effectiveness and the role of central banks in providing liquidity will remain essential in guarding against contagion. See Scott, *Interconnectedness and Contagion*, pp. 9-10.

⁷⁶ Brunnermeier et al., *The Fundamental Principles of Financial Regulation: Geneva Report on the World Economy*, pp. 39-40.

externalities of liquidity.⁷⁷ Although capital requirements can potentially address liquidity problems, since contagion often spreads in runs which are driven by liquidity problems, liquidity requirements are often perceived as more promising compared with capital requirements.⁷⁸

2.3.1.2. Hedge fund leverage, stakeholders, incentives and strategies

Hedge fund leverage is a concern for regulators, hedge funds' investors, their counterparties such as prime brokers, and hedge fund managers. These categories of financial market participants are direct or indirect stakeholders in the level of hedge fund leverage, because of the fact the leverage of hedge funds might affect their interests one way or another. Although hedge funds can take unlimited levels of leverage, these stakeholders can impose *de facto* or market-based restrictions on the leverage of hedge funds.⁷⁹ In this section, the incentive mechanisms embedded in the financial markets to limit the leverage of hedge funds is studied to determine whether the market mechanisms are sufficient to restrict the potential unlimited leverage of hedge funds.

The stakeholders in hedge fund leverage may have different opinions, interests, and perspectives about the optimal level of hedge fund leverage. The market leverage limit can be primarily set by hedge funds' prime brokers that are the primary financial service providers for hedge funds. For prime brokers and hedge fund creditors, providing hedge funds with leverage means additional fees for the services and interests on the loans. Furthermore, in the competitive prime brokerage services, being lenient towards clients and providing additional leverage for hedge funds can potentially attract additional hedge fund clients. In addition, prime brokers are usually aware of the risk of default, and counterparty and liquidity risks of hedge funds that might put the prime brokers themselves at risk. However, in markets with minimum margin rates for trading in derivatives, depending on relevant restrictions, the prime brokers are able to offer significant amount of leverage to hedge fund clients. In international markets, it is claimed that the level of leverage can range "from minimal in illiquid positions to more than one hundred times the value

⁷⁷ *Ibid.*

⁷⁸ Scott, *Interconnectedness and Contagion*, pp. 9-10.

⁷⁹ Indeed, this approach is the basis for the indirect regulation of hedge funds conducted primarily through their prime brokers. The third chapter will study the direct and indirect regulatory measures for hedge fund regulation.

[of] collateral for highly liquid securities, currencies, or bonds”, which largely depends on the availability of capital and the risk appetite of the prime broker.”⁸⁰

An additional important factor in the relationship between hedge funds and prime brokers is that hedge funds are increasingly diversifying their prime brokers to reduce their exposure to a single prime broker and mitigate the counterparty risks in case of the failure of one prime broker. Nevertheless, this diversification might result in adverse effects in the sense that prime brokers might ease the conditions under which they provide leverage for hedge funds to keep them in their client slate.

For hedge fund investors, depending on the circumstances, leverage can be either a blessing or a curse. In addition, optimal level of leverage can be different for different categories of investors in hedge funds. However, because of risk aversion in average investors and the lack of explicit or implicit government guarantees on their investment, *ceteris paribus*, hedge fund investors tend to like lower levels of leverage.

For hedge fund managers, leverage can provide the opportunity of exploiting the price differences in arbitrage opportunities and in transactions the ultimate payoff of which is based on small changes in the prices and the value of assets such as contract-for-difference (CFD) cases.⁸¹ Moreover, using leverage for activist hedge fund managers is of great importance. By using leverage and acquiring adequate number of shares in target companies, they can change the composition of the board of directors and corporate strategy of the firms.

Regulators are aware of both positive and negative aspects of leverage in financial system. However, given that the positive aspects of taking leverage are often less visible than their negative aspects; when it comes to incentives, regulators often tend to be in favor of having

⁸⁰ Aikman, *When Prime Brokers Fail: The Unheeded Risk to Hedge Funds, Banks, and the Financial Industry*, pp. 139-140.

⁸¹ A CFD is a contract that allows parties to bet on the price movements of a financial instrument without owning the underlying assets. It is a contract between two parties in which the seller promises to pay the difference between the current value of an asset and its value at the time in which the contract is concluded to the buyer.

lower levels of leverage, especially when the level of leverage is high enough to destabilize the financial markets.⁸²

2.3.2. Data on hedge fund leverage

Although hedge funds can have *de jure* unlimited leverage, given the above-mentioned incentives of market participants, it does not necessarily follow that they will have high or excessive *de facto* or actual leverage. Therefore, there is a need to investigate the actual level of leverage in the hedge fund industry. To do so, in this section a brief overview of the data and empirical studies on hedge fund leverage will be examined.

There are different contentions about the amount of hedge funds' leverage. Because of the lack of reliable data, biases in the existing data on hedge funds, and complexities in the measurement of leverage, the thesis will not hazard to independently verify them. Therefore, this study will be confined to a review of the existing literature on hedge fund leverage.

Some scholars believe that after the collapse of LTCM, hedge funds reduced their leverage significantly and their current level of leverage is much less than that of banks.⁸³ Others still believe that the use of leverage is much higher than what is perceived, and attribute this belief to the ability of hedge funds to take large positions in some segments of the market.⁸⁴ All in all, although the level of the leverage employed by the hedge fund industry is not clearly known, it seems that after the collapse of LTCM, market forces brought hedge funds under much more

⁸² In the current system, the one who determines the leverage of a hedge fund is the manager of the fund. Such a power to set the leverage is allowed for hedge fund managers because setting a crude cap on the leverage ratio of hedge funds can have unintended consequences such as exacerbating systemic problems by triggering massive deleveraging when the asset prices are falling. In regulatory debates in the EU, the European Commission's approach was to set general limits on leverage by the Commission, while the European Council was against both setting a limit and requiring the managers to set the limit because of the above mentioned concerns. Eilfs Ferran, "After the Crisis: The Regulation of Hedge Funds and Private Equity in the EU," *European Business Organization Law Review* 12, no. 3 (2011), p. 402.

⁸³ Bianchi and Drew, *Hedge Fund Regulation and Systemic Risk*, p. 7, 22. See Wulf A. Kaal, "Hedge Fund Regulation via Basel III," *Vanderbilt Journal of Transnational Law* 44 (2011), p. 454. See also Romano, *Against Financial Regulation Harmonization: A Comment*, p. 4.

⁸⁴ House of representatives of Australia, *Hedge Funds, Financial Stability and Market Integrity*, 1999), pp. 5-6.

scrutiny with regard to their level of leverage and reduced the amount of leverage they currently employ.⁸⁵

As mentioned above, leverage is essential for certain hedge fund strategies. Regulators often put limits on the amount of leverage of financial institutions. These restrictive measures might be in different forms such as capital adequacy requirement (CAR) for banks, (initial and maintenance) margin requirements for trade in margin accounts (Regulation T in the U.S.), or outright limits on the financial institutions ability to borrow. Hedge funds are one of the institutions that have no upper limits on their level of leverage, unless they trade in certain financial instruments or commodities the trade of which triggers margin requirements and certain additional regulatory requirements from which hedge funds are not an exception.

Due to the voluntary disclosure system within the current hedge fund regulatory framework, little is known about hedge fund leverage. However, despite all the limitations and shortcomings in the hedge fund related data, academic works attempt to measure hedge funds' leverage based on those voluntary disclosures.

In addition to the shortcomings in the data, another problem with the data on hedge funds' leverage is the difficulty of measuring leverage itself due to the complexities involved in pricing financial instruments and aggregation of exposures. Due to these difficulties, even under a mandatory disclosure system on the leverage of hedge funds, it is not clear whether the actual amount of leverage could be captured by mandatory disclosure of direct exposures. It is also not clear how effectively and informatively such information could be communicated to regulators and how regulators could analyze the disclosed data timely. Moreover, information about hedge fund leverage communicated to regulators would be of extremely limited value, because hedge funds' leverage is subject to rapid changes in the value of their assets and financial positions, in particular the positions related to the use of derivatives. The changes in asset prices and hedge funds' positions are more volatile in times of crisis and hence the regulatory value of hedge fund

⁸⁵ See Ang, Gorovyy and van Inwegen, *Hedge Fund Leverage*, 102-126.

disclosure about their level of leverage is more limited in those times.⁸⁶ In the following section, the empirical studies conducted on hedge fund leverage are reviewed.

2.3.2.1. Estimates of Hedge fund leverage

As mentioned earlier, after the collapse of LTCM, whose leverage at the time of collapse was estimated to be 25 to 1 and even more, hedge fund leverage attracted more regulatory and academic attention. According to the Hennessee Group's research in 2003, 84% of hedge funds in its sample use less than Regulation T level of leverage which puts the margin requirement at 50% level. Namely, the effective leverage of the sample of hedge funds in their data was 2:1. According to their study, only 2% of hedge funds (mostly convertible arbitrage funds) use leverage in excess of 500% (5:1).⁸⁷

As of March 2003, Gupta and Liang find that the majority of hedge funds in their sample of 1,500 hedge funds do not employ excessive leverage.⁸⁸ The rate of high level of leverage in live hedge funds was 3.7% of all live funds in their sample. Furthermore, according to their findings, the undercapitalized live funds tend to be very small funds constituting 1.2% of the total fund assets in their sample. As for extinct funds, they found that 11% of hedge funds from among the total dead funds were undercapitalized. This finding is consistent with the theory asserting that one of the reasons of the failure of hedge funds is undercapitalization.⁸⁹

A survey by Bank of England also suggests that nearly 20% of hedge funds used no leverage at all in late 2004, and 50% of hedge funds used leverage of less than one times their equity.⁹⁰ According to Van Hedge Fund Advisors report in August 2005, approximately 20% of hedge funds employed no leverage at all. And about 50% employed leverage of less than 1 to 1

⁸⁶ Daniëlsson, Taylor and Zigrand, *Highwaymen or Heroes: Should Hedge Funds be Regulated? A Survey*, pp. 529-530.

⁸⁷ Hennessee Group, *Comments of Hennessee Group LLC—for the U.S. Securities and Exchange Commission Roundtable on Hedge Funds*, 2003), p. 12.

⁸⁸ They use a Value-at-Risk-(estimated through Extreme Value Theory) based capital adequacy measures to evaluate whether hedge funds have enough capital or not.

⁸⁹ Gupta and Liang, *Do Hedge Funds have enough Capital? A Value-at-Risk Approach*, 219-253.

⁹⁰ See King and Maier, *Hedge Funds and Financial Stability: Regulating Prime Brokers Will Mitigate Systemic Risks*, pp. 294-295.

including the leverage created by short positions.⁹¹ Other studies show a decline in the level of leverage employed by hedge funds in 2007-2008.⁹²

To understand the significance of the level of leverage of hedge funds it should be contrasted to the level of leverage of the mainstream financial institutions. Comparing hedge funds' leverage with that of other financial institutions will show that the hedge fund leverage is just a small fraction of the leverage of the regulated financial institutions. As an example, capital adequacy requirements (CARs) for banks are set at 8%. With this level of CAR, regulated bank's leverage ratio can be 12.5:1.⁹³ Therefore, even after the implementation of the Basel III capital requirements, the level of leverage allowed for banks will be much higher than the *de facto* leverage of hedge funds.⁹⁴

Ang, Gorovyy and van Inwegen's empirical analysis of hedge fund leverage from December 2004 to October 2009, show that the hedge fund leverage, compared to that of investment banks and broker-dealers, is 'fairly modest'. A more interesting finding is that the leverage of hedge funds is counter-cyclical to the market leverage of listed financial intermediaries. Ang, Gorovyy and van Inwegen also show that prior to the financial crisis in the mid-2007, while the leverage of regulated investment banks continually increased, hedge fund leverage decreased. In the worst period of the global financial crisis in which the investment banks' leverage was at its peak, hedge funds leverage was at its lowest point.⁹⁵

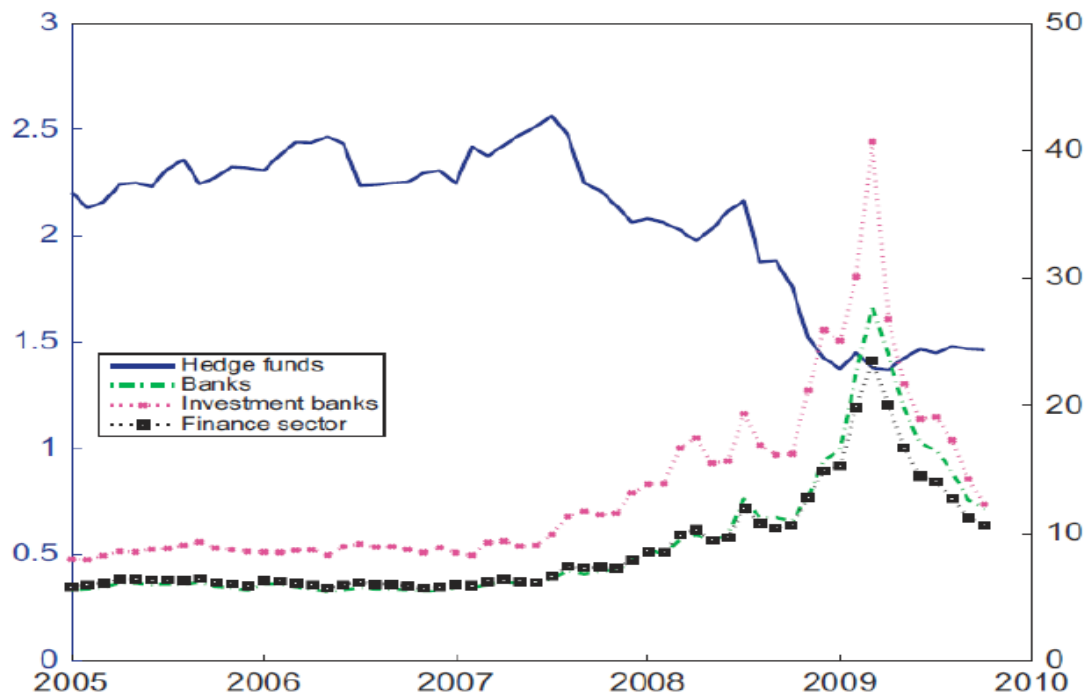
⁹¹ Banque de France, *Financial Stability Review: Special Issue on Hedge Funds*, 2007), p. 52.

⁹² King and Maier, *Hedge Funds and Financial Stability: Regulating Prime Brokers Will Mitigate Systemic Risks*, pp. 294-295.

⁹³ Danielsson, Taylor and Zigrand, *Highwaymen or Heroes: Should Hedge Funds be Regulated? A Survey*, 522-543.

⁹⁴ See Admati and Hellwig, *The Bankers' New Clothes: What's Wrong with Banking and what to do about It*.

⁹⁵ Ang, Gorovyy and van Inwegen, *Hedge Fund Leverage*, p. 121.



Andrew Ang et al., *Hedge Fund Leverage*, 102 JOURNAL OF FINANCIAL ECONOMICS 119 (2011).

According to this study, gross leverage for hedge funds until mid-2007 was approximately 2.3, where it started to decrease from 2.6 in June 2007 to a minimum of 1.4 in March 2009. At the end of the period – October 2009 – the authors estimate the gross leverage across hedge funds to be 1.5. And over the whole period, the average gross leverage was 2.1.⁹⁶ As the above figure clearly shows, hedge funds' leverage is much lower than the leverage of banks and that of the financial sector in general.⁹⁷ Overall, it seems that the lower levels of leverage employed by hedge funds could partly be explained by the market discipline imposed by their counterparties, creditors, investors, and the internal governance mechanisms embedded in the hedge fund industry.⁹⁸ Namely, even if large hedge funds were willing to employ higher levels of leverage,

⁹⁶ *Ibid.* They also show that the leverage for the event-driven and equity funds is on average lower (1.3 and 1.6 respectively) than for all other hedge funds which have an average gross leverage of 2.1 over their sample. In the recent crisis, they also show that both the event-driven and equity sectors reach their highest peak of gross leverage in mid-2007 and gradually decrease their leverage over the crisis.

In addition, one of the proxies for measuring leverage is comparing the volatility of trading returns with the volatility of underlying assets in which hedge funds invest. According to this model, the higher the volatility of trading returns, the greater the risk of the investment. Studies suggest that for banks the ratio of this measure was 1.5 which peaked at 2.2 in the second quarter of 2000. However, this measure for average hedge funds was 0.7. See S. Jones, "US Bank Leverage almost Double Hedge Funds," *FT.Com*, 2001.

⁹⁷ Bianchi and Drew, *Hedge Fund Regulation and Systemic Risk*, 6-29. Even after the introduction of Basel III, the level of leverage allowed for banks will be much higher than the *de facto* leverage of hedge funds.

⁹⁸ See Houman B. Shadab, "Hedge Fund Governance," *Stanford Journal of Law, Business, & Finance* 19, no. 1 (2013).

their prime brokers, investors or partners might not be happy with higher amounts of leverage and hence they put actual limits on the leverage of hedge funds.⁹⁹

Needless to say, the countercyclical leverage of hedge funds can prevent the crisis from getting worse. This is because when other financial institutions are forced to deleverage by selling their assets which in a distressed markets can contribute to fire sales and downward asset price spirals, the funds with countercyclical leverage can take the contrarian positions to form a floor below the price levels and prevent them from further collapse. Therefore, it seems that the role of hedge fund leverage in financial instability is exaggerated.¹⁰⁰ At least, for small and mid-sized hedge funds, the level of leverage is unlikely to be systemically important.¹⁰¹

2.3.2.2. Lessons from the empirical evidence on hedge fund leverage

A survey of empirical studies on hedge fund leverage shows that the regulation of hedge funds based on the potential systemic risk stemming from their level of leverage is not warranted. This is probably why scholars suggest that the extreme hedge fund leverage in crises is a symptom, not the cause of the event leading to a crisis.¹⁰² As demonstrated in this chapter, *de jure* unlimited leverage for hedge funds does not necessarily imply a *de facto* unlimited leverage taking by the industry. Findings of the empirical studies briefly surveyed here, confirms the theory that the market forces along with the governance schemes embedded in the legal structure of hedge funds can impose limits on the leverage of hedge funds.

First of all, it seems extremely unlikely that the contribution of hedge fund leverage to financial instability could be measured with any degree of accuracy. Secondly, contrary to the anecdotal evidence and misleading extrapolations,¹⁰³ in times of financial market distress, unusually high levels of leverage is primarily due to the erosion of hedge fund capital base rather than their

⁹⁹ Daniëlsson, Taylor and Zigrand, *Highwaymen or Heroes: Should Hedge Funds be Regulated? A Survey*, pp. 535-538.

¹⁰⁰ Banque de France, *Financial Stability Review: Special Issue on Hedge Funds*, p. 52.

¹⁰¹ Daniëlsson, Taylor and Zigrand, *Highwaymen or Heroes: Should Hedge Funds be Regulated? A Survey*, pp. 535-538.

¹⁰² *Ibid.*

¹⁰³ See for example, Roach Jr., *Hedge Fund Regulation- "What Side of the Hedges are You on?"*, p. 168.

The author of the article extrapolates the case of LTCM hedge fund leverage which might have been because of the erosion of its capital base during distressed time of the hedge fund.

overall higher speculative positions. Hence, even in the case of accurate measurement of leverage, the amount of leverage cannot be useful as an early signal of crisis. This is due to the fact that unusually high levels of leverage, rather than being predictive of financial crises, are likely to be correlated with or could be just caused by the crises.¹⁰⁴ Obviously, correlation does not imply causation.

As the available data show, hedge fund leverage compared with the leverage of banking system, is just a tiny fraction of the amount of leverage in that system. Other studies also confirm that the hedge fund leverage is much lower than what anecdotal evidence suggests.¹⁰⁵ Therefore, overall, it seems that the empirical evidence confirms the theory that the market discipline limits the amount of hedge fund leverage.

A residual concern, however, exists about hedge fund leverage. Although the average leverage of hedge funds is much lower than that of regulated banks, the distribution of leverage in the hedge fund industry is skewed (i.e., some hedge funds specialized in particular strategies use higher levels of leverage than other hedge funds) which may give rise to regulatory concerns about hedge fund leverage. In addition, higher concentration of AUM in the hedge fund industry could raise additional regulatory concerns. For example, the Institutional Investor Magazine estimated that in 2007, top 100 hedge funds managed 75 percent of the total hedge fund industry.¹⁰⁶ In other words, this concentration of assets in top hedge funds makes a case for potential systemic risk concerns for the overall financial system.

3. Hedge fund interconnectedness

The capacity of hedge funds to become systemically important is a function of their relationship with financial intermediaries which are closer to the heart of the payment system.¹⁰⁷ As suggested earlier, it is very unlikely that hedge funds become systemically important because of their mere size and the amount of leverage, however, the main concerns about hedge funds are

¹⁰⁴ Danielsson, Taylor and Zigrand, *Highwaymen or Heroes: Should Hedge Funds be Regulated? A Survey*, pp. 529-530.

¹⁰⁵ Patrick McGuire and Kostas Tsatsaronis, "Estimating Hedge Fund Leverage," *BIS Working Paper* 260 (2008).

¹⁰⁶ See Bianchi and Drew, *Hedge Fund Regulation and Systemic Risk*, p. 18.

¹⁰⁷ Crockett, *The Evolution and Regulation of Hedge Funds*, pp. 24-26.

their interconnectedness with LCFIs and their potential herding behavior. Hedge funds are one of the large counterparties to regulated financial service providers such as banks, brokerage firms, and broker-dealers. In this section, the relationship between hedge funds and their main counterparties will be explored. The aim is to spot the potential systemic risk involved in the inter-linkages between hedge funds and their prime brokers.

3.1. Hedge funds and the prime finance industry

If leverage, certain positions, and strategies in derivatives and debt markets are considered to be the sources of externalities, systemic risk, and financial instability, the mechanisms used by hedge funds to engage in these markets should be meticulously studied. Prime brokers are hedge funds' primary incubators, counterparties, and creditors. Hence at this stage an introduction to prime brokerage business, its relationship with hedge funds and its interrelationships within the entire financial system can shed light into its complex and opaque relationships with the hedge fund industry.

In this section, the prime brokerage business as related to the hedge fund industry will be discussed. However, there will be no attempt to describe and investigate every aspect of the prime brokerage. This part will be limited to a brief introduction to prime brokerage business, their relationship with hedge funds, and the possible systemic implications embedded in this relationship. After the pathology of the interrelationships between hedge funds and prime brokers, possible regulatory responses to potential systemic risk embedded in this relationship will be investigated.

Hedge funds have at least three main relationships with Large Complex Financial Institutions (LCFIs) who are engaged in offering prime brokerage services. LCFIs can be hedge funds' prime brokers, their trading counterparties, and the owners or manager of hedge funds.¹⁰⁸ These three main roles are not mutually exclusive, and one LCFI can simultaneously undertake all three tasks.¹⁰⁹

¹⁰⁸ After the enactment of the Dodd-Frank Act in the U.S., major limitations have been imposed on the relationships of hedge funds with banking entities.

¹⁰⁹ King and Maier, *Hedge Funds and Financial Stability: Regulating Prime Brokers Will Mitigate Systemic Risks*, 283-297.

Needless to say, the greatest concern arises when those three roles overlap and concentrate in one LCFI.

The most significant hedge fund counterparties are the financial institutions providing prime finance or prime brokerage services to hedge funds. Prime brokerage is best defined in the 1994 SEC no-action letter as “a system developed by full-service firms to facilitate the clearance and settlement of securities trades for substantial retail and institutional investors who are active market participants. Prime brokerage involves three distinct parties: the prime broker, the executing broker, and the customer. The prime broker is a registered broker-dealer that clears and finances the customer trades executed by one or more other registered broker-dealers (“executing broker”) at the behest of the customer.”¹¹⁰ In other words, prime brokerage services are the services offered by prime brokers who are part of major investment banks and securities firms to their prime clients such as hedge funds and other professional investors. These services include securities lending, repo financing, acting as custodian of customers’ securities, clearing customers’ transactions, capital raising for customers, and providing seed investment for prime clients. Prime brokers also offer execution brokerage services, such as services related to trade execution, transition management, commission sharing arrangements, direct market access (DMA), and research.¹¹¹

To entice hedge funds to become their clients and utilize the services of one particular prime broker or to find promising hedge fund clients as part of the business strategy of a prime broker, prime brokers provide hedge funds with the seed investment. In addition, prime brokers might act as an incubator for hedge funds in their start-up phase by helping them in capital introduction, capital raising and also providing hedge funds with infrastructure they need to operate. On the other hand, with increasing outsourcing in the hedge fund industry, and focus on the risk management and enhancing financial strategies to gain absolute returns, prime brokers recently offered hedge fund hotels which operated as one-stop shop for hedge funds, these prime brokers even provided the hedge funds with office space along with other technical assistance.¹¹² Indeed, prime brokerage services offered by investment banks to hedge funds became so

¹¹⁰ United States Securities and Exchange Commission, Division of Market Regulation, RE: Prime Broker Committee Request, January 25, 1994b.

¹¹¹ Aikman, *When Prime Brokers Fail: The Unheeded Risk to Hedge Funds, Banks, and the Financial Industry*, pp. 125-126.

¹¹² *Ibid.*

profitable that it is estimated that around 15% to 20% of total investment banking revenues is derived from offering services to hedge funds.¹¹³

It is no coincidence that the first prime broker and hedge fund were created almost at the same time, the former following the latter. The first prime brokerage firm was Neuberger Berman, a prime broker for Alfred Winslow Jones' hedge fund which was basically created to offer margin lending and consolidated accounts for Jones' hedge fund. Though these firms were in place almost for half a century, they were not being addressed by U.S. regulators until 1994,¹¹⁴ the year in which the SEC issued its no-action letter.

Based on the structure and nature of the investment services offered by prime brokers, they can be put into two broad categories, standard prime brokerage and synthetic prime brokerage. Standard prime brokerage involves financing standard market instruments such as equities and bonds. This activity mostly involves providing leverage to hedge funds and other clients for leveraged securities investment, while synthetic prime brokerage involves financing derivatives transactions. Nowadays, the line between these two categories is blurred and the prime brokerage business has evolved into universal prime brokerage offering full service prime brokerage services including both standard and synthetic services such as equities, fixed income, commodities, Forex, credit default swaps, and other unclassified derivatives.¹¹⁵

There are three main categories of prime brokers; elite prime brokers, leading prime brokers (the leading prime brokers includes Merrill Lynch, Credit Suisse, Lehman Brothers, Bank of America,¹¹⁶ BNP Paribas, UBS, Deutsche Bank, Citigroup, and others.), and tertiary regional and smaller niche prime brokers. The prime finance market was historically an oligopoly with major dominant U.S. investment banks such as Goldman Sachs, Morgan Stanley, and Bear Stearns (now JPMorgan Chase) dominating the market. Although the prime brokers' primary clients are hedge funds, they are not alone in using prime brokerage services. A number of other financial market players including private equity funds, pension funds, investment companies,

¹¹³ Alex Weber A., "Hedge Funds: A Central Bank Perspective," in *Financial Stability Review; Special Issue, Hedge Funds*, ed. Banque de France, 2007), p. 165. *See also* Dresdner Kleinwort, "Credit Suisse, Deutsche Bank, UBS – how Important are Hedge Funds for the Investment Banking Industry?" (2007).

¹¹⁴ Aikman, *When Prime Brokers Fail: The Unheeded Risk to Hedge Funds, Banks, and the Financial Industry*, p. 215.

¹¹⁵ *Ibid.*

¹¹⁶ After the acquisition of Merrill Lynch by Bank of America, now it is called Bank of America Merrill Lynch.

sovereign wealth funds, and other national and multinational corporations constitute the broad range of prime brokers' clients.¹¹⁷

Hedge funds are also trading counterparties to LCFIs in the trade across full range of financial instruments. They participate in the primary and secondary markets for securities underwritten by LCFIs which means that hedge funds and LCFIs are often exposed to similar risks arising from similar underlying financial instruments. For example, these common risk exposures were highlighted in the global financial crisis through a default by a prime broker that transmitted problems to hedge funds. This occurred in the collateralized debt obligations (CDOs) markets and the Lehman Brothers bankruptcy. The crisis in particular highlighted the risks for hedge funds originating from the exposure to one prime broker.¹¹⁸

Last but not least, LCFIs can also be the owners and managers of hedge funds. Moreover, some prime brokers such as Bear Stearns sponsored hedge funds which operated under the brand name of the prime brokers.¹¹⁹ Although the losses in the hedge fund are normally borne by hedge fund investors, sometimes due to reputational risks to the prime broker, or due to the fact that the prime broker has the same positions as those of the hedge fund, it might not be in the best interest of the prime broker to let the hedge fund fail. This is mostly because the liquidation of such positions might have a negative price impact on the holdings of the prime broker. Therefore, in these cases, prime brokers might have incentive to bail out the sponsored hedge fund.¹²⁰ This happened in 2007 when Bear Stearns and Goldman Sachs injected capital to their hedge funds.¹²¹

¹¹⁷ *Ibid.* As mentioned above, in the prime brokerage function, LCFIs offer a range of services including financial, administrative, and operational services. Their main financial service is secured lending. The range of services that prime brokers offer to their hedge fund clients arms them with vast knowledge of hedge fund business. Again, these constant interactions with hedge funds and the knowledge derived therefrom make them the first suitable candidate in the list of institutions that can be delegated with the function to perform the indirect regulation of hedge funds.

¹¹⁸ King and Maier, *Hedge Funds and Financial Stability: Regulating Prime Brokers Will Mitigate Systemic Risks*, p. 290.

¹¹⁹ This practice is banned by the Dodd-Frank Act which will be expanded in the fifth chapter.

¹²⁰ Michael R. King and Philipp Maier, "Hedge Funds and Financial Stability: The State of the Debate," *Bank of Canada Discussion Paper 2007-9* (2007), p. 291.

¹²¹ See King and Maier, *Hedge Funds and Financial Stability: Regulating Prime Brokers Will Mitigate Systemic Risks*, p. 291.

Admati and Hellwig also express concerns about the leakage of subsidized capital of banks to hedge funds. See Admati and Hellwig, *The Bankers' New Clothes: What's Wrong with Banking and What to Do about It*.

The transmission of shocks and risks in the relationship between hedge funds and prime brokers can go both ways. Although collateral requirements and counterparty risk management can mitigate the risks to LCFIs stemming from their prime brokerage business, the failure of a prime broker can have severe consequences for hedge funds, particularly those hedge funds having substantial collateral deposited at the failing prime broker. Such a collapse can force hedge funds to liquidate their positions. If large hedge funds' positions experience forced liquidations, this might result in market price dislocation. To better address this risk which might have systemic implications, it is suggested that regulators should focus on the counterparty risk management practices of the financial institutions offering prime brokerage services to hedge funds, with a particular focus on the adequacy of collateral and suitability of margin requirements. In the absence of such regulation, the fierce competition between prime brokers to attract hedge funds may lead to loosened requirements and greater risks to LCFIs.¹²²

3.1.1. Economies of scale and scope and network effects in prime finance industry

As described in the first chapter, the market for the prime finance industry has the feature of two-sided markets. Due to this feature of the market, prime brokers enjoy significant economies of scale and scope. In addition, network effects exist in the prime brokerage business because it is more profitable for a prime broker to match one hedge fund with other hedge funds and clear the transactions if a single prime broker has greater number of hedge fund clients in its network.¹²³

On the other hand, if the prime broker is larger, it will have access to more funding because of its broad spectrum of hedge fund and non-hedge fund clients. The prime brokers have developed and expanded relationships with many hedge funds, other prime brokers, investment funds, and sovereign wealth funds. These developed networks of counterparties in larger prime brokers will provide hedge funds with the opportunity of having access to financial instruments which are normally considered hard to borrow.¹²⁴ Therefore, because of these network effects, prime brokerage has a tendency to become too big. Indeed, not only is it efficient for hedge funds to

¹²² King and Maier, *Hedge Funds and Financial Stability: The State of the Debate*, p. 292.

¹²³ Aikman, *When Prime Brokers Fail: The Unheeded Risk to Hedge Funds, Banks, and the Financial Industry*, p. 50.

¹²⁴ *Ibid.*

have many hedge funds as their clients, but also it saves prime brokers significant amount of time and money in terms of search, and operational, as well as transactions settlement costs.¹²⁵

3.1.2. Prime brokers & hedge funds: lending & borrowing-incentives and concerns

At the heart of the relationship between prime brokers and hedge funds lie the lending and borrowing of cash and securities, which to a greater extent involve debt markets rather than equities. Although in its primary stages the prime brokerage service mostly dealt with equities and debt instruments, it is no longer limited to these instruments. With the increasing combination and packaging of the debt and equity instruments through financial innovation, this traditional classification became far less important. Nowadays, prime brokers are active in debt, equities, commodities, derivatives, and foreign exchange markets. Therefore, the services offered by prime brokers are of such a nature that most financial institutions are in need of using their services. Accordingly, the spectrum of prime brokers' clients extends from almost all banks, brokers, dealers, broker-dealers, mutual funds, pension funds to private equities and hedge funds.¹²⁶

With subtle differences, these business transactions of prime brokers are quite similar to transactions in the interbank lending and borrowing market, i.e., the interbank repurchase agreements. In the interbank repo, the duration of financing is usually very short, often overnight, while in the relationship between hedge funds and prime brokers, it could be short as well as long. In addition, because of the possibility of long-term financing of hedge funds by the prime brokers, long term illiquid assets could be used in these transactions which makes them slightly different from the interbank repo in terms of risks associated with relatively illiquid and long term financing compared to very liquid assets used in the financing of a repurchase agreement in the interbank market.

¹²⁵ It is also argued that SIFIs can increase shareholder value if they can generate 'top-line gains' in terms of market-extension, higher market share, wider profit margins, and higher cross-selling. In addition, they can do so by focusing on 'bottom-line gains' in terms of decreasing the costs because of economies of scale, better operating efficiencies, and better tax efficiency, or if they can reduce the firm-specific exposure to risks due to the enhanced risk management or diversification. See Ingo Walter, "Universal Banking and Financial Architecture," *The Quarterly Review of Economics and Finance* 52, no. 2 (2012), p. 122.

¹²⁶ Aikman, *When Prime Brokers Fail: The Unheeded Risk to Hedge Funds, Banks, and the Financial Industry*, pp. 233-234.

In these types of transactions, however, the primary concern for the lender is the evaluation of the risks associated with the collateral. This concern could be of great importance if the collateral involves illiquid assets or financial derivatives. On the other hand, the borrower's concern is mostly about the terms of financing, solvency, and possible default risk of the lender.

In a standard scenario, prime brokers play the role of lenders, lending financial instruments such as cash and securities to hedge funds. This way, they can be a source of financing and leverage for hedge funds. The cash and the collateral provided by hedge funds to prime brokers' functions as a source of capital for the prime brokers and because of the possibility of rehypothecation of the collateral by prime brokers, it could be considered as the asset part of their balance sheet. Hence, this could be seen as a source of liquidity for the prime brokers. Some hedge funds often lend cash and securities to prime brokers.¹²⁷ The primary purpose of prime brokers in engaging in transaction with hedge funds is to collect the fees for the services they provide for hedge funds and interests or premiums on the loans. In other words, prime brokers are market neutral and they do not engage substantively in transactions and do not take market positions. As mentioned above, the prime brokers can hypothecate hedge funds' collateral for borrowing securities. Basically rehypothecation means that the collateral received by the prime broker can be used in another transaction as collateral for financing other transactions, whether related to the first transaction or not.¹²⁸ Rehypothecation of hedge fund assets by prime brokers introduces new risks in financial markets to which the thesis will return.

However, as for the direct counterparty exposure of core financial institutions to hedge funds, the Financial Stability Forum (FSF) (2007) estimates that the potential counterparty exposure of core firms to hedge funds is approximately between 3 percent and 10 percent of Tier 1 capital. Thus, the FSF concludes that "the size of direct exposure would not be alarming" even assuming a wide margin of error.¹²⁹ More recent empirical work by Ang, Gorovyy, and van Inwegen suggest that until early 2008, the exposure of hedge funds to investment banks was approximately 65% of the total asset base of investment banks and their exposure to the finance sector was 30%

¹²⁷ The relationship of hedge funds and prime brokers are not necessarily a one-sided relationship. On the one hand, hedge funds acquire leverage through prime brokers. On the other hand, hedge funds are sources of financing and liquidity for prime brokers through providing cash and securities as rehypothecable collateral in their transactions with prime brokers.

¹²⁸ See Gorton, *Slapped by the Invisible Hand: The Panic of 2007*, p. 44.

¹²⁹ Kambhu, Schuermann and Stiroh, *Hedge Funds, Financial Intermediation, and Systemic Risk*, pp. 11-12.

during the same time period. They document that the events of the 2008 financial crisis reduced hedge funds' exposure to 40% of the total asset base of investment banks and 15% of the total asset base of the finance sector. They conclude that the exposure of the hedge fund industry to the finance sector before and especially after the financial crisis is modest compared to that of the listed financial intermediaries.¹³⁰

4. Hedge fund Herd Behavior

4.1. Theory

Herd behavior has been the focus of academic research in many different disciplines such as psychology, sociology, economics, and finance.¹³¹ One of the most debated aspects of hedge funds' contribution to systemic risk and financial instability is about the collective behavior of hedge funds. Although, as empirical evidence suggests, it is highly unlikely that a single hedge fund pose systemic threats to the financial system, a significant number of hedge funds acting collectively and simultaneously may do so.

The dangers of herd behavior lie in the fact that it is mainly related to and accompanied by the financial bubbles, and it might exacerbate the financial crises followed by such bubbles.¹³² Abreu and Brunnermeier show that despite the presence of rational arbitrageurs and in a sharp contrast to the predictions of the efficient market hypothesis, asset price bubbles can persist by the behavior of sophisticated investors choosing rationally to ride the bubble before it bursts rather than taking contrarian trading positions.¹³³ Exposing oneself to the bubble in order to profit from it before it bursts is also documented in macro funds sector.¹³⁴

¹³⁰ Ang, Gorovyy and van Inwegen, *Hedge Fund Leverage*, p. 120.

¹³¹ For an interesting experiment run in the music industry demonstrating an explicit herd behavior and the effect of choice of others on the individual decision making and behavior, see M. J. Salganik, P. S. Dodds and D. J. Watts, "Experimental Study of Inequality and Unpredictability in an Artificial Cultural Market," *Science (New York, N.Y.)* 311, no. 5762 (Feb 10, 2006), 854-856.

¹³² Brunnermeier et al., *The Fundamental Principles of Financial Regulation: Geneva Report on the World Economy*, p. 32.

¹³³ Abreu, Dilip & Brunnermeier, Markus K., "Bubbles and Crashes," *Econometrica* 71, no. 1 (2003), 173-204.

¹³⁴ Danielsson, Taylor and Zigrand, *Highwaymen or Heroes: Should Hedge Funds be Regulated? A Survey*, pp. 531-532.

Herding occurs when financial institutions mimic other financial institutions while their own private information or proprietary models suggest different strategies.¹³⁵ This behavior in financial markets occurs because of the asymmetric information among traders or investors when trade is sequential. Although the standard economic theory, based on the efficient market hypothesis, claims that the price mechanism assures that the long-run choices are optimal and herd behavior is impossible, the driving force behind herd behavior is that in an imperfect or asymmetric information setting and complex information structures, people may rationally take into account the information revealed or signals sent by others' action.¹³⁶

In addition, herding in financial markets might occur due to the reputation of some of the financial institutions. If a number of investors or fund managers come to the belief that a particular investor or investors have superior ability in stock picking or exploiting any other profitable investment opportunities or believe that they possess private information, they will mimic their investment behavior irrespective of their own opinion and their own proprietary trading models.

Furthermore, there might be circumstances in which most of the investment strategies simultaneously and accidentally follow the same direction. This kind of herding arises from the coordination failure in financial markets. For example, in case a financial institution is in distress, their hedge fund counterparties might run on them to seize the collateral they have provided to the financial institution in distress. Although it is in the best interest of all financial institutions not to run on the distressed financial institution, a situation akin to a prisoners' dilemma emerges in which the individually rational strategy will mean a social disaster with banks going bankrupt and hedge funds losing the value of their collateral. Likewise, runs might occur in financial crises and the firms might flight to quality by unwinding their long term positions and creating a liquidity crunch.

Since hedge funds are less burdened by the regulatory restrictions and requirements, and given they have a broad spectrum of strategies at their disposal, the likelihood of hedge fund herding

¹³⁵ Avery and Zemsky, *Multidimensional Uncertainty and Herd Behavior in Financial Markets*, 724-748.

¹³⁶ *Ibid.* Behavioral approaches to financial market regulation confirm the possibility of herding in financial markets. Shiller identifies two sources of volatility of mass behavior; informational cascade, and the nature of information transmission and informational cascade facilitators. For more details see Robert J. Shiller, "Conversation, Information, and Herd Behavior," *Ibid.* 85, no. 2 (1995), 181-185.

seems very remote. Moreover, a prerequisite for herding is that the financial institutions know about the positions of the other market players, while the opaqueness in hedge funds' trades renders herding more unlikely. In addition, what makes herding by hedge funds unlikely is that in order to herd, hedge funds should ignore their own private and proprietary information and the analyses produced by their sophisticated analysts, and instead join the herd.

Nonetheless, since most hedge funds disclose some information with regard to their financial positions to their investors and prime brokers, there is always the possibility of leakage of important private and proprietary information. In addition, the anecdotal evidence suggests that prime brokers sometimes inform some of their hedge fund clients about the selective trades by other hedge funds which are clients of the same prime brokers.¹³⁷

Contrary to the theory, systemic concerns about hedge fund herding are amplified by the empirical evidence on herding among hedge fund managers.¹³⁸ Indeed, it is likely that hedge funds with similar strategies take similar positions in financial markets. In the presence of herding among hedge funds, not only should the individual hedge fund's potential systemic risk be taken into account, but also the leverage of the entire industry should be taken account of. As it is shown in this chapter, the leverage of the individual hedge funds is relatively low and is unlikely to be of systemic implications. However, in the presence of herding and potential simultaneous deleveraging by hedge funds, their overall collective impact on markets can potentially be systemic.

One of the contributing factors for hedge fund risk taking is the incentive fees charged by hedge fund managers. It is shown that under certain circumstances, incentive fees can encourage managers to herd.¹³⁹ By joining the crowd, a manager can free ride on the efforts of other managers.¹⁴⁰ In addition, hedge fund managers have an interest in copying the strategies of their peers. They might also have more incentive to herd in the financial market downturn. This incentive can be highlighted if the managers' incentives are taken into account in terms of

¹³⁷ Danielsson, Taylor and Zigrand, *Highwaymen or Heroes: Should Hedge Funds be Regulated? A Survey*, pp. 531-532.

¹³⁸ Boyson, *Implicit Incentives and Reputational Herding by Hedge Fund Managers*, 283-299.

¹³⁹ Stephen J. Brown and William N. Goetzmann, "Hedge Funds with Style," *Journal of Portfolio Management* 29, no. 2 (2003), 101-112.

¹⁴⁰ William Fung and David A. Hsieh, "Hedge Fund Replication Strategies: Implications for Investors and Regulators," in *Financial Stability Review; Special Issue, Hedge Funds*, ed. Banque de France, (2007), pp. 61-62.

protecting their own job as the manager of a hedge fund. In that sense, there is a considerable safety in mimicking the investment strategies of their peers or competitors, because if everybody loses money, they will not be fired. Thus, their poor performance might be excused if they herd. Given the above pattern of behavior, it is also argued that taking tail risks and herding can reinforce each other.¹⁴¹

Herding behavior in turn might amplify hedge fund contagion which causes the risks to spill over to other sectors of financial system and possibly to the real economy. Herding behavior can give rise to contagion and it can cause substantial co-movements in the prices of securities previously perceived as uncorrelated. Moreover, herding is related to “crowded trades”, a situation in which many market participants hold similar correlated positions. The main concern arises when a herd behavior (similar correlated reactions) is triggered by a shock. This shock may cause abrupt collective exits by hedge funds from crowded trades. In this respect, some commentators highlight the increased correlation between hedge funds’ returns which is an indication of potential crowded trades.¹⁴²

The impact of hedge fund herding on financial stability heavily depends on the depth and scope of the markets in which hedge funds are trading. If they pose material risks to the financial markets by herding, regulatory response is warranted. However, since herding and crowded trades is not a specific feature of hedge funds, its monitoring and regulation requires not only collecting information on the exposure of hedge funds, but also about other institutions such as banks, mutual funds, and other mainstream financial institutions.

¹⁴¹ Raghuram G. Rajan, "Financial Conditions, Alternative Asset Management and Political Risks: Trying to make Sense of our Times," *Banque De France, Financial Stability Review; Special Issue, Hedge Funds* (April 2007), pp. 140-141.

In addition, Chevalier and Ellison’s empirical work on mutual funds supports the idea that younger managers are punished for deviating from the median industry sector. See J. Chevalier and G. Ellison, "Career Concerns of Mutual Fund Managers," *Quarterly Journal of Economics* 114, no. 2 (1999), 389-432.

In other words, they find evidence of herd behavior in younger mutual fund managers. Their result confirms the theory proposed by Scharfstein and Stein (1990) indicating that the managers who take the same action as their peers are perceived to have a superior ability. Such a perception can reinforce herd behavior among investors. See David S. Scharfstein and Jeremy C. Stein, "Herd Behavior and Investment," *American Economic Review* 80, no. 3 (1990), 465-489.

¹⁴² Danièle Nouy, "Indirect Supervision of Hedge Funds," in *Financial Stability Review; Special Issue, Hedge Funds*, ed. Banque de France, 2007), pp. 96-98.

4.2. Empirical evidence

Contagion is defined as the “correlation over and above what one would expect from economic fundamentals.”¹⁴³ Namely, it is “a correlation that cannot be explained by the economic fundamentals”.¹⁴⁴ Based on this definition, there were attempts to provide empirical evidence of hedge fund contagion. Controlling for common risk factors in hedge fund performance, Boyson, Stahel, and Stulz found a strong evidence of contagion between the worst returns across hedge fund styles or strategies, from 1990 to 2008. In their view, large adverse shocks to assets and hedge fund liquidity, specifically large shocks to credit spread, the TED spread,¹⁴⁵ prime broker and bank stock prices, stock market liquidity, and hedge fund flows increase the probability of hedge fund contagion.¹⁴⁶

Brunnermeier’s model of hedge fund contagion predicts that the shocks to asset liquidity can force hedge funds to reduce their leverage because of funding constraints caused by the shocks to asset liquidity.¹⁴⁷ If such a shock affects a considerable number of hedge funds, it might force hedge funds to liquidate some of their positions. Such liquidations will lead to forced sales and hence trigger deleveraging by a large number of hedge funds. This very deleveraging can worsen the asset liquidity which in turn leads to further deleveraging. It goes without saying that in Brunnermeier’s model, a shock to funding liquidity can have a similar effect, i.e., it can lead to deleveraging and reduced market liquidity. Besides the assets affected directly by the initial shock, the liquidity spiral caused by deleveraging can affect all assets, including those assets in which hedge funds have invested. Therefore, the model offers an explanation for contagion.¹⁴⁸ Based on this model, the empirical analysis by Boyson, Stahel, and Stulz finds that the contagion between the worst returns is systemically linked to large shocks to liquidity as predicted by Brunnermeier and Pedersen (2009). However, Boyson, Stahel, and Stulz could not confirm that the small shocks to liquidity can cause hedge fund contagion. Furthermore, their findings suggest

¹⁴³ Geert Bekaert, Campbell R. Harvey and Angela Ng, "Market Integration and Contagion," *The Journal of Business* 78, no. 1 (2005), 39-69.

¹⁴⁴ Boyson, Stahel and Stulz, *Hedge Fund Contagion and Liquidity Shocks*, p. 1814.

¹⁴⁵ The TED spread is the difference between interest rates on interbank repo loans and the interest rate on the short term U.S. government debt (T-bills).

¹⁴⁶ *Ibid.*

¹⁴⁷ Brunnermeier, *Deciphering the 2007–2008 Liquidity and Credit Crunch*, 77-100.

¹⁴⁸ *Ibid.*

that hedge funds share a common exposure to large liquidity shocks and they conclude that the existing models for estimating hedge fund returns do not capture this risk.¹⁴⁹

Two instances that gave rise to speculations about hedge fund herding were the European Exchange Rate Mechanism (ERM) crisis in 1992, and the Asian currency crisis. Although during these two crises, hedge funds were accused of herding, evidence on hedge fund herding is far from conclusive. Empirical research on the ERM crisis suggests evidence of herding in this period, while research on the 1997 Asian currency crisis shows almost no evidence of herding. On the contrary, empirical evidence indicates that in the Asian currency crisis, hedge funds, by taking contrarian positions in markets, provided liquidity and reduced the volatility and further collapse of asset prices in the market. For example, Fung and Hsieh found evidence of herding in hedge fund industry in ERM crisis. They also found evidence that during the Asian currency crisis, hedge funds were relatively late comers and they did not trigger any herding. They further examined other critical and turbulent episode and could not find clear evidence of hedge fund herding. Overall, they see little evidence of systematically causal relationship of hedge funds' behavior and deviation of market prices from the economic fundamentals.¹⁵⁰

In the collapse of Amaranth in 2006, another hedge fund active in the energy markets, empirical analyses show no evidence of herding. In contrast, they show that some hedge funds see such events (declining securities prices) as buying opportunities and act accordingly. This pattern of behavior provides liquidity in the markets in such critical moments. As far as the global financial crisis is concerned, it is also claimed that there is little evidence of herding by hedge funds.¹⁵¹ Eichengreen and Mathieson also confirm that no evidence of herding triggered by the hedge fund industry could be found. On the contrary, they believe that hedge funds often act as contrarians, contributing to the stabilization of the market.¹⁵²

However, as for the technology bubble, Brunnermeier and Nagel's findings show that although hedge funds did not demonstrate a herd behavior, they rationally rode the bubble and did not

¹⁴⁹ Boyson, Stahel and Stulz, *Hedge Fund Contagion and Liquidity Shocks*, pp. 1814-1815.

¹⁵⁰ Fung and Hsieh, *Measuring the Market Impact of Hedge Funds*, 1-36.

¹⁵¹ King and Maier, *Hedge Funds and Financial Stability: Regulating Prime Brokers Will Mitigate Systemic Risks*, pp. 288-289.

¹⁵² Barry Eichengreen and Donald Mathieson, "Hedge Funds: What do we really Know?," *International Monetary Fund, Economic Issues* 19 (1999).

exert a correcting force on stock prices.¹⁵³ Their findings show that the heavy investment of hedge funds in technology stocks was not because of their unawareness of the bubble. Instead, hedge funds captured the upturn and reduced their positions in the stocks the prices of which were about to decline. Doing so, they could avoid much of the downturn.

Contrary to the above findings, Boyson finds evidence of herding in hedge funds.¹⁵⁴ She demonstrates that herding behavior differs systematically among managers with different levels of experience. Boyson's findings show that implicit incentives in the hedge fund industry are the driving force behind such a herding behavior: the more the experienced managers deviate from the herd, the higher the likelihood of their dismissal becomes compared to their less experienced counterparts. Therefore, more experienced hedge fund managers are likely to herd more. These findings are in explicit contrast to herding behavior of managers in the mutual fund industry where more experienced managers herd less.

To address the problems and potential crises arising from herding behavior of financial institutions that individually are not systemically important for the financial system but are important in herd, this thesis will suggest a specific approach to regulation. This approach will be discussed in more detail in the next chapters which involve hedge fund regulation.

5. Addressing market failure and the systemic externalities of hedge funds: Economic theory and public policy responses

Before embarking upon the debate about hedge fund regulation, a few words of caution about hedge fund regulation is in order. The traditional response to the problem of externalities is the Pigouvian and lump sum taxes, or compensation (subsidies). This approach in addressing the externalities is focused mostly on the incentives of the externality generator, whereas it mostly overlooks other factors that might contribute to the generation of externalities. Due to potential misallocation of resources involved in these types of interventionist mechanisms, they are not and will not be sufficient in addressing different types of externalities. Therefore, there is an

¹⁵³ Markus K. Brunnermeier and Stefan Nagel, "Hedge Funds and the Technology Bubble," *The Journal of Finance* 59, no. 5 (2004), 2013-2040.

¹⁵⁴ Boyson, *Implicit Incentives and Reputational Herding by Hedge Fund Managers*, 283-299.

increasing need for more innovative, market-based, and efficiency enhancing solutions that can in the meanwhile address the problems arising from those externalities.

The economic theory suggests that the mere existence of an externality cannot justify government intervention.¹⁵⁵ There are instances that existence of externalities is either tolerated or is left to the private bargaining to be dealt with. Generally speaking, corrective measures should at least take the following caveats into account while addressing the problem of externalities.

First, if there is *ex-ante* or *ex-post* compensation such as external benefits which cancels out the external costs or vice versa, there is no need for intervention to correct the externalities, because the externalities have already been internalized.

Secondly, the problem of causation in generating externalities is much subtler and more intricate than traditionally perceived in traditional Pigouvian approach. Traditional approach tends to treat externalities as if they are unilaterally imposed by one party upon the other. Whereas the costs of externalities are as much the result of the actions or presence of the victim of externalities as it is the result of the actions or presence of the party generating externalities. Indeed, the existence of externalities could also be attributed to the producer of an externality as much as its victim. Accordingly, so far as the social welfare is concerned, causation in generating externalities might be irrelevant, and the efficient outcome might be achieved irrespective of which party pays for the reduction in harm.¹⁵⁶ As Coase puts:

“The problem which we face in dealing with actions which have harmful effects is not simply one of restraining those responsible for them. What has to be decided is whether the gain from preventing the harm is greater than the loss which would be suffered elsewhere as a result of stopping the action which produces the harm.”¹⁵⁷

Thirdly, the problem of “joint causation of externalities”¹⁵⁸ requires more than an outright tax on the producer of externalities. This approach towards addressing externalities may, in some instances, require punishment of the victims suffering from externalities by taxation as well. It

¹⁵⁵ For more details, see Ronald H. Coase, "The Problem of Social Cost," *Journal of Law and Economics* 3 (1960), p. 27.

¹⁵⁶ Cento Veljanovski, *Economic Principles of Law* (Cambridge: Cambridge University Press, 2007), pp. 50-53.

¹⁵⁷ Coase, *The Problem of Social Cost*, p. 27.

¹⁵⁸ David D. Friedman, *Law's Order: What Economics has to do with Law and Why it Matters* (Princeton, New Jersey: Princeton University Press, 2000a), p. 46.

requires mechanisms for alignment of interests and incentives of the producer and the victim of the externality and/or mechanisms facilitating trade between the two parties. An example of joint causation of externalities and its effect on the policy responses towards this phenomenon in the financial markets is that there are circumstances in which financial institutions, assured of being too-big-to-fail,¹⁵⁹ hold highly levered positions with excessive maturity mismatch and overexpose themselves to the risk of being trapped in liquidity spirals.¹⁶⁰ It is argued that this happens due to “two risk-spillover externalities”, i.e., fire-sale externalities, and interconnectedness externalities. The fire sale externalities arise due to the fact that each individual financial institution does not take into account the “the price impact its own fire-sales will have on asset prices in a possible future liquidity crunch.”¹⁶¹ In this view, the fire sale by one financial institution has a negative impact on the balance sheet of other financial institutions. On the other hand, a failing financial institution does not take into account its failure’s negative impact on other financial institutions in distressed periods of financial markets.¹⁶²

Last but not least, the other important implication of the Coase theorem¹⁶³ is that the optimal social outcome is for the externality to end up somewhere with the least net damage. This is suggestive of an externality trading system.¹⁶⁴ Although the Coase theorem is rich in its insights, its applicability might be limited because of its strong assumptions, such as the absence of transaction costs. Obviously, such assumptions largely restrict the application of the Coase

¹⁵⁹ The moral hazard problem stemming from a prospect of possible future bail-outs for too-big and too-interconnected-to-fail institutions has at least two effects. First, it gives incentives for financial institutions to expose themselves to become too-big-to-fail and after becoming big enough, the associate moral hazard problem will encourage them to overexpose themselves to risks to get the upsides of taking risks, and avoid the downsides of the same activity by being bailed out by taxpayers. See Brunnermeier et al., *The Fundamental Principles of Financial Regulation: Geneva Report on the World Economy*, p. 23.

¹⁶⁰ *Ibid.* The legal theory of finance may provide a different explanation for this phenomenon. Since the financial regulation applies flexibly in the apex of the financial system, the financial institutions have greater incentives to get closer to the apex of the financial system by becoming TBTF.

¹⁶¹ Markus K. Brunnermeier, "Financial Crises: Mechanisms, Prevention and Management," in *Macroeconomic Stability and Financial Regulation: Key Issues for the G20*, eds. Mathias Dewatripont, Xavier Freixas and Richard Portes (London: Centre for Economic Policy Research (CEPR), 2009b), http://www.ssc.wisc.edu/~mchinn/dewatripont_G20_ebook.pdf, p. 95

¹⁶² Brunnermeier et al., *The Fundamental Principles of Financial Regulation: Geneva Report on the World Economy*, p. 23. This interconnectedness is much intense and severe in OTC markets.

¹⁶³ Coase theorem posits that regardless of the initial allocation of property rights, and in the absence of transaction costs in trading externalities, bargaining will result in efficient allocation of externalities. This theorem suggests that the mere existence of the externalities does not necessarily result in an inefficient outcome.

¹⁶⁴ For a trade to be meaningful, property rights should be defined. Government intervention in the form of an intervention which enhances market mechanisms, as the case of lighthouses in the 17th century England suggests, can also enhance social welfare while providing the public goods. See Zerbo and McCurdy, *The Failure of Market Failure*, pp. 566-567.

theorem.¹⁶⁵ The entire debate about the externalities will resurface while trying to craft regulatory responses to the problem of externalities hedge funds pose to the financial system.

Conclusion

This chapter discussed one of the most controversial issues in the regulation of hedge funds which is their potential contribution to systemic risk and financial instability. In this chapter the aim was to identify the relevance of hedge funds to systemic risk and assess whether they can potentially contribute to financial instability. The theoretical models and empirical findings were molded in the conceptual framework of this chapter to underlie and reinforce the arguments made for or against hedge fund regulation.

To study hedge funds' relevance to the systemic risk and financial instability, the following steps were taken. First, the notion of SIFI was studied to determine whether a hedge fund as an individual entity can become a SIFI. In other words, this chapter assessed whether hedge funds are or can potentially become TBTF, or whether the potential for hedge funds' unlimited leverage could make them TBTF. Therefore, two main considerations in studying individual hedge funds as being systemically important are their size and their level of leverage.

The third important consideration is interconnectedness of hedge funds with LCFIs. This chapter studied the possibility for the hedge fund industry to become too-interconnected-to-fail (TITF). This investigation was mainly focused on the role of counterparty risk as a venue for creating systemic risk. In this regard, the relationship between hedge funds and prime broker-dealers was illustrated and particular risks were identified. With respect to the interconnectedness of the hedge fund industry with LCFIs, three main relationships of hedge funds with LCFIs offering

¹⁶⁵ Two main limitations for the externality as a justification for regulation should also be taken into account in addressing problems stemming from externalities. First, pecuniary externalities need not be regulated. As mentioned earlier, since pecuniary externalities does not generate a shift in the utility function or production possibilities frontier of a third party and hence does not result in misallocation of resources and inefficiency, there is no need for regulation, compensation or any other corrective measures. They are simply considered as the result of the "natural play of market forces". See Ogus, *Regulation: Legal Form and Economic Theory*, p. 37. Second, transaction costs in addressing externalities should be taken into account. In other words, if the administrative costs of correcting (trivial) externalities exceed the costs of externalities, it might be optimal to tolerate externalities. See *Ibid.*

prime brokerage services were highlighted. The LCFIs can be hedge funds' prime brokers, their trading counterparties, and the owners or manager of hedge funds.

The data on the direct exposure of the banking industry to hedge funds, however, suggest that the exposure of hedge funds to the finance sector was low before the global financial crisis. This exposure remained modest compared to the exposure of banking sector to the listed financial intermediaries after the financial crisis. However, even with low levels of exposure, legitimate concerns remain. For example, although it is expected that the hedge fund investors shoulder the losses in hedge funds, sometimes due to reputational risks and perverse incentives, prime brokers tend to bail out the sponsored hedge fund with their own government subsidized funds. This chapter concludes that despite the limited direct exposure of the hedge fund industry to LCFIs, these exposures can give rise to cross-subsidization of hedge funds by depository institutions (banks). Since such cross-subsidizations can potentially put the taxpayers' money at risk, they warrant government scrutiny.

In addition, the interconnectedness of hedge funds with prime brokers can amplify the risk of hedge fund herding behavior in case a large prime broker is in distress. The failure of a prime broker can have severe consequences for hedge funds, particularly those hedge funds having substantial (rehypothecated) collateral in the failing prime broker. Such a collapse can force hedge funds to liquidate their positions. If substantial hedge funds' positions experience forced liquidations, it might result in market price dislocation. To better address this risk which might have systemic implications, it is suggested that regulators should focus on the counterparty risk management practices of the financial institutions offering prime brokerage services to hedge funds, with a particular focus on the adequacy of collateral and suitability of margin requirements.

The fourth element in studying hedge funds and their importance for financial stability involves hedge funds potential herding behavior. This section investigated the existing theoretical and empirical studies on hedge funds' herding to assess whether hedge funds are prone to herding.

To recapitulate, it is argued that although the role of hedge funds in financial instability is highly contested, theoretically speaking, hedge funds' size and leverage, their interconnectedness with LCFIs and the likelihood of hedge funds' herding are among the features that can undermine

financial stability. However, the data on hedge funds' size and leverage shows that these features are far from being systemically important. Nevertheless, empirical evidence on hedge fund interconnectedness and herding is mixed and it remains a major concern for regulators.

CHAPTER 3: THE HEDGE FUND REGULATION DILEMMA: DIRECT VS. INDIRECT REGULATION*

Introduction

The first two chapters of the thesis provided a rather extensive overview of the potential benefits and risks of the hedge fund industry to financial markets. Given the benefits and potential risks that hedge funds pose to the financial system, this chapter aims to determine which regulatory strategies can best address these risks with the least impairment to the benefits of hedge funds to financial markets. Direct and indirect regulatory strategies are proposed as two main regulatory schemes to address such a problem and balance hedge funds' benefits and risks.¹

These two strategies were highlighted in the difference of opinion about hedge fund regulation after the recent global financial crisis. On the one hand, the U.S. and UK regulators, along with the hedge fund industry itself, supported the indirect regulation of hedge funds through regulated banks. On the other hand, regulators in continental Europe supported a more direct regulatory framework for hedge funds.² In the end, the outcome of the clash of these two opposing views was a compromise. One of the catalysts for such a compromise was the increasingly stringent attitude in the U.S. towards hedge fund regulation after the change of administration, i.e. the replacement of Republicans by Democrats in 2008.³ The change of regulatory policy in the U.S. paved the way for at least a partial realization of the European views on hedge fund regulation.

* This chapter is largely based on: Nabilou, Hossein and Alessio M. Paces. "The Hedge Fund Regulation Dilemma: Direct vs. Indirect Regulation." *William & Mary Business Law Review* 6, no. 1 (Forthcoming 2015).

¹ Direct regulation involves regulatory measures focusing on the regulation of industry itself as a discrete activity, targeting hedge funds' structure, strategies, and operations. It often employs registration, disclosure, capital requirements, position limits as regulatory instruments. In contrast, indirect regulation involves "market discipline-inspired regulatory measures targeting the creditors and counterparties of hedge funds." See Phoebus Athanassiou, *Hedge Fund Regulation in the European Union: Current Trends and Future Prospects* (Alphen aan den Rijn (The Netherlands): Kluwer Law International, 2009), p. 227.

² On the one hand, accusations of abusive short selling by hedge funds during the global financial crisis deepened this divergence of opinion. On the other hand, the national elections in France and Germany giving rise to the coalition of these two countries for regulating hedge fund overall led to the expansion of regulatory turf of the EU institutions.

³ See Ferran, *After the Crisis: The Regulation of Hedge Funds and Private Equity in the EU*, pp. 390-393.

In the end, the efforts to rein in hedge funds culminated in the G20 London Summit in April 2009 in which all parties agreed that hedge funds and their advisers should be subject to mandatory registration and disclosure requirements.⁴

The remainder of this section is structured as follows. First, the distinction between the direct and indirect regulation is introduced. Secondly, the arguments for and against the direct and indirect regulation of hedge funds are analyzed. Thirdly, the advantages of the indirect regulation in addressing and mitigating the potential contribution of hedge funds to systemic risk are highlighted. Finally, the need for conducting a comparative analysis of the regulatory regimes in the U.S. and the EU is discussed.

1. Regulatory strategies and techniques for hedge fund regulation

Hasty responses to financial crises often leave behind many unanswered, yet important questions. Not surprisingly, this was the case in the post-crisis financial regulatory reforms.⁵ These reforms changed the overall landscape of the hedge fund industry and its relationship with the rest of the financial system, leaving many questions unanswered. One of these questions concerned the overarching issue of choosing the appropriate regulatory strategy to regulate hedge funds, i.e. the choice between direct regulation and indirect regulation.

The commands of law directed to creating behavioral change in its subjects can be applied directly or indirectly. Direct or entity regulation involves regulatory measures focusing immediately on the regulation of the target industry as a “discrete activity or as part of the broader, regulated investment services universe.”⁶ In contrast, the imperatives or commands of indirect regulation is mediated by or transmitted through an intermediary to the (primarily intended) regulated entity or activity, which is ultimately the target. The Direct regulation mainly relies on the threat of law by using command-and-control regulatory instruments,⁷ whereas the

⁴ *Ibid.*

⁵ Bainbridge, *Dodd-Frank: Quack Federal Corporate Governance Round II*, 1779-1821. See also Romano, *The Sarbanes-Oxley Act and the Making of Quack Corporate Governance*, 1521-1611.

⁶ Athanassiou, *Hedge Fund Regulation in the European Union: Current Trends and Future Prospects*, p. 227.

⁷ Command-and-control instruments are the most traditional methods of effecting a behavioral change in the subjects of regulation. A command is traditionally defined as ‘an order backed by threats’. See John Austin, *The Province of Jurisprudence Determined* (New York: Cambridge University Press, 2001), pp. 18-37.

indirect regulation mostly relies on economic instruments with the aim of harnessing market discipline.⁸

2. Direct regulation of hedge funds and its shortcomings

Direct measures targeting the entity itself impose requirements on hedge funds' structure, strategies, and operations. From among the arsenal of financial regulatory measures, there are several direct regulatory measures for hedge fund regulation. Examples of mechanisms of direct regulation of hedge funds include, inter alia, mandatory registration, mandatory disclosure, the establishment of a centralized global registry, limitations on the size or the leverage of the fund and restrictions for leveraged funds (e.g., capital adequacy requirements), remuneration restrictions, limits on liquidity management, restrictions on investment in securitization positions, and rules and requirements for valuation.

The primary question with respect to the indirect regulation of hedge funds involves the necessity of choosing such a regulatory strategy. Namely, where regulatory measures such as those proposed above can directly be implemented and applied to the regulated entity without an

Therefore, the non-compliance or violation of such an order triggers coercive sanctions on the part of the state. In this method of regulation, the law uses its traditional aspect through rules to further certain policy objectives. Some literature classifies the distinction between command-and-control instruments and economic instruments as imperium and dominium. See T. Daintith, "The Techniques of Government," in *The Changing Constitution*, eds. Jowell and Oliver (Oxford: Clarendon Press, 1994), 209-236.

Daintith uses the term imperium when the government uses the command of law in pursuit of policy objectives such as setting a standard or rule for the behavior of intended entities and providing sanctions for non-compliance. He also uses the term dominium when government deploys its wealth for such purposes. For an illustration of the distinction between imperium and dominium, See Spencer Zifcak, "Contractualism, Democracy and Ethics," *Australian Journal of Public Administration* 60, no. 2 (06, 2001), 86-98.

⁸ The roots of the distinction between command-and-control and economic instruments can originally be found in the literature on the legal origins. See, e.g., Richard A. Posner, *Economic Analysis of Law*, 5th ed. (New York: Aspen Law and Business, 1998), pp. 271-291.

La Porta et al. show that countries from civil and common law traditions demonstrate different regulatory styles. See Rafael La Porta, Florencio Lopez-de-Silanes and Andrei Shleifer, "The Economic Consequences of Legal Origins," *Journal of Economic Literature* 46, no. 2 (2008), 285-332.

Looking through the same lens, Ogus identifies the tension between two systems of economic organization within the industrialized countries, i.e., 'market system' and 'collectivist system'. He mainly associates the market system with private, facilitative, and decentralized law, while in collectivist systems, the state encourages behavior which would not occur in the absence of state intervention to correct the market failures and achieve the collective goals. See Ogus, *Regulation: Legal Form and Economic Theory*. See also Anthony Ogus, "Comparing Regulatory Systems: Institutions, Processes and Legal Forms in Industrialised Countries," in *Leading Issues in Competition, Regulation and Development*, ed. Paul Cook and others (Northampton, Massachusetts: Edward Elgar Publishing, Inc., 2004a), p. 149.

intermediary, the need for indirect regulation of hedge funds by using regulatory intermediaries must be justified.⁹ In order to justify such a far-fetched choice, the shortcomings of direct regulatory measures in addressing hedge funds' potential systemic risks should be identified, and a case is to be made for the capacity of the indirect regulation to counterbalance the shortcomings of direct regulatory measures.

The most compelling argument against the direct regulation of hedge funds rests on the fact that direct regulation focusing on the entity and imposing restrictions on its activities are likely to undermine hedge funds' benefits to financial markets, while not being effective in internalizing the negative externalities that they can potentially impose on the financial system. An example of imposing disclosure requirement on hedge funds can illustrate how such regulations can be ineffective or even counterproductive. Although disclosure and transparency requirements seem necessary for harnessing market discipline,¹⁰ their imposition on hedge funds may create several unintended consequences. First, it can lead to a false sense of protection among hedge fund investors and counterparties,¹¹ because those investors could assume that regulation has made hedge funds safer simply by imposing disclosure requirements on them.¹² Secondly, the indiscriminate imposition of disclosure requirements on hedge funds can potentially increase strategy correlations and the risk of herd behavior by increasing the possibility of hedge fund strategies to be copycatted by other hedge funds and financial institutions.¹³ Thirdly, imposing disclosure requirements may also expose hedge funds to certain market risks such as risk of short squeeze.¹⁴ Furthermore, the contribution of hedge funds to market efficiency essentially depends on their ability to maintain the secrecy of proprietary information underlying their investment

⁹ In other words, in the presence of direct regulation, how an additional layer of regulators, which in and of itself involves adding an additional level of agency costs, can be justified?

¹⁰ For example, one of the sources of market discipline comes from banks, before providing financing to hedge funds or involving in the derivative transactions with hedge fund, banks have to perform credit assessment. In doing so, they have a 'scorecard approach' in which the bank rates funds for their 'management, leverage, risk measurement, liquidity, and strategy'. Since these assessments are based on the information disclosed by hedge funds, the transparency can play a significant role in that process. Without adequate transparency, it is almost impossible for a bank to perform such an assessment. Although the evidence is mixed, it appears that there are some areas that the market discipline exerts itself. See Cole, Feldberg and Lynch, *Hedge Funds, Credit Risk Transfer and Financial Stability*, pp. 11-12.

¹¹ Daníelson and Zigrand, *Regulating Hedge Funds*, p. 30.

¹² This effect is best explained by the concept of the placebo effect of laws. The placebo effect of a law "manipulates individuals' expectations regarding a risk that the law addresses". This chapter will return to the placebo effects of laws later on.

¹³ Informational cascades are long identified as sources of volatility of mass behavior (herding). See Shiller, *Conversation, Information, and Herd Behavior*, 181-185.

¹⁴ Lhabitant, *Handbook of Hedge Funds*, p. 33.

strategies. Imposing the disclosure of proprietary information can substantially reduce hedge funds' investment in acquiring proprietary information, which is the main venue through which they can exploit market imperfections and contribute to market efficiency.¹⁵

Another instance of unintended consequence of directly regulating hedge funds can be seen in the imposition of leverage restrictions or capital requirements on their balance sheets. As mentioned earlier, the theoretically unlimited leverage capacity of hedge funds enables them to take contrarian positions in distressed markets, thereby smoothing the adverse effects of financial shocks. Due to the procyclicality of capital requirements,¹⁶ in times of market distress, most financial institutions facing leverage constraints are likely to deleverage with the possibility of causing fire-sales and asset price downward spirals.¹⁷ In the meantime, hedge funds can step in and buy the assets. Such a function can mitigate and smooth the effect of shocks to asset prices in distressed markets.¹⁸ However, leverage requirements can most likely undermine such a beneficial contribution of hedge funds to the stability of financial markets.

Overall, there are three main reasons why direct regulation of hedge funds may fail to achieve the intended goals. They will be discussed in the following subsections. These three unintended consequences of direct regulation include encouraging regulatory arbitrage, creating legal placebo effects in hedge funds' counterparties and investors, and the nature of direct regulation: the latter involves one-size-fits-all measures that cannot adequately address the wide diversity and heterogeneity of hedge funds and their strategies.

¹⁵ To address these problems, delayed information disclosure by hedge funds is proposed and it is claimed that it can reduce the competitive costs of disclosure. See Zingales, *The Future of Securities Regulation*, p. 393. However, the pace with which hedge funds' positions are adjusted would limit the usefulness of the delayed information disclosure which renders it useless in the *ex-ante* assessment of systemic risk.

¹⁶ Henrik Andersen, "Procyclical Implications of Basel II: Can the Cyclicity of Capital Requirements be Contained?" *Journal of Financial Stability* 7, no. 3 (8, 2011), 138-154.

Regulation can be procyclical if they amplify financial market fluctuations. For example, risk-based capital requirements are said to be procyclical because they essentially require banks to increase their capital when the risks of their portfolio rise. Raising the level of capital especially in the downturn, can limit the supply of credit and aggravate a credit crunch which can further contribute to financial instability.

¹⁷ Shleifer and Vishny, *Liquidation Values and Debt Capacity: A Market Equilibrium Approach*, 1343-1366.

¹⁸ In addition, one of the main benefits of hedge funds is the provision of liquidity in the niche markets such as market for exotic derivatives. Imposing leverage caps on hedge funds can dry up liquidity in such markets.

2.1. Direct regulation and regulatory arbitrage by hedge funds

Direct regulation primarily involving rules-based regulation and resting upon definitions is typically exposed to regulatory arbitrage. However, the degree to which a firm engages in regulatory arbitrage is a function of the private costs and benefits of regulation and the existence of alternative regulatory regimes at the firm's disposal. In other words, in the presence of two alternative regulatory regimes and zero switching costs, facing marginal costs of a regulatory regime 'A' that exceed its marginal benefits, a firm tends to locate its business in jurisdiction 'B' where the marginal benefits of regulation exceed its marginal costs.

To reduce the likelihood of regulatory arbitrage, an incentive compatible mechanism should contain countervailing benefits offsetting the costs of regulation incurred by financial institutions. The most important countervailing benefit for regulatory costs that can be offered to financial firms is enhanced reputation. However, it will be argued that the potential benefits from regulation are not evenly distributed across all types of financial institutions. Mainly because of the reputational effects of regulation, regulation-induced benefits are valued more by mainstream financial firms that deal with retail customers than by hedge funds. Therefore, hedge funds regulation is less likely to be effective in dissuading them from regulatory arbitrage.

In this section, the costs and the benefits of regulatory arbitrage from the perspective of a typical hedge fund will be discussed. This section starts with arguing that in addition to the definitional problems, discussed in the first chapter of this dissertation,¹⁹ there are two additional problems in direct regulation of hedge funds that makes the costs of regulatory arbitrage for hedge funds relatively low. These two problems have one thing in common and that is their contribution to the reduced reputational costs of engaging in regulatory arbitrage by hedge funds. The uneven and asymmetric distribution of reputational benefits for hedge funds as opposed to other mainstream financial firms will particularly be highlighted. First the higher closure rates in the hedge fund industry and its impact on the reputational costs of engaging in regulatory arbitrage by hedge funds will be discussed. Second, the lack of transparency in the hedge fund industry and its impact on encouraging hedge fund regulatory arbitrage will be reviewed, and finally, the

¹⁹ For the discussion of this topic, *see*, chapter 1, section 3.4.3.2., titled "Definitional problems, legal interpretation and regulatory arbitrage".

overall role of the direct regulation in encouraging regulatory arbitrage by hedge funds will be analyzed.

2.1.1. Hedge funds' closure rate and reputational costs of regulatory arbitrage

Although financial institutions tend to frequently engage in regulatory arbitrage, there are limits to the ability of firms to engage in regulatory arbitrage. Indeed, market forces can, to a certain degree, mitigate the effects of the race-to-the-bottom that may stem from such a practice.²⁰ The firms' ability to arbitrage between regulatory regimes is constrained by their willingness to be subject to the least credible regulatory regime. Financial institutions' willingness to choose a less credible regulatory regime is, among other things, a function of their investors' and counterparties' willingness to engage in transactions with financial institutions supported by a stable and reliable financial infrastructure.²¹ Therefore, if because of reputational concerns, the quality of regulation matters for financial institutions, regulatory arbitrage will occur only to a limited extent.

Recent empirical studies on banks' regulatory arbitrage find strong evidences of transfer of funds by banks to less regulated markets.²² Meanwhile, these studies confirm that in the absence of a strong institutional infrastructure and of a legal environment supporting strong property and creditor's rights, the lax regulation by itself is not sufficient to give rise to massive capital flows

²⁰ Race-to-the-bottom occurs when there are competing regulatory jurisdictions, and as a result of competitive pressures, the competitors (regulators) subscribe to the lowest standards perhaps to lower the compliance costs and attract more businesses to increase their tax base. Such a phenomenon can best be explained as a result of strategic non-cooperative interactions forming a prisoners' dilemma in which every jurisdiction has greater incentive to defect. However, as suggested above, competitive pressures do not necessarily result in the race-to-the-bottom. Indeed, empirical evidence confirms the theory that regulatory competition will result in a separation between countries based on their securities regulatory system. Some jurisdictions will cater to managers seeking opportunistic behavior and some others will attract managers/issuers seeking to signal credibility and quality. Investors and companies will identify themselves accordingly by registering with those regulators. In turn, rational investor will discount for investing in bad quality issuers offsetting the risk of opportunistic behavior. See Stephen J. Choi and Andrew T. Guzman, "Portable Reciprocity: Rethinking the International Reach of Securities Regulation," *Southern California Law Review* 71 (1997), pp. 950-951. See also Richard J. Herring and Robert E. Litan, *Financial Regulation in the Global Economy* (Washington, D.C.: Brookings Institution, 1995).

Herring and Litan argue that competitive threat to U.S. banking system from offshore financial centers in the U.S. dollar deposit market is limited by reputational considerations.

²¹ Kern Alexander, Rahul Dhumale and John Eatwell, *Global Governance of Financial Systems: The International Regulation of Systemic Risk* (New York: Oxford University Press, 2006).

²² Houston, Lin and Ma, *Regulatory Arbitrage and International Bank Flows*, p. 1847.

from more regulated to less regulated jurisdictions, because a strong banking regulation may serve as a ‘signal of quality and stability’.²³ These studies conclude that the relevance of the quality of financial regulation mitigates the concerns for regulatory arbitrage. Such findings indicate that the quality of regulation is of crucial importance. Namely, reputation-enhancing regulation is less prone to regulatory arbitrage than regulation which is anti-competitive such as regulation imposing interest rate ceilings on loans.²⁴

In addition, the importance of regulation-induced reputation for different financial firms is asymmetric. In other words, the arguments for regulation as a signal of quality may matter more to some firms such as banks than to others such as hedge funds. There are two reasons for such a differential impact of regulation-induced reputation on firms’ regulatory arbitrage behavior. The first reason lies in the specific attributes of the hedge fund industry. The second reason is the relative opaqueness of hedge funds.

As mentioned before, reputational concerns constitute the most important consideration discouraging firms from taking refuge in less credible financial jurisdictions, or shifting their businesses to less regulated financial sectors within one jurisdiction. In addition, repeated interactions are a prerequisite for the emergence of evolutionary cooperation based on trust and reputation. Meanwhile, limited future interactions breed opportunistic behavior. In the hedge fund industry, limited transparency and the transient nature of hedge funds arising from extraordinarily higher closure rate among them,²⁵ undermine the importance of regulation-induced reputation. In contrast, commercial and investment banks, mutual funds, and other mainstream financial institutions with lower closure rates usually have multi-dimensional financial relationships with other market participants and regulators. The prospect of long-term interactions creates a much stronger reputational effects for these institutions, reducing their incentives to engage in opportunistic behavior.

²³ *Ibid.*

²⁴ Alexander, Dhumale and Eatwell, *Global Governance of Financial Systems: The International Regulation of Systemic Risk*, p. 131.

²⁵ It is estimated that average life span of a hedge fund is 40 months. 60% of hedge funds disappear within 3 years and fewer than 15% of hedge funds last longer than 6 years. See King and Maier, *Hedge Funds and Financial Stability: Regulating Prime Brokers Will Mitigate Systemic Risks*, p. 286. See also Burton G. Malkiel and Atanu Saha, "Hedge Funds: Risk and Return," *Financial Analysts Journal* 61, no. 6 (2005), 80-88.

And Stephen J. Brown, William N. Goetzmann and Roger G. Ibbotson, "Offshore Hedge Funds: Survival and Performance, 1989–95," *The Journal of Business* 72, no. 1 (January, 1999), 91-117.

On the contrary, hedge funds often have a one-dimensional business prospect focused on the maximization of returns from trading. Therefore, they are much less constrained by long-term business interests than other mainstream financial institutions. In addition, while other mainstream financial institutions have limits on their portfolio concentration and they should comply with certain portfolio diversification policies, there is no limit to hedge funds' portfolio concentration. In the absence of such limits, they can create large position in certain individual markets or even individual assets. Because hedge funds are active trader, they can also change these positions very quickly. The risk that they act opportunistically stems precisely from these circumstances.²⁶

In conclusion, it seems that hedge funds are less concerned about reputation than their counterparts. More precisely, the importance of regulation-induced reputation in the decision to engage in regulatory arbitrage is of less concern for hedge funds than to more established and reputation-sensitive mainstream financial institutions, such as commercial and investment banks, mutual funds, and pension funds. This circumstance undermines the effectiveness of direct regulation of hedge funds.

2.1.2. Transparency, reputational costs and regulatory arbitrage by hedge funds

The second difference between hedge funds and other mainstream financial institutions with respect to regulatory arbitrage is that the mainstream firms are subject to mandatory disclosure towards investors and regulators. On the contrary, until recently hedge funds were operating under a voluntary disclosure system. As it will be explained below, under this system of disclosure, regulation cannot enhance reputation and therefore cannot inhibit regulatory arbitrage.

It is argued that even in unregulated markets, high performing firms have incentive to disclose in order to signal quality and differentiate themselves from poorly performing firms.²⁷ However, the main obstacle to the voluntary provision of optimal level of information is the problem of externalities. The law and economics literature has shown that disclosure, even when is socially

²⁶ House of Representatives of Australia, *Hedge Funds, Financial Stability and Market Integrity*.

²⁷ Akerlof, *The Market for "Lemons": Quality Uncertainty and the Market Mechanism*, 488-500.

optimal, may not be privately optimal.²⁸ Similar to the problem of commons or ‘impure public goods’ nature of information,²⁹ this problem exists due to the externalities arising from non-excludability of information when it is disclosed to the market. In this context, such externalities cause a divergence between privately and socially optimal levels of disclosure.

As discussed in the first chapter, in a model of voluntary disclosure by firms in financial markets, externalities arise when the firms’ values are correlated. Under these circumstances, the costly disclosure of one firm can be used for the valuation of other firms, which results in free rider problem. The free riding problem refers to a situation in a public good game in which some players do not pay for what they consume. As applied to the hedge fund context, the competitors of a disclosing hedge fund will have free access to the data disclosed by the hedge fund. This will help the competitors relative to the disclosing hedge fund, while the cost of disclosure is entirely borne by disclosing firm.³⁰ This situation undermines the incentives to produce information in the first place. In such a scenario, the amount of disclosure will often be suboptimal and there will be room for disclosure regulation to improve social welfare.³¹ In addition, the *mandatory* disclosure is necessary in markets in which information about the product is relatively difficult to understand.³² Since financial products and services are credence goods,³³ such mandatory disclosure system seems to be necessary.

In the absence of a mandatory disclosure system for hedge funds, the free rider problem prevents hedge funds from signaling quality by voluntarily registering with a credible regulator. In such a setting, information in financial markets is under-provided. Consequently, the signaling effects of registering with reputable regulators are reduced. Since registration (and disclosure) involves costs, while due to reduced signaling effects, it does not provide substantial benefits to hedge funds, there will be no incentive to register with credible regulators. Therefore, in the absence of a general system of mandatory disclosure, direct regulation of hedge funds will arguably be short-circuited by regulatory arbitrage.

²⁸ Leuz and Wysocki, *Economic Consequences of Financial Reporting and Disclosure Regulation: A Review and Suggestions for Future Research*.

²⁹ Ogus, *Regulation: Legal Form and Economic Theory*, p. 34.

³⁰ Fox, *Retaining Mandatory Securities Disclosure: Why Issuer Choice is Not Investor Empowerment*, 1335.

³¹ Admati and Pfleiderer, *Forcing Firms to Talk: Financial Disclosure Regulation and Externalities*, pp. 512-513.

³² Fishman and Hagerty, *Mandatory versus Voluntary Disclosure in Markets with Informed and Uninformed Customers*, 45-63.

³³ Paccos and Dirk, *Regulation of Banking and Financial Markets*”, pp. 9-10. See Nelson, *Information and Consumer Behavior*, 311-329.

2.2. Placebo effects of direct regulation

In the hedge fund industry, market discipline is mostly provided by hedge fund counterparties and their investors. Institutional investors have a fiduciary duty to their investors to carry out due diligence when investing in hedge funds. Due diligence standard requires performing initial review, ongoing monitoring and assessment of hedge funds' risks and their adherence to certain strategies, risk management policies, and internal operating controls disclosed in their private placement memorandum and other related documents. In addition, fiduciary duties of institutional investors towards their investors require institutional investors to monitor hedge funds' leverage. These institutions can also require hedge funds to abide by certain industry standards regarding valuation, reporting, ethics and risk-management standards set by self-regulatory organizations.³⁴

Nevertheless, it is argued that government regulation can negatively affect the market discipline induced by the effective performance of the duty to conduct due diligence by institutional investors because regulation can generate a false impression of safety for these financial institutions. In other words, the very introduction of supposedly stability-enhancing mechanisms by governments may create a sense of comfort in financial institutions engaging in risky financial activities with the directly regulated firm. Although, in the literature on the direct regulation of hedge funds, the change in the risk perception and the false impression of safety stemming from the regulation of hedge funds is referred to as 'moral hazard',³⁵ such a regulation-induced illusion of safety can hardly be called as such in the absence of effective risk

³⁴ Cole, Feldberg and Lynch, *Hedge Funds, Credit Risk Transfer and Financial Stability*, pp. 11-12.

³⁵ See Crockett, *The Evolution and Regulation of Hedge Funds*, p. 25.

See also Nouy, *Indirect Supervision of Hedge Funds*, p. 97.

King and Maier, *Hedge Funds and Financial Stability: Regulating Prime Brokers Will Mitigate Systemic Risks*, pp. 293-294.

Eichengreen and Mathieson, *Hedge Funds: What do we really Know?*, pp. 437-438.

Some scholars argue that even creating an international clearinghouse or credit registry containing information about hedge funds' leverage can result in moral hazard problem for lenders. See *Ibid.*

It is further suggested that not only is not the direct regulation which increases the transparency of the counterparty exposures or trading positions feasible, but also it may create moral hazard problem reducing overall market efficiency. See King and Maier, *Hedge Funds and Financial Stability: The State of the Debate*, p. 16.

King and Maier argue that increased regulation may lead individual hedge funds to take on more risks or to invest less effort on risk management. In their view, moral hazard of this type can increase systemic risk. See King and Maier, *Hedge Funds and Financial Stability: Regulating Prime Brokers Will Mitigate Systemic Risks*, pp. 293-294.

shifting to the governments and their taxpayers.³⁶ This behavioral effect of hedge fund regulation is therefore best described as a ‘placebo effect of law’.³⁷

Like medical placebo effects, laws also have placebo effects. The placebo effect of a law “manipulates individuals’ expectations regarding a risk that the law addresses”. Therefore, the introduction of new laws and regulations can change the risk perception of the individuals about the regulated activity or entity, whereas the effective impact of the laws in question on risk-taking is much lower and could be nil. The placebo effect alters the welfare of the regulated individuals and firms independently of the real effects of law.³⁸ Legal placebo effect can cause a convergence or divergence of the individuals’ perception of the probability and magnitude of risks with regard to the objective risk. ‘Positive placebo effect’ of a law occurs when prior to the implementation of a law, individuals overestimate a risk and perceive the legislation as mitigating that risk.³⁹ In other words, the law’s effect is to reduce the level of perceived risks in individuals who overestimate the risks had no legislation been passed. The most prominent example of such an effect was documented in the aviation industry after the 9/11 attacks to the World Trade Center.⁴⁰

With respect to the direct regulation of hedge funds, the mere existence of a (direct) regulatory regime may reduce the vigilance of hedge funds’ counterparties who are the primary source of market discipline.⁴¹ Furthermore, the introduction of such a direct regulation may induce hedge

³⁶ Moral hazard is referred to exploiting the situation in which the costs of risk taking will be borne by a party other than the risk taker herself, or a situation in which the risk taker believes that the costs of risk taking can be shifted to other parties other than herself. Precisely defined, moral hazard is an opportunistic behavior characterized by the exploitation of the less informed party by an informed party through an unobserved action. Therefore, moral hazard does not involve changes in the risk perception of hedge funds by direct regulation.

³⁷ Amitai Aviram, "The Placebo Effect of Law: Law's Role in Manipulating Perceptions," *The George Washington Law Review* 75, no. 1 (2006), 54-104. See also Amitai Aviram, "Allocating Regulatory Resources," *Journal of Corporation Law* 37, no. 4 (Summer 2012, 2012), 739-769.

³⁸ Aviram, *The Placebo Effect of Law: Law's Role in Manipulating Perceptions*, p. 57.

The placebo effect of law can also provide an explanation for the demand for regulation. Indeed, such an effect might be a reason why even the firms that in normal times oppose regulations may demand regulation to enhance trust in the system in distressed times. Example of such demand for regulation abounds; the rise of demand for regulation after the publication of the Upton Sinclair’s novel ‘The Jungle’, and rise of demand for new regulations after the Enron scandal culminating in the passage of the Sarbanes-Oxley Act (SOX) are the most prominent ones. See Stiglitz, *Government Failure Vs. Market Failure: Principles of Regulation*, pp. 1-2.

³⁹ For details about positive placebo effect, negative placebo effect, positive anti-placebo effect, and negative anti-placebo effect of law, see Aviram, *The Placebo Effect of Law: Law's Role in Manipulating Perceptions*, pp. 60-61.

⁴⁰ Immediately after the attacks, the number of flight passengers significantly plummeted. On November 19, the U.S. government enacted the Aviation and Transportation Security Act (“ATSA”) to improve aviation security. This Act was followed by a surge in the number of passengers. See *Ibid*.

⁴¹ See Crockett, *The Evolution and Regulation of Hedge Funds*, p. 25.

funds to think that if strategies become crowded or hazardous the supervisors will alert them. Such a false impression may result in a suboptimal investment of hedge funds' counterparties in risk management. In short, the regulatory agency's supervision and oversight of hedge funds may create legal placebo effect by giving hedge funds' counterparties and investors the false impression that these institutions are safe to invest and do business with.⁴²

The indirect regulation of hedge funds is less prone to creating such a false illusion of safety or legal placebo effect. Indirect regulation can mitigate the negative implications of positive placebo effects that the direct regulation creates in hedge funds' counterparties. The key reason is that indirect regulation works by delegating the supervisory functions to hedge funds' counterparties and investors. By doing so, indirect regulation credibly signals to hedge funds' counterparties that no regulatory agency other than the counterparties themselves will discipline hedge funds. Therefore, indirect regulation will involve no risk misperceptions arising from placebo effects of the law.

2.3. Heterogeneity of hedge funds and one-size-fits-all direct regulation

To avoid the costs of regulation, the responsive strategies of financial firms to regulation have induced every 'otherwise non-hedge fund investment pool' to circumvent the restrictions of regulation by complying with the statutory exceptions to become a 'hedge fund'. Such a move to acquire hedge fund status and make use of statutory exemptions increased the heterogeneity of funds bearing the hedge fund brand-name.⁴³ Therefore, the term hedge fund applies today to

See also Lhabitant, *Handbook of Hedge Funds*, pp. 37-38.

King and Maier, *Hedge Funds and Financial Stability: The State of the Debate*, p. 16.

Eichengreen and Mathieson, *Hedge Funds: What do we really Know?*, pp. 437-438.

The Group of Thirty. Working Group on Financial Reform, *Financial Reform: A Framework for Financial Stability* (Washington, D.C.: The Group of Thirty, 2009), p. 60.

⁴² On the other hand, it is argued that given that the moral hazard problems impairing market discipline is "an inevitable part of any responsible regulatory regime", concerns about it should not stifle all regulatory attempts to address the negative (systemic) externalities. Harry McVea, "Hedge Funds and the New Regulatory Agenda," *Legal Studies* 27, no. 4 (2007), p. 737.

Nevertheless, this approach implies that a necessary step in the introduction of every regulatory measure for hedge funds should take into account its unintended consequences and provide safeguards against them.

⁴³ For example, Payne criticizes the Alternative Investment Fund Managers Directive (AIFMD) for failing to adequately differentiate between hedge funds and private equity funds in regulating these two different types of alternative investment funds. *See* Payne, *Private Equity and its Regulation in Europe*, p. 584 *See also* Rothschild, *Europe is Getting it Wrong on Financial Reform*.

many different funds with vastly heterogeneous investment strategies sharing only the formal compliance with the letter of the law.

Given the heterogeneity of hedge fund types and their unrestricted investment strategies, one-size-fits-all solutions for such financial entities are not a viable option. For example, for some hedge funds proprietary information is more crucial than for others. The value of such information for hedge funds depends on what strategies they specialize in. Some hedge funds are not willing to disclose information even at the expenses of foregoing more investments or receiving better credit terms.⁴⁴ They cannot disclose information for fear that their information disclosure may be strategically used against themselves. For example, a hedge fund holding a large number of short positions may put itself at risk of short squeeze by disclosing its positions.⁴⁵ In addition, due to the economies of scale in information production, information disclosure is less costly for larger hedge funds than for smaller ones. Therefore, the costs of information disclosure and reporting will be borne disproportionately. Put differently, smaller hedge funds will incur costs disproportionate to their size.

Given all the above factors undermining the direct regulation of hedge funds, there are arguments in favor of indirect regulation, which can simply achieve goals that direct regulation cannot achieve. It will be argued that indirect regulation is more appropriate in the context of hedge fund regulation. The reasons for this are based on the existence of suitable surrogate regulators, on the robustness of indirect regulation to regulatory arbitrage, and finally on the positive implications of enhanced regulatory competition among ‘surrogate regulators’ in terms of efficiency and resistance to regulatory capture.

Rothschild argues that the AIFMD casts its regulatory net so wide that it captures other firms such as investment trusts in Britain.

⁴⁴ Cole, Feldberg and Lynch, *Hedge Funds, Credit Risk Transfer and Financial Stability*, pp. 11-12.

⁴⁵ Lhabitant, *Handbook of Hedge Funds*, p. 33. For historical examples of short squeezes *see Id.*

Nevertheless, it should be noted that these arguments half reveal and half conceal the underlying facts about hedge funds and other regulated financial institutions. For example, if short squeeze argument applies to hedge funds, by the same token, it can be applicable to other financial institutions engaging in options contracts. Although some financial institutions are prohibited from short sales, they can establish the same positions by purchasing put options on the underlying securities.

3. Indirect regulation of hedge funds

In contrast to ‘direct regulation’ which is applied directly to the hedge fund entity itself or to the activities immediately performed by hedge funds, ‘indirect regulation’ includes “market discipline-inspired regulatory measures targeting the creditors and counterparties of hedge funds (mainly, but not exclusively, their prime brokers and securities brokers).”⁴⁶ In other words, indirect regulation is based on the regulation of financial institutions that provide financial services to hedge funds or are hedge funds’ counterparties. These institutions, in turn, are given the incentives to oversee hedge funds.⁴⁷ Therefore, a key element in the indirect approach is the regulator’s reliance on market participants, namely the investors, creditors, and counterparties to reward well-managed hedge funds and to punish poorly-managed ones.⁴⁸

Such an approach to indirect regulation can be seen as a form of delegation of regulatory functions from regulatory agencies to the stakeholders of a given activity. Such stakeholders play the role of ‘surrogate regulators’. As a consequence of such devolution, the entity assuming the regulatory functions, under certain conditions, takes on those regulatory functions to be applied to the target entity. Regulatory functions can be delegated to public interest groups (PIGs), to the firms themselves or to their industry associations, and to the firms’ competitors.⁴⁹ For example, one type of delegation of regulatory functions to the regulated industries or their associations in the context of financial market regulation is the delegation of regulatory functions to Self-regulatory Organizations (SROs)⁵⁰ such as stock exchanges, industry associations, and credit rating agencies.⁵¹ After the recent global financial crisis, seeking to avoid a potential flood of

⁴⁶ Athanassiou, *Hedge Fund Regulation in the European Union: Current Trends and Future Prospects*, p. 227.

He further adds that “[t]he aim of such measures would be to enhance the counterparty risk management practices that financial institutions apply in their dealings with hedge funds and/or to impose disclosure duties on prime brokers and other crucial hedge fund counterparties in respect of their hedge fund exposures. An indirect approach could be complemented by the obligatory ‘registration’ of managers of hedge funds in conjunction with the (voluntary) improvement, by the hedge fund industry itself, of its transparency, risk management and asset valuations standards and practices.”

⁴⁷ Lloyd, Clancy and Kumar, *Hedge Funds and Systemic Risk*, p. 34, 86.

⁴⁸ Cole, Feldberg and Lynch, *Hedge Funds, Credit Risk Transfer and Financial Stability*, pp. 11-12.

⁴⁹ Ayres and Braithwaite, *Responsive Regulation: Transcending the Regulation Debate*.

⁵⁰ Alternatively, government regulators can delegate their regulatory functions to the firm’s competitors. This type of regulatory delegation provides the markets with horizontal accountability (market or downward accountability).

⁵¹ In this sense, SROs act as surrogate regulators. The examples of SROs in financial markets are, *inter alia*, the Financial Industry Regulatory Authority (FINRA), the National Securities Exchanges including the New York Stock Exchange (NYSE), and the National Association of Securities Dealers Automated Quotations (NASDAQ). Managed Funds Association (MFA) is an industry association and self-regulatory agency for hedge funds. Nevertheless, government regulators sometimes maintain some residual rights or regulatory functions to monitor and take action

heavy-handed regulations, some hedge fund SROs are being formed “to head off further regulatory scrutiny by drafting self-regulatory codes of best practice.”⁵²

Furthermore, indirect regulation can be conceived as ‘intermediated regulation’. This means that regulation is primarily applied to an intermediary through the medium of which the effects are channeled into the primarily targeted subject of regulation. With respect to hedge fund regulation, this approach implies indirect regulation of hedge funds through the direct regulation of *other* market participants.⁵³ For example, putting a cap on the leverage ratio or increasing the counterparty risk management standards for prime brokers, which are the main counterparties of hedge funds, will have the effect of reducing lending to hedge funds or requiring more diligence on the part of prime brokers dealing with their hedge fund clients. The introduction of the Section 619 of the Dodd-Frank Act⁵⁴ (also known as the Volcker Rule), prohibiting the proprietary trading by banking entities and restricting their investment in hedge funds and private equity funds, is a real-world example of such a regulatory strategy.⁵⁵

Crafting appropriate indirect regulatory mechanisms for hedge funds requires identifying the financial institutions that have the most consistent, continuous, and day-to-day relationships with hedge funds. Identifying these institutions means identifying those equipped with sufficient

on the activities of such SROs. This type of self-regulation is often referred to as ‘enforced-self regulation’. The notion of enforced-self regulation lies somewhere between voluntary self-regulation and direct regulation. Although enforced self-regulation is less intrusive than direct regulation, it is more interventionist and intrusive than the voluntary self-regulation. In such a system, firms or their industry associations are required to make their own rules. The government agencies afterwards ratify those rules. From that point on, if there is a non-compliance with those privately-laid and publicly ratified rules, the rules will be publicly enforced against the firms or their associations. *See Ibid.*

⁵² Harry McVea, "Hedge Fund Regulation, Market Discipline and the Hedge Fund Working Group," *Capital Markets Law Journal* 4, no. 1 (January 01, 2009), p. 83.

Crafting self-regulation by the industry to shield against and probably divert the coming tides of regulation by the state or government seems to be a recursive pattern in the history of financial regulation. *See* Alan D. Morrison and William Wilhelm Jr., *Investment Banking: Institutions, Politics, and Law* (New York: Oxford University Press, 2007).

Such a practice can indeed blunt the edge of the regulatory sword and forestall the aggressive government intervention. *See* Engert, *Transnational Hedge Fund Regulation*, pp. 333-335.

In addition, since without government’s active role in the enforcement of the SROs’ rules, they remain deficient, it is argued that self-regulation can only complement the government regulation and cannot substitute it. *See Ibid.*

⁵³ *See* Paul M. Jonna, "In Search of Market Discipline: The Case for Indirect Hedge Fund Regulation," *San Diego Law Review* 45 (2008), pp. 1009-1010.

⁵⁴ 12 U.S.C. § 1851

⁵⁵ The Volcker Rule is part of the post-financial crisis regulatory reforms which aims at addressing problems associated with hedge and private equity funds’ interconnectedness with Large Complex Financial Institutions (LCFIs) through prohibiting proprietary trading and banking entity’s investment in and sponsorship of hedge funds and private equity funds. The thesis will discuss the Volcker Rule and its implications in the fifth chapter.

knowledge and understanding of hedge funds and their activities in financial markets.⁵⁶ These are the institutions that can potentially be used as ‘surrogate regulators’ delegated with regulatory functions from government agencies.⁵⁷

Given the institutional setting and the relationship between hedge funds and their prime brokers described in the second chapter of this dissertation,⁵⁸ indirect measures for regulating hedge funds mostly focus on the regulation of their counterparties, creditors and investors the most important of which are prime brokers. Therefore, indirect regulation implies that certain requirements be imposed on the counterparties of hedge funds, and particularly on their prime brokers, rather than hedge funds themselves. Such measures include:

1. Mandatory registration, regulation, and supervision of prime brokers and banks which provide loans to hedge funds;⁵⁹
2. Prohibiting banks from managing, controlling, or sponsoring hedge funds⁶⁰ (the Volcker Rule);
3. Limitations on the qualifications of depositaries⁶¹ and prime brokers;
4. Oversight of trading relations;
5. Capital adequacy requirement for prime brokers;
6. Robust internal risk management system for prime brokers;
7. Improving the information available on the market in which hedge funds operate by transforming over-the-counter (OTC) markets⁶² to centralized exchanges;⁶³

⁵⁶ In this sense, indirect regulation becomes very similar to the regulation by standards, because it relies on the decentralized knowledge. For more information about how standards involves utilizing such knowledge. See Hans-Bernd Schaefer, "Legal Rule and Standards," in *The Encyclopedia of Public Choice, Volume I*, eds. Charles K. Rowley and Friedrich Schneider (New York: Kluwer Academic Publishers, 2004), p. 349.

⁵⁷ Prime brokers offer a range of services to hedge funds. Key functions include (collateralized) financing of hedge fund exposures and execution of Over-the-Counter (OTC) derivatives transactions, partly through the prime brokers interposing themselves between hedge fund transactions with third parties. This role of prime brokers puts them on the top of the list of candidates who can take on the indirect regulation of hedge funds. See Weber, *Hedge Funds: A Central Bank Perspective*, pp. 166-167.

⁵⁸ See section 3.1. titled “hedge funds and the prime finance industry”.

⁵⁹ Technical Committee of the International Organization of Securities Commissions, *Hedge Funds Oversight: Final Report*, 2009), pp. 8-16.

⁶⁰ Echoud et al., *Future Regulation of Hedge Funds—A Systemic Risk Perspective*, pp. 270-271.

⁶¹ In contrast to an institution holding the assets pursuant to a security arrangement, the concept of depositary refers to an institution holding the assets of a hedge fund in custody or for safe-keeping purposes. See Duncan, Curtin and Crosignani, *Alternative Regulation: The Directive on Alternative Investment Fund Managers*, pp. 360-361.

⁶² Over the counter (OTC) financial products are non-standardized or customized products traded directly between two counterparties and without any exchange facilities involved in the trade. It is contrasted to the exchange-traded financial instruments or products which are standardized instruments cleared through exchanges.

8. Devising processes to obtain relevant information for crisis management;
9. Imposing wealth and sophistication requirements on hedge fund investors.⁶⁴

The most compelling argument for indirect regulation of hedge funds is rooted in the fact that the hedge funds' herding behavior and counterparty risks (giving rise to interconnectedness externalities)⁶⁵ are, as far as hedge funds are concerned, the major transmission channels for the propagation of systemic risk.⁶⁶ And since indirect regulation of hedge funds requires focusing on the relationships of hedge funds with Large Complex Financial Institutions (LCFIs), it is the most appropriate policy instrument to tackle the problems arising from the interconnectedness of hedge funds with LCFIs. The top prime brokers are almost all LCFIs that have exposures to hedge funds and to each other. This interconnectedness makes them a key channel of systemic risk contagion stemming from hedge funds.⁶⁷

Indirect regulation applied to hedge funds operates through banks and other financial institutions, financial markets, institutional and retail investors, and the corporate sector. In the following section, the arguments supporting indirect regulation of hedge funds are offered. The main argument is that since the most important channels of propagation of systemic risk from the hedge fund industry is through their relationships with LCFIs, the indirect regulation of hedge funds through their counterparties can best cope with this problem. Therefore, the most

⁶³ Christian Noyer, "Hedge Funds: What are the Main Issues?" in *Financial Stability Review; Special Issue, Hedge Funds*, ed. Banque de France, 2007), pp. 109-111.

⁶⁴ Proposals for indirect hedge fund regulation are put in place. For example, Oesterle suggests that the direct regulation might be harmful, and supports indirect regulation through imposing capital adequacy requirement for banks that lend to hedge fund counterparties and introduction of mandatory disclosure requirements with respect to their direct material exposure to hedge funds. See Dale A. Oesterle, "Regulating Hedge Funds," *Entrepreneurial Business Law Journal* 1 (2006), pp. 37-38

Eichengreen & Mathieson propose "the idea of a clearing house or credit register to assemble information from national sources". Eichengreen and Mathieson, *Hedge Funds: What do we really Know?*.

Cole et al. also propose that the "[b]anks should see both quantitative and qualitative indicators of a hedge fund's net asset value, risk exposures, and liquidity. Where this information is not forthcoming from a particular hedge fund, counterparties should tighten margin collateral and other credit terms." Cole, Feldberg and Lynch, *Hedge Funds, Credit Risk Transfer and Financial Stability*, pp. 11-12.

⁶⁵ Interconnectedness externalities originate from the failure of one firm and can impose costs on other financial firms not directly related to the failing firm.

⁶⁶ King and Maier, *Hedge Funds and Financial Stability: Regulating Prime Brokers Will Mitigate Systemic Risks*, pp. 286 -287.

⁶⁷ Direct exposures of hedge funds to LCFIs can arise from several types of transactions that can be divided into two main categories: transactions where banks act as counterparties to hedge funds, such as unsecured lending, secured financing (including repo transactions), prime brokerage and OTC derivatives, and transactions where banks act as investors in hedge funds, either in their proprietary trading and own account investment or in order to offer to their customers traditional or structured products indexed to hedge funds return. See Nouy, *Indirect Supervision of Hedge Funds*, pp. 101-103.

prominent advantage of indirect regulation of hedge funds over direct regulation is that it focuses precisely on the financial institutions and channels through which hedge funds' systemic externalities tend to propagate.⁶⁸ Whether it is crafted as a form of delegation of regulatory functions or as intermediated regulation, the indirect regulation of hedge funds has the following advantages over direct regulation.

3.1. Existence of suitable 'surrogate regulators'

Before the introduction of any new regulation for hedge funds, it is important for regulators to ask why regulation of hedge funds should be different from other financial institutions such as commercial and investment banks, mutual funds, insurance companies, and pension funds. One of the distinguishing features of hedge fund regulation as opposed to bank regulation is the existence of surrogate regulators which justifies a different regulatory treatment of hedge funds in comparison to other mainstream financial institutions. For the purposes of this chapter, one of the key differences between hedge funds and banks is the number and the composition of hedge funds' financiers, i.e. investors, creditors, and counterparties.

The first difference is that banks have a large number of creditors (depositors) mostly with low amounts of deposits in the bank. Because of their number and dispersion, bank depositors lack the incentive to monitor the bank's financial standing.⁶⁹ The pervasiveness of free riding eliminates the incentives for dispersed depositors to provide monitoring, because there is hardly any way in which small depositors can fully reap the benefits of their activities by excluding the free riders. The economic literature shows that in a repeated, cooperative public good game with a small number of players and the presence of an effective threat of punishment, cooperation for the provision of public goods (monitoring mechanism) is likely to emerge.⁷⁰ However, as the number of players increases, this cooperation will likely fail, because "as the number of participants becomes critically large, the individual will more and more come to treat the

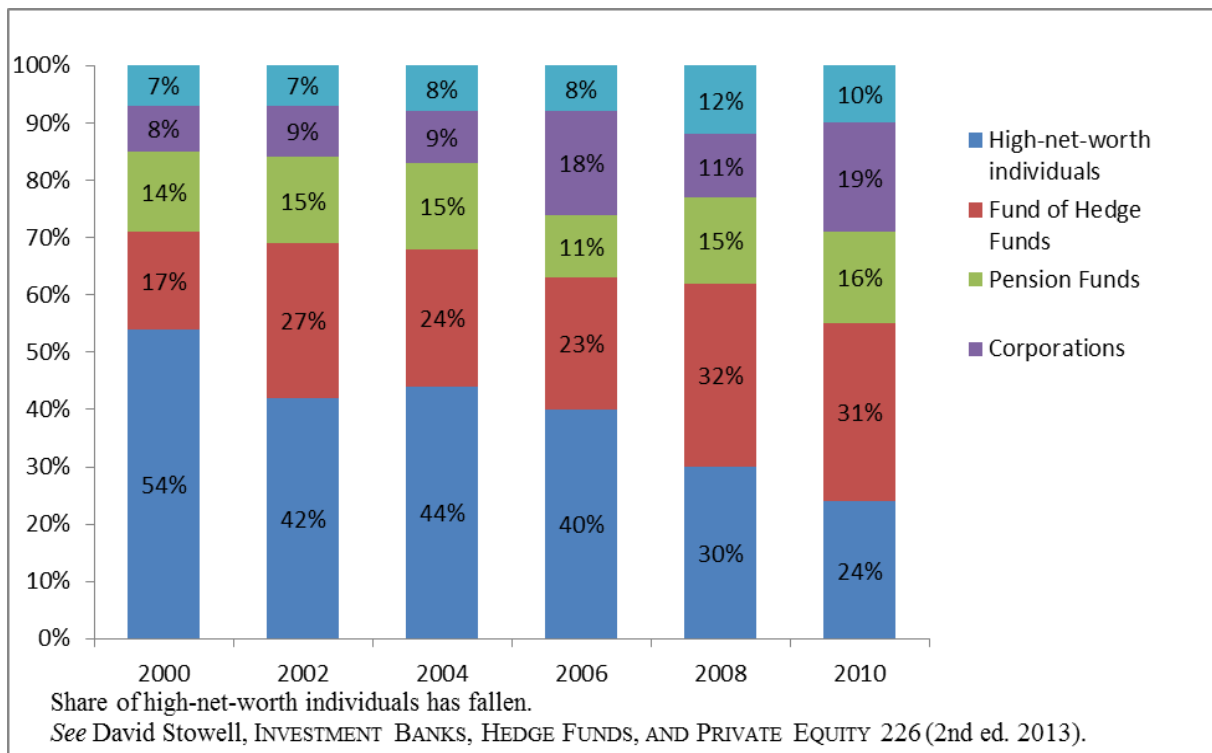
⁶⁸ Bank of England, *Financial Stability Report*, (April 2007).

⁶⁹ In other words, this occurs because the depositors are rationally apathetic.

⁷⁰ Ernst Fehr and Simon Gächter, "Cooperation and Punishment in Public Goods Experiments," *The American Economic Review* 90, no. 4 (Sep., 2000), 980-994.

behavior of “all others” as beyond his own possible range of influence.”⁷¹ This chilling effect can result in the failure of cooperation and hence under-provision of monitoring functions in the financial markets by a large number of depositors. Therefore, in the normal course of free and unregulated financial markets, such a monitoring mechanism will not be optimally provided by depositors. In such cases, governments take over this function illustrating the so-called ‘efficient centralization of monitoring’ function in financial regulation.⁷²

Nonetheless, in case of hedge funds, the financing schemes and conditions are entirely different. Hedge fund counterparties and creditors are strong, well-empowered and sophisticated prime brokers; and their investors are mainly composed of institutional investors. The recent data suggest a rise in institutional investors in the composition of hedge fund investor base, which was simultaneous with a decline in the high-net-worth individuals (HNWIs) who used to be the main investors in hedge funds.⁷³



⁷¹ James M. Buchanan, "Cooperation and Conflict in Public-Goods Interaction," *Economic Inquiry* 5, no. 2 (1967), p. 116.

According to Aristotle, “what is held in common by the largest number of people receives the least care.” See Aristotle, *Politics*, trans. C. D. C. Reeve (Indianapolis: Hackett Publishing Company, 1998), p. 28.

This shows the commons or public goods feature of market discipline in this setting.

⁷² Engert, *Transnational Hedge Fund Regulation*, p. 344.

⁷³ Stowell, *Investment Banks, Hedge Funds, and Private Equity*, p. 226.

By definition, these actors are in a position to impose their conditions of loans on hedge funds (by fully-secured loans and even higher standards) and prevent them from pursuing risky strategies with borrowed money. Indeed, the constraints imposed by strong counterparties on hedge funds might very well explain the lower levels of leverage in the hedge fund industry compared with depository institutions.⁷⁴

In addition, the prime brokerage industry tends to be heavily concentrated. For example, at the end of the year 2006, the top three dealers performing prime brokerage function serviced 58% of the assets under management (AUM) by hedge funds. And at the same time, the top ten dealers serviced 84% of hedge funds' AUM.⁷⁵ The second figure also shows that the concentration in the prime brokerage industry has remained almost intact after the global financial crisis. The fewer number of major prime brokers acting as hedge fund counterparties facilitates the mutual monitoring of hedge fund compliance with the standards set by prime brokers.⁷⁶

Prime Brokerage Market Share (As of the year-end 2006)

Rank	Prime Broker	Total Client Assets (%)
1	Morgan Stanley	22
2	Bear Sterns	19
3	Goldman Sachs	17
4	UBS	7
5	Credit Suisse	5
	Market share of top 3 (top 10)	58% (84%)

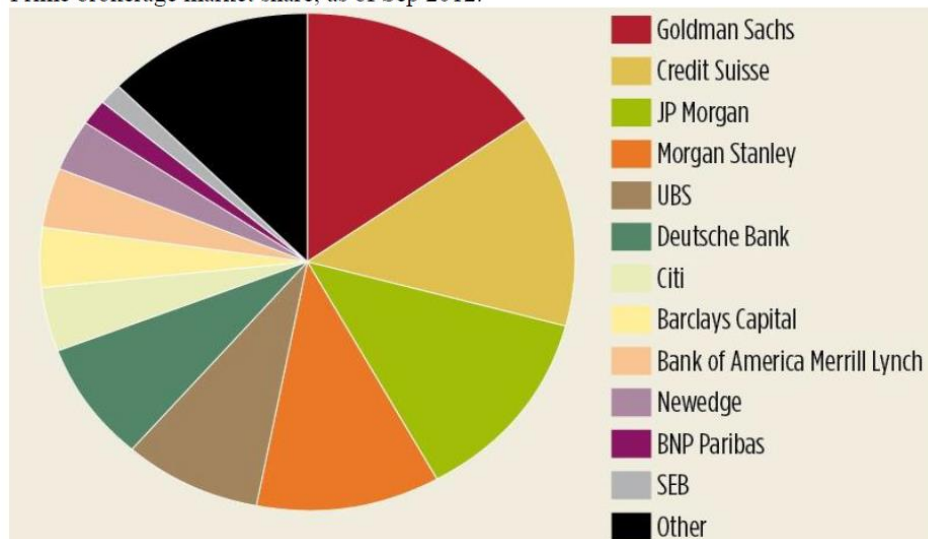
See Michael R. King & Philip Maier, *Hedge Funds and Financial Stability: Regulating Prime Brokers Will Mitigate Systemic Risks*, 5 JOURNAL OF FINANCIAL STABILITY 283, 290 (2009).

⁷⁴ The statutory requirements set for hedge funds' investors constitute an investor base for hedge funds the composition of which is made up of sophisticated investors. Hedge fund investors are mostly institutional investors and HNWI's who are supposed to be able to 'fend for themselves' and are capable of monitoring hedge funds.

⁷⁵ King and Maier, *Hedge Funds and Financial Stability: Regulating Prime Brokers Will Mitigate Systemic Risks*, pp. 290-291.

⁷⁶ Engert, *Transnational Hedge Fund Regulation*, pp. 351-354.

Prime brokerage market share, as of Sep 2012.



Hedge fund intelligence, *Goldman tops fast-changing prime brokerage market*, (2012), <http://www.hedgefundintelligence.com/Article/3098543/Goldman-tops-fast-changing-prime-brokerage-market.html>

The second difference is related to the moral hazard problem. Deposit insurance schemes protecting banks' depositors from losses reduce their incentives to monitor bank's financial safety and soundness. Furthermore, the depositors' trust in the bank rests partially upon the government's prudential regulation. The deposit insurance scheme and prudential regulation make the solvency of the banking system out of question for ordinary depositors.⁷⁷ This substantially reduces the risk of banking crises in the form of traditional bank runs.⁷⁸ Unlike depositors in a bank who are generally insured by governments, hedge fund investors are equity holders and the entire amount of their investment is exposed to loss in case of hedge fund bankruptcy. Given such an exposure to risk, they have a strong incentive to monitor the activities, strategies, and positions of hedge funds. Therefore, the capital structure of hedge funds ensures stronger incentives for private monitoring than that of banks.⁷⁹

The third significant difference between hedge funds and banks concerns investors' liquidity. Banks are traditionally engaged in maturity transformation and the provision of liquidity.⁸⁰ In

⁷⁷ *Ibid.*

⁷⁸ Indeed, what induced banking regulation was the inefficient monitoring mechanism by small, indifferent, diffuse, and unsophisticated depositors, themselves in need of protection.

⁷⁹ *Ibid.*

⁸⁰ According to the Financial Stability Board (FSB), maturity transformation "is the activity of issuing short term liabilities (such as deposits) and transforming them into medium-long term assets (such as loans)." See Financial Stability Board (FSB). *Shadow Banking: Scoping the Issues, A Background Note of the Financial Stability Board* 12 April 2011. https://www.financialstabilityboard.org/publications/r_110412a.pdf, p. 3.

contrast, hedge funds are not major maturity transformers. Unlike banks that take ‘demand deposits’, hedge funds only redeem investors’ money intermittently. Moreover, they often impose further restrictions on the investor redemptions using gates and side-pocket arrangements.⁸¹ Indeed, restrictions on the investors’ redemptions enhance investors’ loyalty towards a firm and give investors more incentives to raise their ‘voice’ (in terms of monitoring and management) instead of just threatening ‘exit’.⁸² Obviously the restriction on investment redemptions limits the ability of investors to exit,⁸³ at least in the short run, and this commits investors to playing a more active role in monitoring the fund.⁸⁴ Therefore, such restrictions force hedge fund investors and partners to be actively involved in the monitoring of hedge funds, while the easy exit in banks, mutual funds, and similar investment vehicles reduces the depositors and investors’ incentives to engage in monitoring them.

In the presence of such strong, well-incentivized counterparties taking part in the private monitoring of hedge funds, it is easier to plug in new regulatory measures aimed to enhance and harness the existing mechanisms that discipline hedge funds. In this sense, indirect regulation is also practical from a regulatory perspective, because it relies on the existing institutional settings and focuses on financial institutions most of which are already under the supervision of banking regulators.⁸⁵

Overall, the institutional settings of the market in which hedge funds operate suggest the primacy of indirect regulation making use of counterparties as surrogate regulators. In addition, the fact that the major risks of hedge funds for the society lie in their interconnectedness with LCFIs, and the channels of transmission of risks are through their counterparties and creditors, suggests that

⁸¹ These mechanisms for restricting hedge funds’ investor liquidity are often used *ex-ante*. There are other discretionary methods of liquidity restrictions in hedge funds. Discretionary liquidity restrictions (DLRs) are classified as gates and side pockets. Aiken, Clifford & Ellis show that imposition of such restrictions by hedge fund managers to limit the feet voting in the hedge fund industry and allegedly to protect hedge fund investors from themselves (by preventing fire-sales in distressed markets), not only did not contribute to the well-functioning of hedge funds imposing such restrictions, but also such limits were followed by continued underperformance. They show that such restrictions further raised the costs of capital for such firms. See Adam Aiken, Christopher Clifford and Jesse Ellis, "Discretionary Liquidity: Hedge Funds, Side Pockets, and Gates," (2012).

⁸² Albert O. Hirschman, *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations, and States* (Cambridge, Massachusetts: Harvard University Press, 1970).

Exit, or voting with feet, is known as the Wall Street Rule in the financial industry.

⁸³ Charles M. Tiebout, "A Pure Theory of Local Expenditures," *Journal of Political Economy* 64, no. 5 (1956), 416-424.

⁸⁴ Hirschman, *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations, and States*.

⁸⁵ King and Maier, *Hedge Funds and Financial Stability: Regulating Prime Brokers Will Mitigate Systemic Risks*, pp. 293-294.

hedge funds' investors, counterparties, and creditors are best placed to monitor the propagation of systemic externalities.⁸⁶

3.2. Indirect regulation is less likely to result in regulatory capture

Concerns about who monitors the monitor or, more specifically, who regulates the regulators have been one of the oldest problems from the inception of the debate on regulation.⁸⁷ When an agency regulates a small number of firms in a single industry, the likelihood of repeated interactions are greater than when an agency regulates many firms in 'heterogeneous' economic sectors.⁸⁸ Although repeated interactions breed cooperation, the problem with regulatory cooperation is that the "features of regulatory encounters that foster the evolution of cooperation also encourage the evolution of capture and corruption." Moreover, "[s]olutions to the problems of capture and corruption - limiting discretion, multiple industry rather than single-industry agency jurisdiction, and rotating personnel - inhibit the evolution of cooperation."⁸⁹

In the context of hedge funds, assigning large number of prime brokers with regulatory tasks may create a less friendly environment for cooperation between the surrogate regulator and 'regulatee'; but this will also imply less room for corruption. In contrast to the unitary regulatory systems or regulatory monopolies in which the demand for regulation is inelastic, regulatory arbitrage provides substitutes for regulated firms thereby making the demand for regulation elastic. Such a dramatic change in the elasticity of demand means that if regulators cannot provide good quality regulations at competitive prices, they will be deserted by their regulatees. The increased elasticity of demand brings about more accountability of regulators towards their

⁸⁶ Jean-Pierre Roth, "Highly Leveraged Institutions and Financial Stability: A Case for Regulation?" *University of St. Gallen Law School, Law and Economics Research Paper Series Working Paper No. 2008-18* (2007).

⁸⁷ "quis custodiet ipsos custodes?" or "who's going to chaperone the chaperons themselves?", sometimes paraphrased as: "who will guard the guardians themselves?" is a phrase attributed to Juvenal, the Roman poet of the late first and early second centuries AD. See Susanna Braund and Josiah Osgood, *A Companion to Persius and Juvenal* (John Wiley & Sons, 2012), p. 137.

For a discussion of the issue in the context of economic and financial regulation, see Roubini and Mihm, *Crisis Economics: A Crash Course in the Future of Finance*, chapter 9.

⁸⁸ Ayres and Braithwaite, *Responsive Regulation: Transcending the Regulation Debate*, pp. 54-56.

⁸⁹ *Ibid.* Ayres and Braithwaite propose tripartism as a model of regulatory process involving public interest groups (PIGs) to address the problem of capture and corruption in regulatory environment the study of which is beyond the scope of this chapter.

regulatees. Such a market or ‘downward accountability’⁹⁰ will impose constraints on regulators and can guard against corruption in regulatory systems. That is why regulatory competition is proposed as a safeguard against regulatory capture.⁹¹

However, as mentioned earlier, the elasticity of demand for regulatory services from the regulated firms is a function of the availability of alternative regulators.⁹² In a harmonized regulatory system, the demand for regulatory services will be constant (high), while in a regulatory fragmentation model, *ceteris paribus*, the demand increases with more harmonization and decreases with more fragmentation. Therefore, harmonized regulators will be less accountable, whereas fragmented regulators will be more accountable to their regulatees. In the context of financial markets and indirect regulation of hedge funds, regulatory competition induced by entrusting a relatively large number of prime brokers with regulatory functions may create a less friendly environment for the evolution of cooperation and corruption between regulators and ‘regulatees’.

3.3. Indirect regulation and regulatory competition among surrogate regulators

One of the positive side effects of regulatory competition is the peer pressure imposed by the competitors of incumbent regulators. The peer pressure among prime brokers as surrogate regulators will not only decrease the likelihood of the evolution of corruption, but also will contribute to the efficiency of surrogate regulators. Peer review mechanism arising from competition can be as effective for regulators as well as for regulatees. For example, it is argued that the Financial Action Task Force (FATF) has been effective in shaping and defining international regulations against money laundering and terrorist financing partly because of the devolutionary nature of its oversight function. In the FATF, the oversight function is delegated to “the regional groupings that conduct mutual valuations of other members’ legal and regulatory policies”. Such a mechanism essentially calls for a peer review mechanism⁹³ for assessing the

⁹⁰ Scott, *Accountability in the Regulatory State*, 38-60.

⁹¹ Ayres and Braithwaite, *Responsive Regulation: Transcending the Regulation Debate*, p. 54.

⁹² Macey, *Regulatory Globalization as a Response to Regulatory Competition*, p. 1362.

⁹³ Alexander, Dhumale and Eatwell, *Global Governance of Financial Systems: The International Regulation of Systemic Risk*, p. 72.

group's effectiveness in effectuating the compliance with the FATF's standards. In addition, it potentially provides market benchmarks or yardsticks against which the regulatory oversight can be assessed between different groupings in a kind of regulatory tournament. The economic theory suggests that yardstick competition can achieve more efficient outcomes in franchise agreements and labor contracts setting.⁹⁴ As in the case of the FATF, the yardstick competition can equally be applied to regulatory competition.⁹⁵ In addition, several studies emphasize the welfare enhancing features of the regulatory competition.⁹⁶

The implications of regulatory competition between surrogate regulators for the efficiency of hedge fund regulation is that delegating regulation to the counterparties of hedge funds decreases the chances of regulatory capture. In addition, such a delegation increases the efficiency of regulation by providing incentives to surrogate regulators to compete with each other.

3.4. Indirect regulation as decentralized regulation

The functioning of indirect regulation of hedge funds will be more standard-like when applied to hedge funds. In indirect regulation, the regulator primarily regulates banks and (prime) broker-dealers. Therefore, indirect regulation of hedge funds can transform rules-based regulation into principles-based regulation of hedge funds when it is implemented by prime brokers. This is to say that precise rules will be transformed into standards in at least three aspects: first, the application and enforcement of rules will be more decentralized; second, rules will be applied with more flexibility allowing for more variations in detail and implementation; third, rules will be applied with more discretion. Therefore, the indirect regulation is a means that can turn rules into standards when applied to the primary target of regulation.

For example, a regulatory strategy aiming at reducing hedge fund leverage can do so by imposing leverage restrictions on their prime brokers. Such a cap on prime brokers' leverage can

⁹⁴ Shleifer, *A Theory of Yardstick Competition*, p. 319-320, 327.

⁹⁵ Easterbrook, *Federalism and European Business Law*, pp. 127-128.

Indeed, when the competition involves political agents, the tournament can be adapted to regulatory competition with the focus on the competition between governments or regulators. See Bratton and McCahery, *The New Economics of Jurisdictional Competition: Devolutionary Federalism in a Second-Best World*, p. 256.

⁹⁶ See the discussion in chapter one of the thesis under the section 3.4.3.1.1. titled "regulatory competition".

For more information regarding the arguments for the regulatory competition by implementing competitive federalism approach, see Romano, *Empowering Investors: A Market Approach to Securities Regulation*, 2359-2430.

be translated into effective, but variable caps on hedge fund leverage. Because in this case, it is the prime broker that will allocate the leveraged credit to hedge funds. By doing so, instead of directly putting a limit on hedge fund leverage, regulators delegate the allocation of leverage to prime brokers who are the main counterparties of hedge funds and have a superior knowledge of hedge fund business. Although such a leverage requirement will operate as a rigid and non-discretionary rule for prime brokers, it will have the flexibility of standards for hedge funds. This is because prime brokers can customize the level of leverage and make loans to every hedge fund according to their financial needs and their goals as far as safety and soundness are concerned. In turn, hedge funds that value leverage the most, will be applying for more loans and since banks are more efficient in monitoring borrowers, they will have the discretion to allocate the loans on behalf of regulators. Since hedge funds themselves in turn can lend to each other, such a regulatory cap on prime brokers' leverage can in essence take the form of 'leverage cap and trade'. In the end, such discretion will provide flexibility in the allocation of loans to hedge funds and result in a more efficient allocation of credit.⁹⁷

The principles-based regulation (PBR) approach by the formerly Financial Services Authority (FSA)⁹⁸ is essentially based on regulation which is predicated on standards. One of the positive aspects of standards is that their flexibility allows regulated entities to choose the specific means of achieving general standards and goals set by regulators especially when regulation involves target and performance (or output) standards.⁹⁹ This is successfully tested in the environmental standard setting. Needless to say, standard setting by means of target or output standards calls for market participants' incentives and the market discipline in crafting strategies to achieve the goals set by the standard-setter. Prior to the financial crisis, this was one of the main reasons for the FSA to support standards over rules in financial regulation under the guise of PBR.¹⁰⁰ Indeed,

⁹⁷ The idea of cap and trade originally comes from environmental economics. Under this scheme, every company is given a voucher for production of certain level of pollution. If a company needs more pollution, it can buy a voucher to pollute from other companies that do not need polluting. However, the overall level of pollution should not exceed certain thresholds. Although the measurement of leverage is not as straightforward as the measurement of pollution, the logic of cap and trade scheme could be used to limit the level of the leverage of the financial system within its sustainable limits and also contribute to efficient allocation of leverage in the financial system.

⁹⁸ The UK FSA has been replaced by the Prudential Regulation Authority (PRA) and the Financial Conduct Authority (FCA).

⁹⁹ Ogus, *Regulation: Legal Form and Economic Theory*, p. 151.

¹⁰⁰ See Financial Services Authority (FSA), *Principles-Based Regulation: Focusing on the Outcomes that Matter*.

It seems that the FSA uses the term 'principle' synonymous to the term 'standard'. This inference is best understood when they explicitly say that "[p]rinciples-based regulation means placing greater reliance on principles and

similar to indirect regulation, PBR is a type of regulation by standards, which delegates the details to lower regulatory levels.¹⁰¹

There seems to be certain benefits associated with this approach: benefits for the firms include the flexibility of PBR, and the role it plays in facilitating innovation and enhancing competition. In addition, there are benefits for regulators in terms of flexibility, facilitative role in regulatory innovation in the methods and the types of supervision, and enhanced regulatory competition. Finally, PBR also increases the durability of regulation in the fast-changing financial markets. In conclusion, all stakeholders benefit from regulated firms' improving conduct by focusing more on substantive compliance rather than 'creative compliance'.¹⁰²

During the financial crisis, however, the PBR came under criticism. Even the FSA itself called it a failure on the grounds that "a principles-based approach does not work with individuals who have no principles".¹⁰³ However, even after the financial crisis, scholars suggested the FSA and its successors not to abandon such a regulatory approach because of the mere crisis-induced criticisms.¹⁰⁴ The main concern is that going back to rules would result in increased legal engineering because "creative compliance thrives on rules-based regulation, for tight specific rules provide particularly solid material for legal engineers to work with."¹⁰⁵ Therefore,

outcome-focused, high level rules as a means to drive at the regulatory aims we want to achieve, and less reliance on prescriptive rules." *Id.* And "For these reasons, we believe that further enhancing our risk-based and evidence-based approach to regulation with an increased emphasis on principles and outcomes is not only the right but also the only way to progress our regulatory regime." *Id.* However, the term 'principle' has different meanings in jurisprudence. This term may generically refer to 'principles' as 'the whole set of standards other than rules'. Dworkin distinguishes between principles and policies. In its generic sense, it seems that the definition of principles is almost identical to the definition of standards. However, in its specific sense, the standards as used in this chapter, are policies per Dworkin. *See, e.g.,* Ronald Dworkin, *Taking Rights Seriously* (Cambridge, Massachusetts: Harvard University Press, 1978).

¹⁰¹ McBarnet, *Financial Engineering or Legal Engineering? Legal Work, Legal Integrity and the Banking Crisis*, pp. 78-79.

¹⁰² Julia Black, "Forms and Paradoxes of Principles-Based Regulation," *Capital Markets Law Journal* 3, no. 4 (2008), p. 426.

¹⁰³ Sants, Hector (Chief Executive, FSA), *Delivering Intensive Supervision and Credible Deterrence*, 12 March 2009).

¹⁰⁴ McBarnet, *Financial Engineering or Legal Engineering? Legal Work, Legal Integrity and the Banking Crisis*, pp. 78-79. *See also* Ford, *Principles-Based Securities Regulation in the Wake of the Global Financial Crisis*, p. 273.

And Dan Awrey, "Regulating Financial Innovation: A More Principles-Based Proposal," *The Brooklyn Journal of Corporate, Financial & Commercial Law* 5 (2011), 273-315.

¹⁰⁵ McBarnet, *Financial Engineering or Legal Engineering? Legal Work, Legal Integrity and the Banking Crisis*, pp. 78-79.

adherents of PBR continuously call for a commitment to PBR coupled with a meaningful enforcement and oversight.¹⁰⁶

In addition to the PBR's flexibility with regard to the variations in details and implementation to achieve a particular goal, the opportunities it can accommodate for achieving more international harmonization,¹⁰⁷ and decentralization of regulatory functions, the PBR contains another hidden aspect. That is, it can overcome legal engineering which tries to comply with the letter of the law while escaping its purpose and spirit. By the same token, addressing legal and financial engineering to escape the spirit of the law was the driving force behind the adoption of PBR by the Accounting Standards Board (ASB) in 1990s "which saw it as an essential bastion against opportunistic legal engineering".

Indeed, "[P]rinciples-based regulation is seen as the only realistic response, the only way to try to capture the spirit of the law in the face of constant creativity and technical challenge."¹⁰⁸ Indirect regulation coupled with principles-based regulation can be more effective in preventing regulatory arbitrage by hedge funds than the direct regulation based on rules-based regulation.

3.5. Indirect regulation is more feasible and less costly

This chapter argues that the indirect regulation is the most efficient form of regulation for all the stakeholders involved in the hedge fund industry. Indirect regulation significantly reduces regulatory expenses and at the same time, it preserves "the necessary opaqueness of the activities of hedge funds" enabling them to "continue to operate ... and thus, expose market inefficiencies."¹⁰⁹ On the other hand, it is argued that the "'indirect supervision' approach is the least intrusive and also the most effective in the short term, in particular at the international level.

¹⁰⁶ Ford, *Principles-Based Securities Regulation in the Wake of the Global Financial Crisis*, 257-307.

¹⁰⁷ McBarnet, *Financial Engineering or Legal Engineering? Legal Work, Legal Integrity and the Banking Crisis*, pp. 78-80.

¹⁰⁸ *Ibid.* As McBarnet puts: "Driving this approach is an explicit recognition that any specific rule will be met by legal engineering to circumvent it, and principles-based regulation is seen as the only realistic response, the only way to try to capture the spirit of the law in the face of constant creativity and technical challenge." *Ibid.*

¹⁰⁹ Wulf Alexander Kaal, *Hedge Fund Regulation by Banking Supervision: A Comparative Institutional Analysis* (Peter Lang Pub Inc., 2005).

Implementation of the pillar II of the Basel II agreement [concerning supervisory review] will give banking supervisors additional tools in that respect.”¹¹⁰

Indirect regulation of hedge funds can take advantage of the dispersed, but superior knowledge of market participants about firms and can diminish the likelihood of regulatory errors. Hence, there will be no need for further investment in gathering data and other necessary steps for regulatory intervention. These actions all require substantial investment on the part of governments. In addition, indirect regulation is perceived to be politically more feasible than direct regulation,¹¹¹ because it is less interventionist. Therefore, overcoming political status quo bias would be easier in indirect regulation than in direct regulation.¹¹²

In order to measure the effectiveness of indirect regulation of hedge funds in reducing systemic risk, proxies for improvements in risk factors, which can potentially make hedge funds less systemically important, should be taken into account. Such proxies include reduced leverage, improved funding liquidity,¹¹³ increased disclosure, and improved counterparty risk management practices in the hedge fund industry. The available evidence suggests that on all these counts, there were significant improvements even in the absence of direct regulation of hedge funds.¹¹⁴

For example, as discussed earlier, the leverage of hedge funds has been significantly lower compared to that of other mainstream financial institutions. In particular, after the collapse of Long-Term Capital Management (LTCM) in 1998, there is evidence of a decline in the leverage of the hedge fund industry.¹¹⁵ These lower levels of leverage are documented especially prior to

¹¹⁰ Noyer, *Hedge Funds: What are the Main Issues?*, pp. 109-111.

¹¹¹ This might explain why European regulators imposed direct regulation on hedge funds under the guise of and using the terminology of indirect regulation. The title of the Directive is obviously telling: “The Alternative Investment Fund Managers Directive” and not “The Alternative Investment Fund Directive”. Nonetheless, commentators believe that the European AIFMD is more of a direct regulatory nature than indirect one. See Giorgio Tosetti Dardanelli, “Direct or Indirect Regulation of Hedge Funds: A European Dilemma,” *European Journal of Risk Regulation* (2011), 463-480.

The same holds true for the U.S. regulators who used the term “Private Fund Investment Advisers Registration Act”. The difference is that U.S. regulators have leaned more heavily towards indirect regulation.

¹¹² Ferran, *After the Crisis: The Regulation of Hedge Funds and Private Equity in the EU*, 379-414. See also Lucia Quaglia, “The ‘Old’ and ‘New’ Political Economy of Hedge Fund Regulation in the European Union,” *West European Politics* 34, no. 4 (2011), 665-682.

¹¹³ Funding liquidity refers to the ease with which a firm can acquire funds.

¹¹⁴ King and Maier, *Hedge Funds and Financial Stability: Regulating Prime Brokers Will Mitigate Systemic Risks*, pp. 294-295.

¹¹⁵ Patrick McGuire, Eli Remolona and Konstantinos Tsatsaronis, “Time Varying Exposures and Leverage in Hedge Funds,” *BIS Quarterly Review*, March (2005).

the financial crisis.¹¹⁶ By the same token, after the financial crisis the level of leverage remained moderate.¹¹⁷

As far as disclosure is concerned, market forces have increasingly put pressure on hedge funds to become more transparent. Particularly because of an increasing trend towards institutionalization of hedge funds' investor base, the hedge fund industry is expected to become more transparent, partly because institutional investors are in a better position to negotiate better deals with hedge funds in terms of hedge fund transparency towards investors. Industry associations also play a significant role to exert influence through issuing recommendations of best practices for hedge fund transparency and encouraging hedge funds to comply with them.¹¹⁸

With respect to counterparty risk, the anecdotal evidence suggests significant improvements in counterparty risk management practices in the aftermath of the collapse of LTCM. The Collapse of Amaranth in 2006 is also a case in point.¹¹⁹ Although that was a large hedge fund, its collapse did not pose any material risks to its counterparties or the financial system because of better risk management techniques employed both by the hedge fund and its counterparties.¹²⁰

With regard to funding liquidity, hedge funds can better manage their liquidity problems partly because they face lower regulatory restrictions. Using gates and side-pocket arrangements, they can impose longer redemption periods on their investors for purposes of liquidity management. Moreover, some hedge funds also started using more stable sources of funding such as issuing debt, using credit lines from banks, and raising permanent capital through equity offerings. It is also expected that the trend towards the institutionalization of hedge funds' investor base would contribute to improving the liquidity management of the hedge fund industry.¹²¹ The impact of indirect regulation in mitigating the most significant concerns about systemic risk was so

¹¹⁶ McGuire and Tsatsaronis, *Estimating Hedge Fund Leverage*.

¹¹⁷ For a discussion of the empirical evidence of hedge fund leverage, see chapter 2.

¹¹⁸ King and Maier, *Hedge Funds and Financial Stability: Regulating Prime Brokers Will Mitigate Systemic Risks*, pp. 294-295.

Residual concerns about hedge fund transparency are to a great extent resolved by the introduction of the Dodd-Frank Act in the U.S., and the Alternative Investment Fund Managers Directive (AIFMD) in the EU.

¹¹⁹ Roach Jr., *Hedge Fund Regulation- "What Side of the Hedges are You on?",* p. 171. See also Ferguson and Laster, *Hedge Funds and Systemic Risk*, p. 51.

¹²⁰ United States Government Accountability Office (GAO), *Hedge Funds: Regulators and Market Participants are Taking Steps to Strengthen Market Discipline, but Continued Attention is Needed.*, 1-49.

¹²¹ King and Maier, *Hedge Funds and Financial Stability: Regulating Prime Brokers Will Mitigate Systemic Risks*, pp. 294-295.

pronounced that some commentators even suggested that indirect regulation of hedge funds is sufficient to cope with their contribution to systemic risk.¹²²

Finally, in the aftermath of the financial crisis, there was criticism about the limited resources available to regulators.¹²³ Since indirect regulation can result in substantial savings in the use of limited regulatory resources by substituting government regulators with private surrogate regulators, *ceteris paribus*, it should be preferred to direct regulation. The above arguments suggest that, at least in qualitative terms, the support for hedge fund indirect regulation far exceeds the support for hedge fund direct regulation. This outcome is reflected in the policy debate. Institutional advocates of indirect regulation of hedge funds include, *inter alia*, the following: the Group of Seven (G7), the President's Working Group (PWG), the Financial Stability Forum (FSF), the Basel Committee on Banking Supervision (BCBS), the Counterparty Risk Management Policy Group II (CRMPG II), the Economic and Financial Affairs Council (ECOFIN), and the European Central Bank (ECB).¹²⁴

4. Shortcomings of and remedies for indirect regulation of hedge funds

Commentators suggest that there are a number of problems with indirect regulation of hedge funds through their prime brokers. These problems may undermine the effectiveness of the market discipline of hedge funds. In the literature on hedge fund regulation, the following problems are raised against the indirect regulation of hedge funds. However, even acknowledging these problems with indirect regulation, such problems could not be solved by direct regulation of hedge funds. On the contrary, most of them can still be addressed by regulating prime brokers rather than hedge funds themselves.

¹²² Cole, Feldberg and Lynch, *Hedge Funds, Credit Risk Transfer and Financial Stability*, pp. 11-12.

¹²³ The limited resources at the disposal of regulators are pushing them to be efficient in using those resources. For example the FSA stressed the need for prioritizing regulatory objectives and methods. They offered the principles-based regulation in response to such a demand. See Financial Services Authority (FSA). *Principles-Based Regulation: Focusing on the Outcomes that Matter*, p. 3.

¹²⁴ See Athanassiou, *Hedge Fund Regulation in the European Union: Current Trends and Future Prospects*, pp. 227-228.

4.1. Use of multiple prime brokers by hedge funds

The global financial crisis and the failures or near-failures of prime brokers showed that counterparty risk management through diversification is equally (if not more) important for hedge funds as it is for their prime brokers.¹²⁵ Therefore, as a response or a hedge against the counterparty risks arising from the failure of prime brokers and to avoid too much of exposure to a single prime broker, hedge funds have diversified their prime brokers both domestically and internationally.¹²⁶ As a result, a single prime broker is no longer informed of all transactions of its hedge fund clients. This means that prime brokers are no longer able to observe the whole trading activities of hedge funds and raise timely red flags. This increasingly diminishing prime brokers' knowledge of hedge fund activities and exposures weakens the argument in favor of delegating the regulatory functions to hedge funds' prime brokers, for fear that they might not be capable of effectively monitoring hedge fund activities and risks.¹²⁷

In addition, as mentioned above, the supply of monitoring is similar to the supply of public goods. Since monitoring is costly, and its benefits are not excludable, it is prone to free riding. Hence, individual firms have an incentive to free ride on the monitoring and due diligence by other firms, which can lead to inadequate collective discipline exerted by creditors.¹²⁸ However, the argument based on the insufficient discipline by prime brokers does not undermine the case for indirect regulation of hedge funds. Rather, this argument shows that it is important to devise mechanisms providing prime brokers with adequate incentives to perform monitoring.

4.2. Competition among prime brokers and ineffectiveness of indirect regulation

One of the concerns about indirect regulation of hedge funds through their prime brokers is that the prime brokers lack sufficient incentives to carry out the regulatory functions assigned to

¹²⁵ Merrill Lynch Global Markets Financing & Services, *The Multi-Prime Broker Environment Overcoming the Challenges and Reaping the Benefits* (New York, June 2008).

¹²⁶ Aikman, *When Prime Brokers Fail: The Unheeded Risk to Hedge Funds, Banks, and the Financial Industry*, pp. 36-37.

¹²⁷ King and Maier, *Hedge Funds and Financial Stability: Regulating Prime Brokers Will Mitigate Systemic Risks*, pp. 290-291.

¹²⁸ Timothy Geithner, *Hedge Funds and Derivatives and their Implications for the Financial System* (Address at the Hong Kong Monetary Authority: Federal Reserve Bank of New York, September 15, 2006).

them. In the prime finance industry, there is an intense competition between prime brokers in attracting profitable hedge fund business.¹²⁹ The prime finance industry tends to be oligopolistic, and gaining market share in such a market structure is of crucial importance. In addition, the fact that the hedge fund industry itself is highly concentrated¹³⁰ adds more fuel to already burning competition between prime brokers. The high level of concentration means that prime brokers derive substantial returns from attracting one large hedge fund. Given the appetite of prime brokers for gaining market share in such an oligopolistic market, attracting one large hedge fund with substantial market share is crucial for their competitiveness. Consequently, prime brokers have an incentive to offer more favorable terms to hedge fund clients such as lower margin requirements which allows for higher leverage.

In addition, the competition between prime brokers for hedge fund business gives hedge funds more bargaining power. This enables hedge funds to negotiate with prime brokers deals that foster their own interest, but are perhaps contrary to the public interest because such deals make the (indirect) regulatory requirements looser. Larger hedge funds, which tend to be more systemically important, are more likely to negotiate and cut better and more advantageous deals with their prime brokers in terms of collateral, margin rates, and haircuts. Reducing margin rates or haircuts implies that the prime brokers will be more exposed to the hedge funds' counterparty risks.¹³¹ These increased risks disqualify them as delegated enforcers of market discipline. Furthermore, prime brokers that have substantial investments in hedge funds may not exert any market discipline on hedge funds. Because of their relevant exposures to hedge funds, prime brokers have an incentive to bailout the failing hedge funds in which they have a substantial investment for the fear that the failure of those hedge funds might put substantial stress on their own balance sheet.

In short, the short-term competitive pressures between prime brokers could endanger the effectiveness of indirect regulation.¹³² In addition, risk management practices are vulnerable to

¹²⁹ Estimates suggest that around 15% to 20% of total investment banking revenues is derived from business with hedge funds. See Dresdner Kleinwort, *Credit Suisse, Deutsche Bank, UBS – how Important are Hedge Funds for the Investment Banking Industry?*.

¹³⁰ Hedge fund industry tends to be highly concentrated. See King and Maier, *Hedge Funds and Financial Stability: Regulating Prime Brokers Will Mitigate Systemic Risks*, p. 287.

¹³¹ *Ibid.*

¹³² Nouy, *Indirect Supervision of Hedge Funds*, p. 95.

erosion by competitive pressures.¹³³ This weakens the market discipline on hedge funds. Therefore, it is argued that addressing the contribution of hedge funds to systemic risk can only be achieved through government regulation.¹³⁴ However, the necessity of action by governments does not necessarily imply direct regulation of hedge funds. As argued before, prime brokers' competition in regulating hedge funds not only diminishes the opportunities for regulatory capture among prime brokers, but also enhances the mechanisms of monitoring hedge funds. On the one hand, the previous discussion on regulatory capture, the theory of regulatory tournament, and the efficiency of regulatory competition has at least two implications for hedge fund regulation. It implies that delegating hedge fund regulation to the hedge funds' counterparties not only decreases the likelihood of regulatory capture,¹³⁵ but also increases the efficiency of regulation, because it provides surrogate regulators with incentives to compete with each other. On the other hand, since the indirect regulation of hedge funds will be implemented by several different prime brokers, it implies that hedge funds are disciplined in a decentralized fashion, via rules initially applied to banks.

4.3. Lack of transparency in prime finance industry

The lack of transparency in the prime brokerage business originates from the fact that the prime brokerage business is embedded within the universal banking system. In other words, the operating vehicle of a prime broker is often a vehicle within large and complex investment banks. Under the universal banking system, the bank, as one legal entity, offers a full range of banking and non-banking financial services.¹³⁶ The services offered by universal banks include financial intermediation, liquidity provision (market making), providing payment facilities, trading in financial instruments, conducting proprietary trading, acting as brokers, offering advisory services, investment management, and insurance services.¹³⁷ In other words, universal banks can engage in both commercial and investment banking activities. Commercial banking

¹³³ Mario Draghi, "Hedge Funds and Financial Stability," in *Financial Stability Review; Special Issue, Hedge Funds* (April 2007), p. 39.

¹³⁴ Engert, *Transnational Hedge Fund Regulation*, p. 332.

¹³⁵ According to Aristotle, "[A] crowd can also judge many things better than any single individual. Besides, a large quantity is more incorruptible, so the multitude, like a larger quantity of water, are more incorruptible than the few." Aristotle, *Politics*, p. 94.

¹³⁶ Shelagh Heffernan, *Modern Banking* (Chichester, West Sussex: John Wiley & Sons, Ltd, 2005), p. 19.

¹³⁷ *Ibid.*

basically involves taking deposits and making loans. Although the sources of funding and the methods through which commercial banks are making loans are diversified, such a function remains the core activity of commercial banks.¹³⁸ On the contrary, investment banking involves activities such as underwriting (assisting firms in raising capital), advisory services, mergers, acquisitions and loan restructuring, trading and brokerage services, and asset management services including both traditional and alternative asset management.¹³⁹

In the U.S., investment banking was separated from commercial banking by a wall erected by the Glass-Steagall Act in 1933. However, this wall was hardly impenetrable even before being torn down by the Gramm-Leach-Bliley Act in 1999, the era of deregulation of financial industry within which commercial banks expanded their activities into securities underwriting. Indeed, at the end of the 20th century, the investment banks could operate with the same powers as they did in the beginning of the century.¹⁴⁰ The fall of the Glass-Steagall wall started the period in which financial markets became dominated by universal banks.

Even if there are already many regulatory requirements with respect to information disclosure, complexity in the intermingling of the prime brokerage business with other universal banking functions makes it difficult for regulators to trace activities falling under the ambit of prime brokerage business. Furthermore, there is no independent assessment of the risks and transparency of the prime broker's legal entity itself separate from that of the bank in which it is embedded. Thus, there is a need for increased transparency requirements targeting the prime broker's legal entity itself.

¹³⁸ Giuliano Iannotta, *Investment Banking: A Guide to Underwriting and Advisory Services* (Heidelberg: Springer, 2010), pp. 1-2.

Commercial banking plays an important role in operating payment system, as well. Given such a narrow definition, commercial banks are sometimes referred to as 'narrow banks'.

¹³⁹ *Ibid.*

¹⁴⁰ Morrison and Wilhelm Jr., *Investment Banking: Institutions, Politics, and Law*, p. viii.

4.4. Collateral rehypothecation and its effects on the relationships between hedge funds and prime brokers

Rehypothecation occurs when an intermediary holding securities on behalf of investors grants a security interest or encumbers those securities to obtain financing for itself.¹⁴¹ In the context of the relationship between hedge funds and prime brokers, rehypothecation is the reuse of hedge funds' collateral by prime brokers in other transactions with other financial intermediaries completely unrelated to the original transaction.¹⁴² Though rehypothecation provides a source of inexpensive financing for financial institutions,¹⁴³ such a practice is believed to be dangerous for financial stability, particularly if one looks at how the global financial crisis manifested itself, namely as withdrawals of collateral from investment banks such as Lehman Brothers.¹⁴⁴ The practice of rehypothecation gives rise to a number of concerns, the most important of which is systemic risk.

The systemic risk concern originates from the uncertainty stemming from the fall in collateral prices and potential runs on the banks by the firms whose collaterals are being rehypothecated.¹⁴⁵ A run by hedge funds might occur because of the uncertainty in prime brokerage business when prime brokers have rehypothecated the collaterals. Not knowing where the collateral initially posted by hedge funds to prime brokers is, hedge funds fearing or experiencing distress might suddenly run to close their position with their prime brokers. This may cause serious distress to the prime brokers.

A second concern relates to the conflict of interests. This concern originates from the reuse of collateral in other transactions. The possibility of reuse of collateral gives additional incentives for prime brokers to attract more hedge funds by loosening the terms of the loans (e.g. requiring lower margins). This behavior tends to increase systemic risk.

¹⁴¹ Schwarcz, *Distorting Legal Principles*, pp. 699.

¹⁴² See Gorton, *Slapped by the Invisible Hand: The Panic of 2007*. See also Aitken and Singh, *Deleveraging after Lehman--Evidence from Reduced Rehypothecation* (EPub).

¹⁴³ Christian A. Johnson, "Derivatives and Rehypothecation Failure: It's 3:00 pm, do You Know Where Your Collateral is?" *Arizona Law Review* 30 (1997), p. 969.

¹⁴⁴ Schwarcz, *Distorting Legal Principles*, p. 700.

¹⁴⁵ Scott shows how hedge funds can face a prospect of becoming unsecured creditors under UK legal treatment of rehypothecated collaterals. See Scott, *Interconnectedness and Contagion*, pp. 76-79.

Partly because of these concerns, it is argued that given the symbiotic relationship between hedge funds and prime brokers, delegating regulatory functions to prime brokers would be a mistake.¹⁴⁶ The interests of prime brokers to attract more hedge funds and collateral to be used for their own investments in derivatives transactions may give rise to a conflict in their delegated regulatory tasks with their profit maximizing strategies. In other words, the possibility of rehypothecation creates incentives not to apply the due diligence standards expected from prime brokers in their business with their hedge fund clients. Such conflict of interests can potentially undermine the effectiveness of indirect regulation of hedge funds through prime brokers. Requiring prime brokers to limit and/or disclose the reuse of the collateral posted by hedge funds can help mitigate such concerns.

In addition, prior to the Dodd-Frank Act,¹⁴⁷ some prime brokers invested in hedge funds or sponsored hedge funds themselves, a practice that is, to a large extent, prohibited under current regulations.¹⁴⁸ Having a substantial investment in hedge funds, the prime brokers would not have sufficient incentives to take on the regulatory functions, especially if implementing such monitoring functions involves putting at risk their own proprietary trading and investment in hedge funds.

The above arguments cast some doubts about the effectiveness of indirect regulation of hedge funds through prime brokers. However, they cannot be viewed as supporting the direct regulation of hedge funds. If anything, the above arguments speak in favor of more direct regulation of prime brokers rather than of hedge funds.

4.5. Moral hazard spillovers arising from bank regulation

Moral hazard is a ubiquitous feature of financial regulation, specifically where such a regulation is aimed at coping with problems of financial stability.¹⁴⁹ The government's attempt to preserve financial stability often requires the provision of some sort of safety net for systemically important financial institutions. However, this safety net will give financial institutions the

¹⁴⁶ Danielson and Zigrand, *Regulating Hedge Funds*, pp. 33-35.

¹⁴⁷ See 15 U.S.C. § 80b

¹⁴⁸ See 12 U.S.C. § 1851

¹⁴⁹ William A. Allen and Geoffrey Wood, "Defining and Achieving Financial Stability," *Journal of Financial Stability* 2, no. 2 (2006), p. 161.

impression that the government will bear the consequences of their risk taking. This side effect of the safety net encourages opportunistic behavior by regulated entities.¹⁵⁰

As mentioned above, the implicit and explicit government guarantees offered to banks can create moral hazard. Such a problem in turn encourages excessive risk taking by giant banks that are too-big-to-fail. This problem may not be limited to the banks themselves. In turn, it can be transmitted to other less regulated parts of the financial system as those banks transact with hedge funds and private equity funds.¹⁵¹ For a long time, there were fears by Central Bankers that for example, banks that take risks in the derivatives markets essentially exploit their unique access to deposit insurance and discounted Fed funds.¹⁵² By the same token, a bank's investment in a hedge fund amounts to the same exploitation.

Moral hazard problems can also occur when hedge funds are subject to indirect regulation. For instance, this may happen when banks' and elite prime brokers' reliance on bailouts affect their counterparty credit risk management and induce them to take suboptimal amount of care in dealing with hedge funds.¹⁵³

In addition, some prime brokers have the role of hedge fund 'hotel', meaning that hedge funds are embedded in these institutions. Such institutional setting can result in compromised risk management incentives in the relationship between hedge funds and prime brokers. Moreover, this arrangement can cause reputational damage to the prime broker when a hedge fund operating within a certain prime brokerage firm fails. For example, in the time prior to the recent financial crisis, the collapse of two Bear Stearns' hedge funds in the spring of 2007 imposed substantial losses to the parent company which was a systemically important investment bank. In that case, the collapse of hedge funds did not impose a substantial credit risk for Bear Stearns. However, Bear Stearns bailed them out due to reputational concerns that the failure of such entities could raise concerns about the safety and soundness of the firm itself. Such a bailout highlighted the concerns about the indirect subsidization of hedge funds by taxpayers through the parent organization's access to the Federal Reserve discount window and implicit guarantee of a bailout

¹⁵⁰ Admati and Hellwig, *The Bankers' New Clothes: What's Wrong with Banking and What to Do about It*.

¹⁵¹ Acharya, Wachtel and Walter, *International Alignment of Financial Sector Regulation*, pp. 366-367.

¹⁵² Stout, *Betting the Bank: How Derivatives Trading under Conditions of Uncertainty Can Increase Risks and Erode Returns in Financial Markets*, p. 57.

¹⁵³ Kaal, *Hedge Fund Regulation via Basel III*, 389-463.

of a too-big-to-fail parent company. Such an opportunity for excessive risk taking means that hedge fund managers do not bear the entire costs and consequences of their risk taking.¹⁵⁴

Although, at first blush, this argument seems to be questioning the benefits of indirect regulation of hedge funds, in fact it is again an argument for regulating prime brokers rather than hedge funds themselves. To address such a problem, the Dodd-Frank Act limits the banking entities' investment in and sponsorship of hedge funds by the introduction of the Volcker Rule. Indeed, the Volcker Rule limits the banks' ability to invest the taxpayer-subsidized capital in hedge funds. Under this rule, it will be very unlikely for hedge funds to be again bailed out by those subsidized banks.¹⁵⁵

4.6. Costs of indirect regulation for the intermediated regulators

The common denominator in all above arguments against indirect regulation of hedge funds is the fact that there are certain factors that undermine the effectiveness of the indirect regulation of hedge funds through their prime brokers. However, given the costs and impediments associated with hedge fund direct regulation, it is more plausible to enhance and harness the market discipline already in place on hedge funds rather than to regulate them directly, because the latter strategy is highly prone to circumvention by hedge funds.

However, one of the neglected features in the proposals for indirect regulation of hedge funds is the additional cost that indirect regulation imposes on the entity playing the role of transmitting the effects of regulation. In the decision on how to allocate the costs of regulation, however, prime brokers can afford such costs better than hedge funds, because they are already regulated and have infrastructures such as compliance offices to deal with new regulatory requirements. In addition, economies of scale in compliance costs suggest that larger firms are better placed to absorb such costs. While the fact that hedge funds are relatively small in size eliminates the economies of scale in compliance costs. Moreover, hedge funds have a transient nature which makes substantial investments in compliance unthinkable. Therefore, the direct regulation of

¹⁵⁴ Lloyd, Clancy and Kumar, *Hedge Funds and Systemic Risk*, pp. 43, 65.

¹⁵⁵ *Ibid.*

hedge funds would impose a burden of compliance costs that may discourage the hedge fund business altogether.¹⁵⁶

5. The need for a comparative approach

In the first two chapters of the thesis hedge funds' potential systemic implications for the financial markets are analyzed. This chapter also provided a theoretical framework for hedge fund regulation. The rest of the thesis adopts a comparative approach and analyzes the post-crisis laws and regulations aimed at addressing the potential systemic implications of hedge funds in the two major jurisdictions within which most hedge funds are established or are operating.

This comparative legal approach to hedge fund regulation can serve several objectives. First, it will be helpful in understanding the legal definition of a hedge fund in different legal systems. Since different definitions of hedge funds are used in major hedge fund jurisdictions, the term 'hedge fund' for the financial entities should be used with caution. For example, the term 'hedge fund' can hardly be found in the U.S. codes of laws, instead, the term 'private fund' is used which encompasses different funds such as private equity and venture capital funds as well as hedge funds. On the other hand, in the EU, the term 'alternative investment fund' (AIF) is used which includes all non-UCITS, a subcategory of which can be the hedge fund industry. In addition, these two regulatory systems differ in many significant ways in how they treat such entities and how they differentiate hedge funds from the rest of the private fund industry or AIFs.

The comparative approach to hedge fund regulation will further help analyzing the divergences and convergences of regulations in the main hedge fund jurisdictions. Providing such an analysis can further help mitigate the potential adverse effects of regulatory arbitrage by hedge funds, a phenomenon that can render regulatory reforms having a stringent view on hedge funds ineffective.

¹⁵⁶ The Dodd-Frank Act addresses this problem by introducing a laddered approach in hedge fund regulation. Small hedge funds are not even required to register with the SEC, mid-sized hedge funds are required to register, however, they should disclose limited amount of information and should do so less frequently. In contrast, hedge funds designated as Systemically Important Nonbank Financial Companies (SINBFCs) by the Financial Stability Oversight Council (FSOC) not only should register and disclose information, but also they will be subject to the prudential regulation of the Fed.

The U.S. and the EU are chosen for comparative purposes because of their significance in terms of their size and the number of hedge funds accommodated in these two jurisdictions. As mentioned earlier, the hedge fund industry is geographically concentrated. For example, in 2008, about 75% of all hedge fund assets were managed by U.S. funds, while around 15% of assets were managed by European hedge funds.¹⁵⁷ These data show the significance of the size of the U.S. hedge fund industry. Therefore, almost any regulatory change in the U.S. is expected to have a dramatic impact on the industry. The second largest jurisdiction for hedge funds is the EU which makes it a good candidate for the purposes of comparison. Although the size of the hedge fund industry in the EU is relatively small, it still is one of the popular jurisdictions for hedge funds particularly because of the sources of investments coming from institutional investors from Europe.

The U.S. legal system is the cradle of the hedge fund industry in which hedge funds were born and fledged. It has also the longest history of exposure to the risks posed by the hedge fund industry either to investors or to the financial system at large. Therefore, it is expected that the U.S. regulatory regime is equipped with the most sophisticated regulatory and legal mechanisms for addressing the potential risks of the industry. Indeed, as it will be demonstrated, not only is the U.S. jurisdiction the most popular jurisdiction for hedge funds worldwide, but also it provides a role model for hedge fund regulatory systems all around the globe.

Furthermore, one of the most important reasons that the EU and the U.S. are compared in this dissertation is that these two jurisdictions have taken relatively divergent views towards the regulation of hedge funds. The EU regulation of hedge funds relies mostly on direct regulatory measures. On the contrary, the U.S. hedge fund regulation mainly employs indirect regulatory measures to address the potential risks of the hedge fund industry. Therefore, the hedge fund regulatory system in Europe provides a counterfactual to the hedge fund regulatory system in the U.S. in many aspects.¹⁵⁸

Another reason for choosing two main jurisdictions of the U.S. and the EU for a comparative study of hedge fund regulation is that they represent two main hedge fund regulatory

¹⁵⁷ Stowell, *An Introduction to Investment Banks, Hedge Funds and Private Equity: The New Paradigm*.

¹⁵⁸ A detailed analysis of the differences of hedge fund regulation in these two jurisdictions can also be useful for the design of future empirical studies aimed at regulatory impact assessment (RIA).

philosophies, i.e., market-based approach adopted by the U.S. federal regulators and direct government regulation approach adopted by the EU regulatory authorities.¹⁵⁹ Market based approach to hedge fund regulation mainly relies on the market participants such as counterparties to check the risk taking behavior of hedge funds. Needless to say, such an approach corresponds to the indirect regulatory approach to hedge funds.¹⁶⁰

Since the study of the hedge fund regulatory regime is essential for the understanding of hedge funds, an overview of hedge fund regulation before the Dodd-Frank Act will be provided. However, such an investigation seems to be unnecessary about hedge fund regulation in Europe before the enactment of the Alternative Investment Fund Managers Directive (AIFMD). Prior to the AIFMD in the EU, there was no EU-wide hedge fund regulatory regime and hedge funds were regulated by national regulatory authorities. This brought about a fragmented regulatory regime across Europe. This diversity in regulatory approaches makes the detailed study of hedge fund regulation prior to the AIFMD beyond the scope of this thesis.

After the brief survey of previous regulatory regime for hedge funds in the U.S., the rest of the thesis will embark upon an analytical assessment of the recent regulatory reforms in the U.S. and the EU to analyze the question whether the introduction of these regulations would be effective in addressing potential systemic risk arising from the hedge fund industry. The analysis of the post-crisis U.S. regulatory framework will mainly focus on the Title I, IV, and VI of the Dodd-Frank Act. And the analysis of the EU regulatory framework will be based on the recently enacted AIFMD and its subsequent implementing measures.

¹⁵⁹ Bianchi and Drew, *Hedge Fund Regulation and Systemic Risk*, pp. 15-16.

Prior to the global financial crisis, there were, roughly speaking, two predominant approaches to hedge fund regulation. The first approach was based on the trust in the market forces to regulate hedge funds (Also known as the Market-making approach). The second approach was mostly based on mistrust in the market forces and mainly relied on the government to take the lead in the hedge fund regulation (market-shaping approach). The former is the Anglo-American approach to hedge fund regulation, and the latter is the continental European approach. Although the impact of government distortions in the market economy and its contribution to the financial collapse of the 2008 was not negligible, the free market approach propagating the market discipline receded in the aftermath of the global financial crisis. Consequently, regulators on both sides of the Atlantic proceeded to push for more government intervention and more restraints on the hedge fund industry.

¹⁶⁰ It should be reminded that, inter alia, the distinction between hedge fund regulation in the EU and the U.S. based on direct and indirect regulation could not be constructed without certain degree of generalization.

Conclusion

In this chapter it is argued that the choice between direct and indirect regulation of hedge funds should be based on the relative effectiveness of the direct and indirect regulation in addressing hedge funds' contribution to systemic risk at the lowest cost. The proxies for measuring the effectiveness of indirect regulation in mitigating potential systemic risk of hedge funds such as reduced leverage, improved transparency, counterparty risk management, and funding liquidity suggest that indirect regulation could have a significant impact. In fact, the effectiveness of indirect regulation is potentially so high that this regulatory approach could be just sufficient to cope with the systemic risk generated by hedge funds. On the contrary, direct regulation is unlikely to address hedge funds' contribution to systemic risk without compromising their benefits to financial markets. In addition, the greatest obstacle to the success of direct regulation of hedge funds remains to be the regulatory arbitrage by hedge funds.

There are, however, arguments against the indirect regulation of hedge funds, which are reviewed in this chapter. These arguments suggest that even if the indirect regulation of hedge funds were effective, it would be far from sufficient to cope with systemic risk. Most critiques of the indirect regulation are based on the potential shortcomings of indirect regulation. However, this dissertation argues that the mere presence of problems with indirect regulation does not necessarily imply that direct regulation is the right choice. Indeed, the counterarguments for the effectiveness of hedge fund indirect regulation imply that there is a need for direct regulation of hedge funds' counterparties (not hedge funds themselves) in order to enhance the market discipline. Needless to say, such direct regulation of counterparties, particularly including prime brokers, is the essence of the model of indirect regulation being advocated by this chapter.

This chapter argues for the indirect regulation of hedge funds. In this model of regulation, in addition to the government regulatory agencies, 'surrogate regulators' such as investors, counterparties and creditors, rating agencies, and hedge fund professional associations can play a role and reinforce the market discipline on hedge funds. In this perspective, the chapter argues that there is a need for a comparative study of hedge fund regulation in the U.S. and the EU to which the dichotomy of direct and indirect regulation illustrated in this chapter can best apply.

CHAPTER 4: HEDGE FUND REGULATION IN THE U.S. (I): THE DIRECT REGULATION APPROACH

Introduction

The recent global financial crisis harbingered substantial changes in the regulatory environment of financial markets and institutions throughout the world. One of the first and foremost sweeping changes was the enactment of the “Dodd-Frank Wall Street Reform and Consumer Protection Act” (hereinafter the Dodd-Frank Act) passed on July 21, 2010. Unless otherwise provided in the Act, it became effective one year after the date of its enactment. The enactment of this Act triggered massive regulatory reforms and resulted in a major overhaul of the regulatory environment of the U.S. financial markets. The reforms introduced by this Act are only comparable, in the extent and depth, to the financial regulatory overhaul after the Great Depression.¹

The main objectives of the Dodd-Frank Act is to promote “the financial stability of the United States by improving accountability and transparency in the financial system, to end ‘too big to fail,’ to protect the American taxpayer by ending bailouts, [and] to protect consumers from abusive financial services practices.”² In general, with respect to systemic risk, its objective is to limit the risks *ex-ante*, and minimize damage in case of failure of giant financial institutions by regulating instruments such as derivatives and institutions which are perceived to be Systemically Important Financial Institutions (SIFIs).³

To promote the financial stability and address the systemic risk, the Dodd-Frank Act introduces far reaching provisions focused on the macro-prudential regulation.⁴ For example, it requires

¹ The Dodd-Frank Act amounts to 845 pages, 16 titles, 225 new rules involving 11 agencies. See Acharya and Richardson, *Implications of the Dodd-Frank Act*, p. 2.

It is estimated that the Act will result in approximately 400 rules and 87 studies before its full implementation. See Davis Polk, *Dodd-Frank Rulemaking Progress Report: Progress as of June 1, 2011*, (2011).

So far, a majority of regulations have been proposed and passed. See Davis Polk Regulatory Tracker, *Dodd-Frank Progress Report: October 2013*, (2013).

² Negative reactions to the Dodd-Frank Act abound. Indeed, because it may boost their business, the Dodd-Frank Act is called “the Accountants’ and Lawyers’ Welfare Act of 2010.” See Michael Hirsh, “Bonfire of the Loopholes,” *Newsweek*, May 20, 2010.

³ David Skeel, “Making Sense of the New Financial Deal,” *Liberty University Law Review* 5 (2011), p. 186.

⁴ Micro-prudential regulation is about the study of the exposure of an individual financial institution to exogenous risks and it does not take into account the systemic importance of individual financial institutions. In other words,

regulators to measure and provide tools for measuring systemic risk, designate firms or sectors as systemically important, and subject them to enhanced prudential regulation.⁵ The most important of these changes involve identifying and regulating systemic risk by assigning the responsibility of designating the firms as Systemically Important Nonbank Financial Companies (SINBFCs) to the Financial Stability Oversight Council (FSOC), establishing the Office of Financial Research (OFR) within the Department of the Treasury for measuring and providing tools for the measurement of systemic risk aiming at putting an end to the too-big-to-fail problem, and expanding the authority of the Federal Reserve (Fed) over systemic institutions. The Dodd-Frank Act further authorizes prompt corrective action through the Orderly Liquidation Authority (OLA) which should be modeled and run by the Federal Deposit Insurance Corporation (FDIC).⁶ Moreover, the Act restricts the discretionary regulatory intervention through limiting the emergency federal assistance, introduces the Volcker Rule, regulates derivatives markets, and establishes the Consumer Financial Protection Bureau (CFPB). The Dodd-Frank Act also regulates mortgage lending practices, hedge funds (by requiring registration and disclosure), rating agencies, securitization, and risk taking by money market funds.⁷

Nonetheless, the scope of this chapter will be limited to the analysis of the provisions of the Dodd-Frank Act addressing potential ‘systemic’ risk of hedge funds and investigating whether the Act adequately addresses this concern. Therefore, issues such as investor protection and hedge fund compliance with new regulations addressing those concerns will not be covered. In addition to the provisions directly involving hedge funds, many of the above-mentioned provisions indirectly affect them. However, this chapter only discusses the direct regulation of hedge funds. The indirect regulation of hedge funds including the Volcker Rule will be examined in the fifth chapter.

micro-prudential regulation is about the stability of each individual institution and its objective is to force the individual financial institutions behave prudently. See Brunnermeier et al., *The Fundamental Principles of Financial Regulation: Geneva Report on the World Economy*, pp. 7-8.

Macro-prudential regulation, however, is concerned with the safeguarding the stability of the financial system as a whole. It requires a system-wide analysis and involves identifying the principal risk factors in a macro level financial system. Micro-prudential risks can be very different from macro-prudential concerns and when one is falling, the other might be rising. See Dijkman, *A Framework for Assessing Systemic Risk*.

See also Brunnermeier et al., *The Fundamental Principles of Financial Regulation: Geneva Report on the World Economy*, p. 10.

⁵ Acharya and Richardson, *Implications of the Dodd-Frank Act*, p. 21.

⁶ *Ibid.*

⁷ *Ibid.*

The first part of this chapter will discuss the hedge fund regulatory regime prior to the enactment of the Dodd-Frank Act in the U.S. Such a brief overview serves two main objectives. First, the alleged contribution of hedge funds to financial instability has been materialized in the regulatory framework prior to the enactment of the Dodd-Frank Act. These allegations have subsequently been used as justification for the need to change regulatory framework of the hedge fund industry. Indeed, without an understanding of that regulatory framework within which those alleged risks existed, the new regulatory framework and specific regulatory measures devised to address the potential risks of hedge funds to the financial system can hardly be understood.⁸

Second, such a brief retrospect to the previous regulatory framework will also be useful in understanding the potential loopholes of the financial regulatory framework prior to the Dodd-Frank Act. The knowledge of those loopholes could vastly be employed in addressing the problems stemming from the similar future loopholes in the Dodd-Frank Act itself. Furthermore, due consideration of the potential future effects of regulation can only be taken into account in comparison to the previous regulatory framework of hedge funds. Indeed, in the absence of such an introduction, the study of many aspects of newly introduced regulations would be out of the context. Thus, cognizance of the legal environment within which hedge funds were defined and operated will be helpful in understanding the potential impact of the recently introduced regulations. Therefore, before taking further steps in studying hedge funds and their regulation with an eye to addressing systemic risk, the hedge fund industry's legal environment prior to the introduction of recent regulatory frameworks in the U.S. will briefly be discussed which will further be helpful in better understanding of what needed to be changed and what needed not.

⁸ One of the purposes of studying hedge fund regulation before the enactment of the Dodd-Frank is to provide a cognizance of the amorphous nature of hedge funds and come to a more precise definition. Since the U.S. is the cradle of the hedge fund industry, understanding hedge funds cannot be comprehensive without spotting hedge funds in the hodgepodge of the financial regulation in its regulatory framework. Indeed, the assessment of the contribution of hedge funds to systemic risk cannot be conducted unless hedge funds are objectively defined within a specific financial regulatory system. Therefore, the illustration of regulatory definition of hedge funds can contribute to understanding of the question why there was a need for amendment and change of the regulations already in place and why regulations were inadequately addressing potential systemic risk of hedge funds.

1. Hedge fund regulation prior to the Dodd-Frank Act

At least four different approaches to the structure of financial regulation exist worldwide. These include the institutional, functional, integrated, and twin peaks approaches to financial regulation.⁹ The U.S. structure of financial regulation and supervision does not fit into any of the above categories. It is, however, a mix of functional and institutional approaches.¹⁰ In addition to the regulation of financial instruments and institutions at the federal level in the U.S., there is another regulatory layer at the state level which adds to the complexity of the U.S. financial regulatory regime.

In the federal level, the U.S. financial regulatory framework and regulatory functions are divided among the following regulatory agencies.

1. Public issuance and the trade of securities are regulated by the Securities and Exchange Commission (SEC).
2. Futures and commodities are regulated by the Commodity Futures Trading Commission (CFTC).
3. Banks are regulated by the Federal Reserve (Fed), the Office of the Comptroller of the Currency (OCC), and the Office of Thrift Supervision (OTS).¹¹
4. Insurance industry is mostly regulated by state regulators.

Within the above regulatory framework, hedge funds' primary regulator is the SEC. However, if their transactions involve commodities and futures, they may fall under the regulatory purview of the CFTC. With the introduction of the Dodd-Frank Act, if hedge funds are designated as a Systemically Important Nonbank Financial Company (SINBFC), they may be regulated by the Fed.¹²

⁹ The Group of Thirty, Working Group on Financial Supervision, *The Structure of Financial Supervision: Approaches and Challenges in a Global Marketplace* (Washington, DC, 2008), pp. 12-14.

¹⁰ *Ibid.* A move from institutional and functional regime towards a modified Twin Peaks Approach is recommended for the U.S. regulatory regime. See The Department of the Treasury, *Blueprint for a Modernized Financial Regulatory Structure*, March 2008).

¹¹ The OTS is dismantled by the Dodd-Frank Act. Other institutions such as the FDIC can occasionally engage in the regulation of the banking industry as well.

¹² See Brent J. Horton, "When does a Non-Bank Financial Company Pose a "Systemic Risk"? A Proposal for Clarifying Dodd-Frank," *Journal of Corporation Law* 37, no. 4 (Summer 2012, 2012), 815-848.

Before the enactment of the Dodd-Frank Act, hedge funds were considered ‘unregulated’ financial entities. Such description of hedge funds is more misleading than illuminating. A more realistic description may state that prior to the Dodd-Frank Act, the U.S. financial regulation ‘designed out’ some entities from the purview of the SEC’s regulatory oversight. In other words, prior to the 2010 U.S. financial regulatory overhaul, hedge funds were -by design- exempt from most of the regulations which were normally applicable to investment companies.¹³

Hedge fund regulation also follows the pattern of the U.S. financial regulation. Namely, it is a mix of institutional and functional regulatory approaches. The implication of this combination is that, not only might hedge funds be regulated because of being hedge fund as a legal entity, but also they might be subject to regulation due to their engagement in certain financial activities or trade in certain financial instruments. In other words, hedge fund regulation is not entirely based on the institutional regulation; instead, there are some instances that hedge funds fall within the functional approach of regulation of the CFTC.

As mentioned in the first chapter, in the U.S. legal framework, hedge funds are negatively defined. In other words, the regulation defined certain institutions and activities and then regulated them. Besides, it exempted certain activities and institutions. Prior to the Dodd-Frank Act, similar to many of its counterparts, the American regulatory framework offered no definition for hedge funds. Disappointed of finding a proper definition of hedge funds, Judge Randolph determined to negatively define them. In his words, “[H]edge funds may be defined more precisely by reference to what they are not” rather than by what they are.¹⁴ To find out, what hedge funds are not, an overview of hedge fund regulatory framework prior to the Dodd-Frank Act is in order.

To make such an investigation, the proper method of research is not to focus on the entity itself which is to be defined, but the focus should be on other relatively known and defined financial institutions. By studying other financial institutions which are not hedge funds, and by using an elimination method, one could understand the entity to be defined. Due to the fact that such a definition of hedge funds is embedded in the complex web of financial regulations in the U.S.,

¹³ Nevertheless, they were not totally exempt from those regulations. As this chapter will show, there was a whole host of other regulations which could apply.

¹⁴ *Goldstein v. SEC*, 451 F.3d 873, 884 (D.C. Cir. 2006). See also De Brouwer, *Hedge Funds in Emerging Markets*, p. 10.

doing so requires going through a maze of financial regulations. In other words, such a negative definition of hedge funds imply that in order to define and understand the hedge fund industry and their implications to the financial system, the regulations designing and exempting hedge funds should be studied.

In this section, four main acts which relates to hedge funds are studied. These legislations include: the Investment Company Act of 1940, the Investment Advisers Act of 1940, the Securities Act of 1933, and the Securities Exchange Act of 1934. In addition, hedge fund regulatory and compliance regimes were and are affected by other pieces of legislation which will briefly be mentioned.

1.1. The Investment Company Act of 1940

The Investment Company Act of 1940 regulates publicly-owned companies that invest in securities (i.e., investment companies) in contrast to industrial companies that normally engage in manufacturing goods and providing services. This Act mostly regulates mutual funds, their managers, directors and their advisers, and governs their responsibilities and relationships. Similar to other regulations in financial markets, this Act starts with requiring registration with the SEC. It imposes certain requirements on the funds' capital structure and their transaction with the insiders. It further imposes certain restrictions on various types of transactions of the registered investment companies. Registered companies are also subject to certain disclosure and reporting requirements. They are banned from trading on margin and short selling, and they should seek shareholders' approval for taking certain amount of leverage or engaging in investment in commodities.

Normally, since hedge funds are investment companies as defined by the Investment Company Act,¹⁵ they fall under the ambit of the regulations of this Act. Nevertheless, this Act sets out two

¹⁵ According to the Investment Company Act an 'investment company' means "any issuer which-- (A) is or holds itself out as being engaged primarily, or proposes to engage primarily, in the business of investing, reinvesting, or trading in securities; (B) is engaged or proposes to engage in the business of issuing face-amount certificates of the installment type, or has been engaged in such business and has any such certificate outstanding; or (C) is engaged or proposes to engage in the business of investing, reinvesting, owning, holding, or trading in securities, and owns or proposes to acquire investment securities having a value exceeding 40 per centum of the value of such issuer's total assets (exclusive of Government securities and cash items) on an unconsolidated basis." See 15 U.S.C. § 80a-3(a)(1)

exemptions. One is the section 3(c)(1) of the Investment Company Act allowing for investment by one hundred persons and the second is the section 3(c)(7) of the National Securities Markets Improvement Act (NSMIA) allowing for the investment of unlimited number of qualified purchasers. Provided that an investment company complies with the requirements of one of the two exemptions, they could avoid registration with the SEC.

First, section 3(c)(1)¹⁶ provided that “any issuer whose outstanding securities (other than short-term paper) are beneficially owned by not more than one hundred persons and which is not making and does not presently propose to make a public offering of its securities” is not deemed to be an ‘investment company’.¹⁷ In other words, a fund or an issuer having fewer than one hundred investors which raises capital through private placement is not considered an investment company for the purposes of the Investment Company Act, and accordingly is exempt from the registration requirement.

In its 1996 no-action letter,¹⁸ the SEC concurs that “each Fund may be considered a single beneficial owner of a 3(c)(1) Entity, provided that:

1. no Fund will invest in any 3(c)(1) Entity to the extent that the attribution provisions of Section 3(c)(1)(A) are triggered; and
2. no Fund or 3(c)(1) Entity will be structured or operated for the purpose of circumventing the provisions of the Act.”¹⁹

Therefore, according to the above provisions and the SEC’s no-action letter, beneficial ownership by a ‘company’ was considered as beneficial ownership of one person and therefore, section 3(c)(1) issuers could have fewer than one hundred funds as their investors, provided that

¹⁶ 15 U.S.C. § 80a-3(c)(1)

¹⁷ 15 U.S.C. § 80a-3(c)(1)(A) sets a 10 per centum threshold in the definition of the beneficial ownership “Beneficial ownership by a company shall be deemed to be beneficial ownership by one person, except that, if the company owns 10 per centum or more of the outstanding voting securities of the issuer”.

¹⁸ “A no-action letter consists of a letter requesting that the SEC’s staff take a position that if the conditions as detailed in the letter are met, the staff will then recommend that no enforcement action be taken against the parties in the described transaction. The SEC’s staff, in granting a no-action letter, will then write a responding letter detailing the staff’s position on whether the facts specified in the original letter would warrant an enforcement action. No-action letters represent the opinion only of the SEC staff and not necessarily the view of the SEC’s commissioners.” See Stephen J. Choi and A. C. Pritchard, *Securities Regulation: Cases and Analysis*, 2nd ed. (New York: Thompson/Foundation Press, 2008), p. 41.

¹⁹ United States Securities and Exchange Commission, Cornish and Carey Commercial, Inc., SEC No-Action Letter, June 21, 1996.

the ownership of the shares by any one of those companies or persons does not exceed 10 percent of the outstanding voting securities of the issuer.

In its 1994 no-action letter,²⁰ the SEC announced that if the employee participants of a defined-contribution plan involve in investment decision making, that plan cannot be counted as a single investor. Therefore, if participants in such a contribution plan have an active role in the management of the plan; each participant will be counted towards the 100 investor limit.

Secondly, on October 11, 1996, the National Securities Markets Improvement Act (NSMIA) was signed into law. The act amended, inter alia, the Investment Company Act and the Investment Advisers Act of 1940. The significance of this act was that its amendments were of special relevance to hedge funds and their ability to raise funds from unlimited number of qualified purchasers. Section 3(c)(7)²¹ of the NSMIA states that hedge funds can offer their securities to an unlimited number of ‘qualified purchasers’.²² In other words, this Act creates new categories of hedge funds to be sold to an unlimited number of ‘qualified purchasers’. Nonetheless, section 12(g) of the Securities Exchange Act of 1934,²³ sets limits on the number of hedge funds’ qualified investors. It posits that if a fund has 500 or more investors, whether qualified or not, the registration and reporting requirements of the Securities Exchange Act will apply. Therefore, to be exempt from the regulations of the Securities Exchange Act, hedge funds should have limited the number of their investors to 499.²⁴

²⁰ United States Securities and Exchange Commission, PanAgora Group Trust, SEC No-Action Letter, April 29, 1994.

²¹ See 15 U.S.C. § 80a-3(c)(7)

²² A ““Qualified purchaser” means-- (i) any natural person (including any person who holds a joint, community property, or other similar shared ownership interest in an issuer that is excepted under section 80a-3(c)(7) of this title with that person’s qualified purchaser spouse) who owns not less than \$5,000,000 in investments, as defined by the Commission; (ii) any company that owns not less than \$5,000,000 in investments and that is owned directly or indirectly by or for 2 or more natural persons who are related as siblings or spouse (including former spouses), or direct lineal descendants by birth or adoption, spouses of such persons, the estates of such persons, or foundations, charitable organizations, or trusts established by or for the benefit of such persons; (iii) any trust that is not covered by clause (ii) and that was not formed for the specific purpose of acquiring the securities offered, as to which the trustee or other person authorized to make decisions with respect to the trust, and each settlor or other person who has contributed assets to the trust, is a person described in clause (i), (ii), or (iv); or (iv) any person, acting for its own account or the accounts of other qualified purchasers, who in the aggregate owns and invests on a discretionary basis, not less than \$25,000,000 in investments.” See 15 U.S.C. § 80a-2(a)(51)(A)

²³ 15 U.S.C. § 78(1)(g)

²⁴ In addition, the NSMIA also simplified the ‘look-through’ provisions in counting beneficial owners. It allows the advisers of private funds to charge performance fees without limit. It also preempts the ‘blue sky’ laws with regard to the registration of the federally registered hedge funds. See Lhabitant, *Handbook of Hedge Funds*, pp. 55-56.

Pursuant to the NSMIA, two types of hedge funds emerged, ‘Section 3(c)(1) funds’ and ‘Section 3(c)(7) funds’. Basically, subject to certain requirements, the Act allows the funds that relied on the definitional exception of the Investment Company Act section 3(c)(1) (‘Section 3(c)(1) funds’) (privately offered investment companies with 100 or fewer beneficial owners) to convert into the new ‘Section 3(c)(7) funds’ (privately offered and the fund’s outstanding securities are owned solely by qualified purchasers). As far as hedge funds fall under the purview of one of the two exemptions, the fund will not be an investment company for the purposes of the Investment Company Act and the strict provisions of this Act would no longer apply.

1.2. The Investment Advisers Act of 1940

According to the Investment Advisers Act,²⁵ an ‘investment adviser’ means “any person who, for compensation, engages in the business of advising others, either directly or through publications or writings, as to the value of securities or as to the advisability of investing in, purchasing, or selling securities, or who, for compensation and as part of a regular business, issues or promulgates analyses or reports concerning securities”.²⁶ The investment advisers falling under this definition should register with the SEC and report through the Form ADV. Once under its regulatory purview, the Act imposes certain restrictions on the structure of fee arrangement and certain requirements with regard to maintaining books and records.

With this definition, hedge fund advisers would clearly fall under the purview of this Act and they should have registered with the SEC and complied with its regulations. Nevertheless, hedge funds could avoid this provision by appealing to the section 203(b) of the Investment Advisers Act’s *de minimis* exception. Section 203(b)(3)²⁷ of the Investment Advisers Act states that an investment adviser having fewer than 15 clients during the course of preceding 12 months, “who neither holds himself out generally to the public as an investment adviser nor acts as an investment adviser to any investment company” needs not be registered.²⁸ On the other hand, under the ‘safe harbor’ provisions of the Investment Advisers Act, a legal entity such as a hedge fund was to be counted as a single client. Therefore, if a hedge fund adviser advised fewer than

²⁵ 15 U.S.C. § 80b-1(21)

²⁶ 15 U.S.C. § 80b-2(a)(11)

²⁷ 15 U.S.C. § 80b-3(b)(3)

²⁸ See 15 U.S.C. § 80b-3(b)(3)

fifteen individual funds during the course of last twelve months, she would have been exempt from registration. Accordingly, according to this *de minimis* exception and the SEC's interpretation of the word 'client,' which included legal entities such as hedge funds, each hedge fund adviser could have 14 funds as her client. It is worth reminding that each of those hedge fund clients in turn could have up to 499 individual investors.²⁹

In 2004, the SEC concerned with hedge fund secrecy and fraudulent practices, in an attempt to rein in hedge fund advisers and with an eye to protecting unsophisticated investors which indirectly invested in hedge funds through pension funds and other financial institutions, issued a rule (known as 'the Hedge Fund Rule').³⁰ Basically, in this rule making, the SEC argued that the term 'client' includes 'investors' and in the assessment of the number of clients, all investors including individual investors should be calculated. Therefore, the SEC required hedge fund investment advisers with more than 15 clients (regardless of being individual or legal entities) to register with the SEC under the Investment Company Act. Nevertheless, in 2006, the U.S. Court of Appeals for the District of Columbia in *Goldstein v. SEC*³¹ found the rule arbitrary and accordingly vacated it. At the end, the Dodd-Frank Act eliminated the '15 clients' exemption.³²

1.3. The Securities Act of 1933

Financial services and products and especially securities are deemed to be credence goods whose information problem is the direst of all types of information sensitive goods and services. Historically, this information sensitivity and the existence of huge information asymmetry between issuers and investors frequently caused market failures in securities markets and hence frequent disruptions in market liquidity. In response to market disruptions and with a view to

²⁹ Thus hedge fund clients can potentially amount to 6,986 individuals. See Kaal, *Hedge Fund Regulation via Basel III*, p. 414.

³⁰ United States Securities and Exchange Commission, *Registration under the Advisers Act of Certain Hedge Fund Advisers*.

³¹ *Goldstein v. SEC*, 451 F.3d 873, 884 (D.C. Cir. 2006). The court basically argued that the regulatory obligations of the advisers are owed to the funds rather than to the clients of the funds. Such a decision is criticized on the grounds that the primary focus of regulation should be on the intermediated investors- those who put their investment in the fund- rather than on the funds themselves. Such an approach proposes that the advisers to private funds should owe their regulatory obligations to both the funds and the investors in the funds. See Anita K. Krug, "Institutionalization, Investment Adviser Regulation, and the Hedge Fund Problem," *Hastings Law Journal* 63 (2011), p. 1.

³² This decision of the court is practically repealed by the Dodd-Frank Act.

minimizing asymmetric information between issuers and investors in publicly traded companies in the primary market transactions, the Securities Act of 1933 was enacted which imposes registration and disclosure requirements on the issuers of such securities. The main objective of the Act is to ensure the informed investment decision by investors by requiring the issuer to disclose all relevant information concerning the value of securities to be issued, and thereby prevent fraud in the primary markets.

Based on that objective, this Act offers three approaches to regulation of the primary market transactions. The first is filing mandatory disclosure documents containing information deemed important to investors with the SEC (registration statement and prospectus) for the issuers making a public offering. The second approach aims at protecting investors by ‘gun-jumping’ rules the aim of which is to ensure that the prospectus is distributed widely and is reached to investors before any other information. In addition, this Act also imposes a heightened antifraud liability for material misstatements and omissions in the public offering.

Since interests in a hedge fund are deemed to be ‘securities’, according to the Securities Act of 1933³³ and the judicial interpretation of the definition and the meaning of a security (the Howey test),³⁴ no public solicitation of these securities allowed unless the issuer is registered with the SEC and complies with the reporting and other requirement of the 1933 Act. Hedge funds, like any other investment funds, might fall within the grasp of the Securities Act if they offer investment opportunities to investors in an initial offering, unless they qualify for one of the exemptions set out in the Act.

This Act furnishes a private offering exemption in section 4(2).³⁵ If an issuer met the requirements of the private offering, it needed not to comply with the requirements of the Act with regard to information disclosure. Alternatively, an issuer could rely on the safe harbor provided by the Regulation D’s rule 506.³⁶ This rule allowed securities to be privately offered “to

³³ 15 U.S.C. § 77b(a)(1)

³⁴ SEC v. W. J. Howey Co., 328 U.S. 293, 301 (1946).

³⁵ 15 U.S.C. § 77d(2)

³⁶ Regulation D, 17 C.F.R. 230.506

a maximum of 35 sophisticated purchasers and an unlimited number of ‘accredited investors’ as defined by the rule 501(a) of the 1933 Act.”³⁷

1.4. The Securities Exchange Act of 1934

The Securities Exchange Act of 1934 regulates secondary market transactions and all institutions participating in those transactions such as market professionals and institutions. The Act aims at enhancing the efficiency of trading through the national securities markets. This Act also protects investors primarily through disclosure requirement. It requires, inter alia, brokers, national securities exchanges, and municipal securities dealers to register with the SEC and comply with its extensive regulations. It further requires continuous disclosure through periodic reporting requirements, i.e., quarterly and annual reporting by publicly traded companies, commonly known as ‘Exchange Act reporting issuers’. This Act only regulates post-distribution or secondary market trading like tender offers, insider trading, and proxy solicitations. Registered funds under this Act are subject to:

1. Periodic disclosure requirements under §13³⁸ and §13(d), §13(g), and §13(f);
2. Proxy rules under §14;³⁹
3. Insider reporting requirements;
4. Short-swing profits transaction rules under §16.⁴⁰

In addition to the above requirements, this Act imposes the most important and inclusive anti-fraud liability under §10(b) which was followed by the well-known SEC’s rule 10b-5. The Securities Exchange Act also contains anti-manipulation provisions and rules regulating the proxy solicitation and certain relevant disclosures.

As for hedge funds, it is relevant to note that this Act generally applied to brokers and dealers and since most hedge funds were considered as traders rather than dealers,⁴¹ this Act’s

³⁷ 17 C.F.R. 230.501

³⁸ 15 U.S.C. § 78m

³⁹ 15 U.S.C. § 78n

⁴⁰ 15 U.S.C. § 78p

registration requirement in section 15b did not apply to hedge funds. However, if hedge funds take on dealer functions,⁴² they should have been registered under this Act.⁴³ Since most hedge funds do not issue securities to be listed on the securities exchanges, they do not fall under the scope of the Securities Exchange Act and its definition of ‘dealer in securities’.

In addition, section 12(g) of the Securities Exchange Act required an issuer having 500 total investors and assets in excess of one million dollars to register with the SEC. However, hedge funds limited the number of their total investors to 499, and thereby avoided such registration and reporting requirements. Nevertheless, antifraud provisions of the Securities Exchange Act (§10b)⁴⁴ and SEC’s Rule 10b-5 applies to all investment companies regardless of being registered or not.

1.5. Other Regulations

In addition to the above-mentioned overarching regulations which formed the hedge fund regulatory framework in the U.S., hedge funds are affected by various other Acts and regulations. Aside from the four main statutes mentioned earlier, the following is a very brief overview of regulations that hedge funds were and are subject to.

⁴¹ United States Securities and Exchange Commission, *Implications of the Growth of Hedge Funds: Staff Report to the United States Securities and Exchange Commission*, p. 14.

Title 15 U.S.C. § 78c(a)(5)(A) defines a dealer as “any person engaged in the business of buying and selling securities (not including security-based swaps, other than security-based swaps with or for persons that are not eligible contract participants) for such person’s own account through a broker or otherwise.”

⁴² Mehrling argues that although LTCM was legally a hedge fund, it effectively engaged in dealer functions. See Mehrling, *Minsky and Modern Finance: The Case of Long Term Capital Management*, 81-88.

⁴³ Also some hedge funds opted to register as dealers under the Exchange Act. See United States Securities and Exchange Commission, *Implications of the Growth of Hedge Funds: Staff Report to the United States Securities and Exchange Commission*.

⁴⁴ 15 U.S.C. § 78j(b)

1.5.1. The Commodity Exchange Act and the rules promulgated by the Commodity Futures Trading Commission

As stated earlier, the U.S. financial regulatory structure is a mix of institutional and functional regulation. Therefore, whenever a hedge fund engages in trading commodities and futures contracts, it will automatically be subject to the regulations of the CFTC.⁴⁵

1.5.2. Blue-Sky Laws

In addition to the federal laws discussed above, each State has its own statutes and regulations that supplement the federal laws in areas such as fiduciary duties and anti-takeover provisions, and govern the offer and sale of securities into or from such states or to residents of such states. These laws are nicknamed ‘blue-sky laws’⁴⁶ after the preamble to an early Wisconsin law designed to prevent companies from selling pieces of the blue sky to unsuspecting investors. In theory, compliance with a state’s blue-sky laws needs to be determined before any offer is made into or from the state or to a resident of such a state. In 1956, the Uniform Securities Act was adopted in about 40 States to bring some consistency to State securities regulations, and to integrate that system as far as possible into the federal securities laws. Most states model their regulation of securities based on the Uniform Securities Act of 1956 and the Revised Uniform Securities Act of 1985, however, the model codes themselves do not specify a single method for securities regulation.⁴⁷

Needless to say, such diversity among many States imposes exorbitant costs on the hedge funds operating in every state. In 1996, and with the introduction of the NSMIA, the scope of the state securities registration was curtailed. According to this Act certain ‘covered securities’ are exempt from state securities registration requirements. Among these covered securities were the securities issued in an exempt offering under Rule 506 of Regulation D, if the issuer’s securities had been listed on the New York Stock Exchange (NYSE), American Stock Exchange

⁴⁵ See 17 C.F.R. § 4.7.

⁴⁶ In *Hall v. Geiger-Jones Co.*, 242 U.S. 539 (1917), Justice McKenna defined Blue Sky laws: “The name that is given to the law indicates the evil at which it is aimed, that is, to use the language of a cited case, “speculative schemes which have no more basis than so many feet of ‘blue sky’”; or, as stated by counsel in another case, “to stop the sale of stock in fly-by-night concerns, visionary oil wells, distant gold mines and other like fraudulent exploitations.”

⁴⁷ Choi and Pritchard, *Securities Regulation: Cases and Analysis*, p. 615.

(AMEX),⁴⁸ and the NASDAQ/National Market system. Although these regulations preempt the State securities regulation, the States can still enforce their antifraud laws.⁴⁹

1.5.3. Employees Retirement Income Security Act of 1974

The Employee Retirement Income Security Act (ERISA) is a federal law establishing regulations for private pension and employee benefit plans. It protects the employees and beneficiaries of the pension plans by imposing disclosure and reporting requirements and fiduciary duties on the managers and administrators of such funds. This Act imposes certain requirements on the financial institutions with more than 25% of their capital in any class of their equity invested by ERISA investors. Hedge funds avoid the application of this law by limiting their acceptance of such investment from the ERISA plans below the 25% threshold and hence avoid the imposition of such rules.⁵⁰

1.5.4. Anti-Fraud Rules

One of the most important regulations which applies to financial institutions regardless of their legal organization or their registration status, is the omnipresent and ‘catchall’ antifraud provisions of the Securities Act (Section 17), the Securities Exchange Act (section 10b) and the SEC’s Rule 10b-5. According to these provisions any deceptive act “in connection with the purchase or sale of any security” regardless of the legal identity of the perpetrator, falls under the purview of the Act and the rule 10b-5. In addition, the prohibitions on the market manipulation and insider trading will likewise apply.

1.5.5. USA PATRIOT Act of 2001

Following the September 11 attacks in 2001, the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001 (USA PATRIOT Act) was passed on October 26, 2001. According to this Act, all financial institutions

⁴⁸ Now known as NYSE MKT LLC.

⁴⁹ *Ibid.*

⁵⁰ Lhabitant, *Handbook of Hedge Funds*, p. 56.

including hedge funds should establish anti-money laundering programs by April 24, 2002 in order to guard against money laundering through financial institutions. Section 352 of this Act requires that these money laundering programs include, at least, the development of internal policies, procedures, and controls, the designation of a compliance officer, an ongoing employee training program, and an independent audit function to test programs.

1.5.6. The Hart-Scott-Rodino Antitrust Improvements Act of 1976 (HSR Act)

The main provision of this Act⁵¹ which concerns hedge funds is the notification requirement for acquisitions. This Act requires certain acquiring persons to file notification with the Department of Justice and the Federal Trade Commission (FTC). These acquiring persons should also refrain for 30 days from consummating acquisitions of voting securities over certain threshold levels. If hedge funds engage in the acquisition of the covered companies, they should comply with the regulations of this act regarding such acquisitions.

1.5.7. The SEC rule 13e3

With respect to hedge funds pursuing private equity strategies, the SEC's rule 13e3 requires certain disclosure requirements about the fairness of the take out price for the public firms going private. In addition, certain transactions might trigger potential fiduciary duties to minority shareholders of a portfolio company. If hedge funds engage in these types of transactions, they will be subject to these rules.

1.5.8. Regulations indirectly applying to hedge funds

There are also regulations which indirectly affect hedge funds, such as Federal Treasury regulations which limit the ability of banks to lend to hedge funds. Regulation T of the Federal Reserve Board likewise limits securities broker-dealers. Furthermore, banks must comply with the minimum risk-based capital requirements and are subject to inspection by bank supervisors for exposure to risk. All such requirements which are initially applicable to banks should be complied with in the transactions between banks and hedge funds. On a case by case, rules and

⁵¹ Codified as 15 U.S.C. § 18a

regulation of self-regulatory organizations such as the Financial Industry Regulatory Authority (FINRA) might apply to hedge funds as well.

2. The Dodd-Frank Act and the direct regulation of hedge funds

One of the most notable and controversial post-crisis changes to the financial regulation in the U.S. is the reform in the regulatory environment of hedge funds and private equity funds. The regulatory environment prior to the Dodd-Frank Act which was the product of the major regulatory overhaul in the financial industry in the aftermath of the Great Depression created a leeway for hedge funds and allowed them to pursue their investment strategies with almost no regulatory restraints.

However, as surveyed earlier, after the global financial crisis, regulators raised serious concerns about hedge funds' potential initial role in causing the crisis or their subsequent contribution to the financial instability. Based on such a belief, drafting new pieces of legislation for hedge funds on both sides of the Atlantic were put on the regulatory agenda.⁵²

The third chapter distinguished between the direct and indirect regulatory measures for regulating hedge funds. It highlighted that the direct or entity regulation involves regulatory measures focusing immediately on the regulation of the target industry as a "discrete activity or as part of the broader, regulated investment services universe."⁵³ In contrast, the imperatives or commands of indirect regulation is mediated by or transmitted through an intermediary to the (primarily intended) regulated entity or activity, which is ultimately the target.

⁵² So far as it is related to hedge funds, the Dodd-Frank Act is basically built upon the experiences of LTCM meltdown and the following study by the President's Working Group (PWG). More recently, on February 22, 2007, the PWG published the "Agreement among PWG and U.S. Agency Principals on Principles and Guidelines Regarding Private Pools of Capital". This report sketches the broad principles related to control of systemic risk as well as investor protection. The approach mainly rests upon 'market discipline' which is supplemented by compliance with the 'industry sound practices'. This approach expresses its interests in principles-based regulation of hedge funds. See John Hunt, "Hedge Fund Regulation: The President's Working Group Committees' Best Practices Reports: Raising the Bar but Missing Risks," *Available at SSRN 1279870* (2008), p. 5.

Accordingly, this report calls for greater market discipline harnessed by a light-touch regulation. See U.S. Department of the Treasury, *Agreement among PWG and U.S. Agency Principals on Principles and Guidelines regarding Private Pools of Capital*, (2007).

⁵³ Athanassiou, *Hedge Fund Regulation in the European Union: Current Trends and Future Prospects*, p. 227.

The American version of direct regulation consists of two sets of regulatory measures. First, the Title IV of the Dodd-Frank Act involves the “Regulation of Advisers to Hedge Funds and Others” the short title of which is the “Private Fund Investment Advisers Registration Act of 2010” (hereinafter, the Private Fund Act). The primary purpose of this title is to change the investment adviser registration and exemption regime under the Advisers Act of 1940 and impose registration and reporting requirement on hedge funds and private equity funds.⁵⁴

Secondly, the provisions of the Title I of the Dodd-Frank Act which involves the “enhanced supervision and prudential standards for nonbank financial companies” to which this thesis refers as ‘contingent direct regulation’. The contingent direct regulation of hedge funds depicted in the Title I of the Dodd-Frank Act aims at imposing prudential standards on the SINBFCs which can potentially include hedge funds. The indirect regulation of hedge funds including the Volcker Rule included in the Title VI of the Dodd-Frank Act will be examined in the fifth chapter.

The Private Fund Act eliminates the private adviser exemption, introduces new regulations in connection with the custody of accounts, requires changes to the definition of accredited investors, provides the statutory ground for the possible establishment of self-regulatory organization for private funds, requires certain data, reports, and disclosure by private funds, calls for certain disclosure and consultation with the FSOC, sets out certain rules about the examination and confidentiality of books and records of hedge funds and private equity funds, sets certain limits on short selling, and requires collection of systemic risk data. In addition, although not in the Private Fund Act, the Dodd-Frank Act introduces the Volcker Rule which will have an indirect impact on the hedge fund industry. The Volcker Rule will be studied in the fifth chapter which is dedicated to the indirect regulation of hedge funds in the U.S. Other regulatory measures of the Dodd-Frank Act such as those concerning the derivatives and establishing central counterparty clearing house (or central clearing house) also indirectly affect hedge funds and will be discussed in the fifth chapter.⁵⁵

⁵⁴ Indeed, in a long-fought battle between the SEC and the hedge fund industry, it seems that the SEC won the battle that it had previously lost in the Goldstein v. SEC.

⁵⁵ In summary and as related to the scope of this chapter, the Private Fund Act modifies the previous hedge fund regulatory regime with regard to potential systemic risk of hedge funds as follows:

1. It modifies the investment adviser registration and exemption regime under the Advisers Act of 1940, and imposes registration, record keeping, reporting, periodical inspections, and certain examination requirements on private funds including hedge funds and private equity funds.

The U.S. regulation of hedge funds aimed at addressing systemic risk was mostly built upon indirect or market-discipline inspired regulation. Indirect regulation which targets the counterparties of hedge funds has the effect of enhancing market discipline on the hedge fund industry. This tradition in financial regulation of hedge funds did not experience a dramatic change in the aftermath of the financial crisis. Even after the enactment of the Private Fund Act, the U.S. hedge fund regulatory regime uses a mix of regulatory strategies which heavily rely on the indirect regulation.⁵⁶ This is rooted in the fact that in the U.S., hedge funds are not perceived to be major contributors to the global financial crisis. Therefore, aside from the registration and certain minimal disclosure requirements by which the direct regulation is imposed on hedge funds, even under the current regulatory regime which was established after the financial crisis, they seldom are subject to the direct regulation by regulatory agencies.⁵⁷

Since systemic risk concerns mostly relate to the interconnectedness of hedge funds and their potential strategy correlations, there is substantial support in the literature for indirect regulation of hedge funds.⁵⁸ In addition, with respect to the choice of regulatory strategies, the U.S. regulators make use of ‘laddered’ or ‘tiered’ approach in regulating hedge funds, specifically in differential regulation of hedge funds based on their size. For example, the U.S. hedge fund regulatory framework introduces certain benchmarks. Any hedge fund that meets those criteria will be directly regulated. Even after touching certain higher benchmarks, a hedge fund might be subject to heightened prudential regulation by the Fed which can be equivalent or more heavy-handed than the one applied to banks.⁵⁹

-
2. It changes the custody obligations of registered investment advisers and imposes certain restrictions about the custodianship of their accounts.
 3. It also changes the qualifications of the investor base of hedge funds, namely, it changes the ‘qualified client’ and ‘accredited investor’ standards already introduced and in place under the Advisers Act and the Securities Act of 1933. It also requires the Government Accountability Office (GAO) to undertake a study on the investor suitability.
 4. It foresees a Self-regulatory Organization (SRO) for monitoring private funds, and
 5. It requires the SEC to undertake a study on short sales.

⁵⁶ In contrast, the EU legal system embraced direct regulation of hedge funds more openly.

⁵⁷ This means that direct regulation of hedge funds is an exception to the rule and will be applied on an *ad hoc* basis. Fortunately enough, aside from the case of a SINBFC, even direct regulation is mostly about disclosure requirements intended to enhance market discipline.

⁵⁸ *See Ibid.*

⁵⁹ At the first level, hedge funds under certain size need not register with the federal regulatory agencies; however, they might be required to register with the state regulators. At the second level, hedge funds having more than \$150 million in AUM, should register and will be required to keep books and records. The third level of regulation will be triggered when hedge funds are designated as SINBFCs by the FSOC. Once designated as such, they will become

An additional dimension of the post-crisis hedge fund regulation on both sides of the Atlantic is that these regulations did not necessarily involve regulating hedge fund entity itself. Rather, regulators opted for regulating hedge fund managers or advisers.⁶⁰ However, regulating hedge funds through regulating their managers cannot be perceived as indirect regulation of hedge funds.

Direct method of regulation in the hedge fund industry is mostly used to address the problem of information asymmetry between hedge funds, their regulators, creditors, and investors. This method of regulation, however, can have indirect effects on addressing potential systemic concerns of hedge funds by making the hedge fund industry more transparent. In fact, although registration requirement imposed on hedge funds or their managers is a direct regulatory measure, it is a necessary complement for indirect regulation of hedge funds⁶¹ and can help harness market discipline. Without such disclosure requirements, indirect regulation of hedge funds through their counterparties and creditors would be infeasible due to the fact that without these measures, regulatory authorities would not be provided with adequate information needed for indirect regulation of hedge funds.

The second prong of the direct regulation of hedge funds is triggered if hedge funds are designated as SINBFCs, after which they will become subject to the prudential regulation of the Fed. In what follows, after studying the treatment of information problems in the hedge fund industry by the Dodd-Frank Act, the prudential regulation of the SINBFCs will be studied.

2.1. Addressing information problems and transparency requirements

The traditional method of addressing information problems in the hedge fund industry is pursued by requiring hedge fund registration and disclosure of certain information deemed to be necessary for assessing the systemic implications of hedge funds. Since in financial markets the

subject to the prudential regulation of the Fed. The FSOC can even recommend the Fed to subject SINBFCs to more stringent prudential regulatory regime than it is usually applied to banks. Therefore, American approach to hedge fund regulation at the federal level creates three layers of hedge fund categories and designs appropriate regulation for each of them: They can respectively be called the ‘exempted hedge funds’, ‘registered funds’, and ‘systemically important hedge funds’.

⁶⁰ This is perhaps motivated by the concerns about regulatory arbitrage by hedge funds.

⁶¹ Dardanelli, *Direct or Indirect Regulation of Hedge Funds: A European Dilemma*, p. 475.

source of the most market failures is information problem, there is compelling theoretical and empirical evidence in favor of disclosure requirement.⁶²

The first and foremost reason for having a mandatory disclosure system for hedge funds is that such a system is necessary for the assessment of systemic risk in financial markets. For example, for the purposes of this study, designating a non-bank entity as a SINBFC requires having certain information disclosed to the regulators by hedge funds and their advisers. In the absence of a mandatory disclosure system, it is not clear how regulators can acquire reliable data upon which the regulatory strategies and instruments are to be built.

As discussed in the previous chapters, the first and foremost problem about hedge funds which contributed to their amorphous nature, prevented any attempt to gather precise data, and hindered any effort to undertake sound empirical studies about them was that they were not required to register with regulatory agencies. The lack of this requirement created doubts and ambiguities not only about the accuracy of hedge fund data, but also about the very number of hedge funds. These ambiguities spelt over to the empirical analyses about hedge funds' size, leverage, and riskiness of their financial strategies. In order to address this problem, and to provide the infrastructure for minimal regulation of hedge funds, mandatory registration with a centralized database or a regulatory agency was a step forward on both sides of the Atlantic. Implementation of this requirement will give an estimate of the number of hedge funds⁶³ which is essential to carry out empirical studies about hedge funds' impact on financial markets and their potential for contribution to financial instability.

The Dodd-Frank Act introduces registration and disclosure requirements by making changes to the Investment Advisers Act of 1940. This Act requires registration with the SEC of a firm falling within the definition of an 'investment adviser' within the Investment Advisers Act,

⁶² Verrecchia, *Essays on Disclosure*, p. 132.

See Fishman and Hagerty, *Mandatory versus Voluntary Disclosure in Markets with Informed and Uninformed Customers*, 45-63.

See also Leuz and Wysocki, *Economic Consequences of Financial Reporting and Disclosure Regulation: A Review and Suggestions for Future Research*.

To see the arguments of the advocates of the mandatory disclosure based on positive externality argument, see Admati and Pfleiderer, *Forcing Firms to Talk: Financial Disclosure Regulation and Externalities*, pp. 512-513. See also Fox, *Retaining Mandatory Securities Disclosure: Why Issuer Choice is Not Investor Empowerment*, 1335.

⁶³ Though it can resolve this problem to some extent, it cannot fully address it, because of the ambiguities in the definition of hedge funds and its blurring boundary and scope with other similar funds such as private equity funds, and venture capital funds.

unless it is prohibited from registering with the SEC, or it qualifies for an exception from the Investment Advisers Act's registration requirement.

By this provision, the Dodd-Frank Act has also reallocated the regulatory functions of the regulatory agencies with respect to the investment advisers between states and federal agencies. For the purposes of the reallocation of regulatory functions, the Act puts investment advisers in three broad categories; namely, small advisers, mid-sized advisers, and large advisers. The small and mid-sized advisers are subject to state regulation and are prohibited from registering with the SEC;⁶⁴ meanwhile the large advisers must register with the SEC unless they can avail themselves of an exemption. This registration and being subject to the SEC rules will preempt the state advisers laws.⁶⁵

Based on the Investment Advisers Act, small advisers are those investment advisers with less than \$25 million of AUM. Unless an exemption is granted, these advisers should be regulated by one or more states. If the State in which the fund has its principal office and place of business does not have a statute regulating investment advisers such as the State of Wyoming, the fund should register with the SEC.⁶⁶ Therefore, this category of funds is regulated by the states if:

1. The adviser is registered with the state in which it has its principal office and place of business.
2. The adviser is subject to examination by the State securities authorities.⁶⁷

The Private Fund Act shares the responsibility of hedge fund regulation with State authorities to free the SEC's limited regulatory resources so that it can more effectively regulate those hedge funds deemed to be systemically important. In order for an investment adviser (that is regulated or required to be regulated as an investment adviser in the State in which it maintains its principal office and place of business) to register with the SEC, it should have not less than \$25 million or such higher amount (as the SEC may deem appropriate) in AUM.⁶⁸

⁶⁴ 15 U.S.C. § 80b-3a(a)

⁶⁵ For registration requirement, *see* 15 U.S.C. § 80b-3(a). And for preemption of state law, *see* 15 U.S.C. § 80b-3a(b)

⁶⁶ 15 U.S.C. § 80b-3a(a)(1). *See also Regulation of Investment Advisers by the U.S. Securities and Exchange Commission*, (March 2013), pp. 8-17.

⁶⁷ 15 U.S.C. § 80b-3a(a)(2)

⁶⁸ 15 U.S.C. § 80b-3a (a)(1)

Mid-sized advisers are those advisers having between \$25 million and \$100 million of AUM. Unless there is an exemption, the mid-sized advisers with their principal office and place of business in New York and Wyoming are not deemed to be ‘subject to examination’ and should register with the SEC. Advisers passing those thresholds are considered large advisers and should register with the SEC and comply with its rules and regulations. Needless to say, regardless of being registered or not, all advisers are subject to the anti-fraud provisions of the Investment Advisers Act.

2.1.1. Elimination of the private adviser exemption (Advisers solely to private funds)

Section 402 of the Private Fund Act characterizes hedge funds as ‘private funds’ under the Investment Advisers Act which regulates investment advisers doing business of advising and managing investment funds in the U.S. In addition to imposing registration and reporting requirements, it imposes substantive regulatory requirements on investment advisers. Under the previous regime which was repealed by the Private Fund Act, the Investment Advisers Act excluded certain investment advisers from the application of its requirements.⁶⁹ Under that regime, hedge funds advisers were exempt from registration provided that they advise 15 or fewer clients (‘the Private Adviser Exemption’). Section 203(b)(3) of the Investment Advisers Act as amended by the Dodd-Frank Act, no longer exempts advisers with such qualifications.

According to the amended Investment Company Act of 1940 a ‘private fund’ is an issuer that would be an investment company, as defined in section 3 of the Investment Company Act⁷⁰ unless it could avail itself of an exemption under section 3(c)(1) or 3(c)(7) of that Act. Section 3(c)(1) is available to a fund that does not publicly offer its securities and has 100 or fewer beneficial owners of its outstanding securities, and Section 3(c)(7) is available to a fund that does not publicly offer its securities and limits its owners to qualified purchasers.

The Private Fund Act requires hedge fund managers acting solely as an adviser to private funds with \$150 million or more in AUM to register with the SEC. Therefore, for the managers whose AUM exceed the \$150 million threshold, the Act abolishes the private investment adviser

⁶⁹ However, it maintained that these exclusions do not mean that antifraud liability and certain other provisions do not apply to them.

⁷⁰ 15 U.S.C. 80a-3

exemption in the Investment Advisers Act and the Goldstein v. SEC decision. An adviser not registered with the SEC is required to register with the state in which it has the principal office if the state's law so requires. In short, under the new rules, unless private fund advisers have at least \$150 million of AUM, they are not required to register with and report to the SEC.⁷¹

However, the Act confers powers to the SEC to tailor the registration and examination procedures with respect to the investment advisers of mid-sized private funds. In doing so, the SEC should take the governance and the investment strategy of such funds into account to determine whether they pose systemic risk.⁷² These exemptions are not mandatory; namely, should an investment adviser falling within these exemptions wish so, it can register with the SEC and comply with its rules. This exemption also does not exempt hedge funds from record keeping requirements that are deemed necessary by the SEC, and potential future imposition of registration and examination requirements which can be imposed accounting for adviser's size, governance, investment strategy, and systemic risk.⁷³

2.1.2. Exemptions

The Private Fund Act accommodates certain exemptions from the registration and reporting of the funds falling within its ambit. Perhaps the most compelling reason for carving out these exemptions is the optimal allocation of regulatory resources. By exempting some private funds from registering with the federal regulatory agencies, regulators can better handle more important systemic concerns rather than being drowned in the detailed data from institutions which are not systemically important and are unlikely to pose threats to financial instability.⁷⁴

⁷¹ 15 U.S.C. § 80b-3(m)(1)

⁷² 15 U.S.C. § 80b-3(n)

⁷³ James F. Koehler, "Impact of the Dodd-Frank and Registration Acts of 2010 on Investment Advisers," *Duquesne Business Law Journal* 13 (2011), 29-42.

⁷⁴ However, since there might be some residual concerns with regard to investor protection, smaller hedge funds may register with State regulators.

2.1.2.1. Limited foreign private adviser exemption

One of the critical aspects of hedge fund regulation involves its international implications. These implications raise questions and concerns about the effectiveness of hedge fund regulation. For example, it is hard to know *ex-ante* whether hedge fund regulation in one jurisdiction will place that jurisdiction at a competitive disadvantage compared with other similar jurisdictions. Moreover, there are concerns that regulatory arbitrage by hedge funds would heighten regulatory competition and potentially result in regulatory race-to-the-bottom. In the presence of such regulatory arbitrage and potential race-to-the-bottom, the very effective regulation of hedge fund within particular jurisdiction would be compromised.

Taking account of all possible implications of hedge fund regulation for onshore (U.S. hedge funds) and off-shore hedge funds (non-U.S. funds), Congress enacted rules to bring the divergent interests of interest groups closer together, and strike a balance between the intended and potential unintended consequences of regulating foreign advisers.

An investment adviser is generally prohibited from the use of mails or any means or instrumentality of interstate commerce in connection with its business as an investment adviser, unless it is a registered adviser.⁷⁵ This section carves out an exception to this general prohibition under the rubric of ‘foreign private adviser’.⁷⁶ A foreign private adviser is defined as⁷⁷ any investment adviser who

1. has no place of business in the U.S.;
2. has, in total, fewer than 15 clients and investors in the U.S. in private funds advised by the investment adviser;
3. has aggregate AUM attributable to clients and investors in the U.S. in private funds advised by the investment adviser of less than \$25 million, and

⁷⁵ The language of the law is a bit archaic here.

⁷⁶ 15 U.S.C. § 80b-3(b)(3)

⁷⁷ 15 U.S.C. § 80b-2(a)(30)

4. neither holds itself out generally to the public in the U.S. as an investment adviser; nor acts as an investment adviser to any registered investment company; or as a business development company.⁷⁸

Therefore, the advisers whose principal office and place of business is outside the U.S. are not prohibited from registration with the SEC and are not subject to the AUM thresholds. However, (unless an exemption from registration is available) the non-U.S. advisers giving investment advice to U.S. persons should register with the SEC. Being registered with the SEC, they can avoid registering with State securities regulators. If an exemption is not provided for such advisers to register with the SEC, they should register with the State regulators. This provision was added by the Dodd-Frank Act to the Investment Advisers Act and it eliminates previous private adviser exemptions (an exemption for advisers with fewer than 15 clients). A natural person, corporation, general partnership, limited partnership, limited liability company, trust, or other legal organization to which the adviser provides investment advice based on the organization's investment objectives can be counted as a single client. In addition, two or more legal organizations that have identical shareholders, partners, limited partners, members, or beneficiaries and two or more legal organizations having identical owners can be viewed as a single client.⁷⁹

It goes without saying that the above provisions of the Private Fund Act have extraterritorial implications. This provision can potentially impose registration requirement on the foreign funds with minimum U.S. contacts. It should also be noted that the registration requirement for the U.S. private fund advisers is based on the AUM in the U.S. of \$150 million or more, however, congress defined the foreign private adviser in terms of its AUM *attributable to* clients and investors in the U.S. in private funds advised by the adviser. Although some foreign funds are

⁷⁸ See Staff of the Investment Adviser Regulation Office, Division of Investment Management, U.S. Securities and Exchange Commission, *Regulation of Investment Advisers by the U.S. Securities and Exchange Commission*, pp. 8-17.

⁷⁹ Rule 202(a)(30)-1. See also Gerald T. Lins et al., *Hedge Funds and Other Private Funds: Regulation and Compliance* (Thomson Reuters, 2012-2013 ed.)

exempt from registration and reporting, the Private Fund Act imposes certain requirements on their book keeping and record keeping practices.⁸⁰

2.1.2.2. Venture capital fund advisers

A venture capital fund is a type of private equity firm which mostly help small start-up businesses with their capital needs. Private equity business is composed of four distinct strategies in private investing. The first strategy is the leveraged buyout (LBO) through which public companies repurchase the entire outstanding shares of the company and transform themselves into private companies usually using borrowed money. The second strategy is the mezzanine financing which constitutes a hybrid of private debt and equity financing. The third strategy is distressed debt investing which constitutes private equity investments in established troubled companies rather than start-ups. Last but not least is the venture capital fund which is a type of private equity fund that usually invests in start-ups or early stage companies. In other words, venture capital funds are “independent, professionally managed, dedicated pools of capital that focus on equity or equity-linked investments in privately held, high growth companies”.⁸¹

Venture capital’s function is to supply equity financing to start-up companies which do not have sufficient track record, fame, and financial credibility to attract capital from their traditional sources such as banks or exchanges by going public. In addition to the lack of sufficient tangible assets to post as collateral to take loans, business start-ups have negative cash flows rising from the mismatch of expenditure and income in the early stages of the business which severely limit start-up financing.⁸² Venture capitalists step in and provide financing for these high-risk and otherwise financially underfunded businesses. These valuable efficiency and growth enhancing functions of venture capital funds, i.e., their support for start-ups (with high risk and extremely illiquid investments) and untested ideas highlight their importance in a capitalist and market-based economy.

⁸⁰ Title 15 U.S.C. § 80b-3(m)(2) states that the SEC “shall require investment advisers exempted under this subsection to maintain such records and provide to the Commission such annual or other reports as the Commission determines necessary or appropriate in the public interest or for the protection of investors.”

⁸¹ Paul Gompers and Josh Lerner, "The Venture Capital Revolution," *Journal of Economic Perspectives* 15, no. 2 (2001), p. 146. See also Mark J. P. Anson, "Private Equity," in *The Handbook of Financial Instruments*, ed. Frank J. Fabozzi (Hoboken, New Jersey: John Wiley & Sons, Inc., 2002), p. 671.

⁸² *Ibid.*

Nevertheless, with respect to private equity business at large, due to private equity funds' idiosyncratic functions, private equity strategies are usually under political attack especially during times of financial distress. As stated above, some private equity funds are specialized in LBOs. While they perform valuable economic functions and contribute to the optimal allocation of financial resources by killing the inefficient distressed companies and reallocating their capital to more efficient economic uses, they are frequently under politically-motivated attacks for their disregard to the human costs of their activities. For example, while undertaking their welfare-enhancing activities in channeling capital to its best use, they may cause temporary or structural unemployment. In times of financial distress and high rates of unemployment, contributing to further job losses can trigger highly adverse political repercussions.⁸³ Therefore, the private equity industry was not less immune to political over-reactions, and likewise they were brought under regulatory ambit after the global financial crisis.

Nonetheless, given that the small businesses and start-ups are at the heart of the capitalist economy and play a crucial role in the Schumpeterian creative destruction,⁸⁴ and considering venture capital funds' significant impact both on innovation and economic growth in the U.S., concerns were raised about the implications of the wave of regulations for small businesses and start-ups in terms of potential higher cost of capital and its potential impact on the innovation and dynamism of the U.S. businesses. These concerns led Congress to carve out another exemption from the application of the private fund regulation.

Title 15 U.S.C. § 80b-3(l) states that “[n]o investment adviser that acts as an investment adviser solely to 1 or more venture capital funds shall be subject to the registration requirements of this subchapter with respect to the provision of investment advice relating to a venture capital fund.” The Private Fund Act further requires the SEC to issue final rules to define the term ‘venture capital fund’ not later than July 21, 2011. In June 2011, (effective July 21, 2011) the SEC adopted a final rule (rule 203(l)-1) containing the definition of the term ‘venture capital fund’.

⁸³ For a thorough overview of this analysis, see Raghuram G. Rajan, *Fault Lines: How Hidden Fractures Still Threaten the World Economy* (Princeton: Princeton University Press, 2010).

Rajan argues that in times of financial stress and in economies with minimal unemployment insurance, the lack of social security for some sections of the economy causes a political overreaction to the crisis-time high levels of unemployment. In such times, contributing to further job losses and unemployment in the short run, whatever its long run effects might be, can have very adverse political repercussions.

⁸⁴ Joseph A. Schumpeter, *Capitalism, Socialism and Democracy* (London: Routledge, 2003), pp. 81-86.

Under the SEC rule 203(I)-1(a) a fund should meet the following criteria to qualify as a ‘venture capital fund’ and hence be exempted from the registration requirements:

1. it should pursue a venture capital strategy;
2. it should hold no more than 20 percent of the amount of the fund’s aggregate capital contributions and uncalled committed capital in assets (other than short-term holdings) that are not qualifying investments.⁸⁵
3. The fund should not borrow or otherwise incur leverage in excess of 15 percent of the private fund’s aggregate capital contributions and uncalled committed capital, except a limited amount of short-term borrowing. If such a fund otherwise incurs leverage, it may do so only for a non-renewable term of no longer than 120 calendar days. A venture capital may guarantee one of its portfolio companies’ debt. Such a guarantee will not be subject to the 120-day limit. However, it will be subject to the above-mentioned 15 percent cap.
4. It should provide redemption rights only in exceptional circumstances.
5. And it should not be a private fund (a company which is registered under section 8 of the Investment Company Act (15 U.S.C. 80a–8), and has not elected to be treated as a business development company pursuant to section 54 of that Act (15 U.S.C. 80a–53)).⁸⁶

The crucial role of the venture capital funds saved them from further regulation while similar entities such as hedge funds and other parts of private equity business fell under the purview of the Act. However, the exemption from registration does not exempt venture capital fund advisers

⁸⁵ ‘Qualifying investment’ means: “(i) An equity security issued by a qualifying portfolio company that has been acquired directly by the private fund from the qualifying portfolio company; (ii) Any equity security issued by a qualifying portfolio company in exchange for an equity security issued by the qualifying portfolio company described in paragraph (c)(3)(i) of this section; or (iii) Any equity security issued by a company of which a qualifying portfolio company is a majority-owned subsidiary, as defined in section 2(a)(24) of the Investment Company Act of 1940 (15 U.S.C. 80a–2(a)(24)), or a predecessor, and is acquired by the private fund in exchange for an equity security described in paragraph (c)(3)(i) or (c)(3)(ii) of this section.

(4) Qualifying portfolio company means any company that:

(i) At the time of any investment by the private fund, is not reporting or foreign traded and does not control, is not controlled by or under common control with another company, directly or indirectly, that is reporting or foreign traded;

(ii) Does not borrow or issue debt obligations in connection with the private fund’s investment in such company and distribute to the private fund the proceeds of such borrowing or issuance in exchange for the private fund’s investment; and

(iii) Is not an investment company, a private fund, an issuer that would be an investment company but for the exemption provided by § 270.3a–7 of this chapter, or a commodity pool.” See 17 C.F.R. § 275.203(l)–1

⁸⁶ 17 CFR § 275.203(l)–1

from the SEC's requirements of maintaining records and venture capital funds' duty to provide the SEC with annual and other reports which the SEC deems necessary and appropriate for the public interests or for the protection of investors.

2.1.2.3. Family offices

The Private Fund Act provides another exception for advisers providing services only to 'family offices'.⁸⁷ The term family office is not defined in the Act, and the task of its definition is delegated to the SEC. In 2011, the SEC adopted Rule 202(a)(11)(G)-1⁸⁸ under the Investment Advisers Act which defined a family office as a company that:

1. has no clients other than family clients; provided that if a person that is not a family client becomes a client of the family office as a result of the death of a family member or key employee or other involuntary transfer from a family member or key employee,⁸⁹
2. is wholly owned by family clients and is exclusively controlled (directly or indirectly) by one or more family members and/or family entities; and
3. does not hold itself out to the public as an investment adviser.

Similar to the venture capital exception, the family office exception exempts family offices only from registration requirements while this exception does not apply to the advisers' reporting and record keeping requirements.⁹⁰ In addition, although an investment adviser to a family office is exempt from registration, it will be subject to the antifraud provisions of Section 206 of the Advisers Act.⁹¹

Given the size of family offices and their extreme unlikelihood of causing systemic event, it is unintelligible what policy objective, other than consumer protection concerns, Congress and the SEC pursue by imposing reporting and record keeping requirement for family offices.

⁸⁷ 15 U.S.C. § 80b-2(a)(11)(G)

⁸⁸ 17 CFR § 275.202(a)(11)(G)-1

⁸⁹ See 17 CFR § 275.202(a)(11)(G)-1

⁹⁰ Koehler, *Impact of the Dodd-Frank and Registration Acts of 2010 on Investment Advisers*, 29-42.

⁹¹ K. Susan Grafton, "Private Fund Investment Advisers Registration," *Insights* 24, no. 9 (2010), p. 40.

In addition to the above exemptions, Section 203(b)(6) of the Advisers Act⁹² provides that the registration requirement does not apply to a Commodity Trading Advisor (CTA) that is registered with the CFTC and advises a private fund, provided that its business does not “become predominately the provision of securities-related advice”.⁹³

2.1.3. Record keeping and reporting requirement

In addition to the registration requirement, the Private Fund Act grants the SEC with the authority to impose reporting and record keeping requirements on hedge fund advisers. Accordingly, the SEC can require registered investment advisers to keep records deemed necessary for the assessment of systemic risk by the FSOC, and to make such records available to the FSOC. According to the Section 404 of the Private Fund Act, the required reports and records that should be maintained by an investment adviser and are subject to the inspection by the SEC should include a description of:

1. The amount of the AUM;
2. The use of leverage, including off-balance-sheet leverage;
3. Counterparty credit risk exposure;
4. Trading and investment positions;
5. Valuation policies and practices of the fund;
6. Types of assets held;
7. Side arrangements or side letters which entitles certain investors to more favorable treatment than other investors;
8. Trading practices;
9. Other information which the SEC, in consultation with the FSOC, deems necessary and appropriate in the public interests and for the protection of investors and for the assessment of the systemic risk.

The specification of the exact content of the records and the method of record keeping and reporting is delegated to the SEC rule making. The SEC has also been granted with the regulatory authority to apply different requirements on different funds based on their size and

⁹² 15 U.S.C. § 80b-3(b)

⁹³ 15 U.S.C. § 80b-3(b)(6)(B)

type. In addition, the reports are also subject to the SEC inspection. The Private Fund Act also requires the SEC to conduct periodic inspections of the records that hedge fund advisers are required to maintain. In addition, the SEC can conduct any additional examinations that it deems necessary for the systemic risk assessment.⁹⁴ Furthermore, the books and records should be maintained on a 'current' basis.

The Private Fund Act further requires the advisers exempted from registration to maintain such records and provide reports as deemed necessary by the SEC.⁹⁵ The SEC and the CFTC adopted joint rules establishing detailed reporting requirements for hedge fund advisers.⁹⁶ Under these rules, if the investment adviser manages between \$150 million and \$1.5 billion across all its funds, it is required to file the Form PF on an 'annual basis'. If the adviser manages more than \$1.5 billion, such filing should be filed on a 'quarterly basis'. As for advisers reporting on quarterly basis, the disclosure requirement requires the disclosure of details on their financial positions.

Such a differential and laddered regulatory approach towards disclosure is on the one hand introduced to decrease the cost of disclosure for the smaller hedge funds. On the other hand, it is to free-up some of the regulatory resources of the SEC to be utilized in analyzing the information disclosed by larger and supposedly more systemically relevant hedge funds.

In general, the Private Fund Act uses the size of the AUM of hedge funds as the criterion to determine whether the fund adviser would be required to register with the SEC. Such laddered approach is based on the prevailing conventional wisdom that only large hedge funds can impose systemic externalities.⁹⁷ However, it overlooks the fact that it is most likely that it is concentration, interconnectedness, and herd behavior of hedge funds that can amplify their potential systemic risk.⁹⁸

⁹⁴ See also. Lloyd, Clancy and Kumar, *Hedge Funds and Systemic Risk*, p. 71.

⁹⁵ The FSOC can require reports from any financial company for the purpose of assessing risk to U.S. financial stability.

⁹⁶ United States Securities and Exchange Commission, *Reporting by Investment Advisers to Private Funds and Certain Commodity Pool Operators and Commodity Trading Advisors on Form PF: A Small Entity Compliance Guide*, January 5, 2012).

⁹⁷ Michael McDonald, "Containing Systemic Risk: New Developments in Trans-Atlantic Hedge Fund Regulation," *Loyola of Los Angeles International and Comparative Law Review* 34 (2011), pp. 250-252.

⁹⁸ See the first and second chapters of this dissertation.

An additional residual, but very serious concern about hedge fund information disclosure is about proprietary information disclosure and its unintended consequences. Section 404 of the Private Fund Act exempts public disclosure of proprietary information. Nonetheless, the SEC and the FSOC have the authority to review that information. The information supplied to the SEC should remain confidential unless the disclosure of such information is required pursuant to the order of a federal court in an action brought by the United States or the SEC.

2.1.4. Miscellaneous disclosure requirements

There are other provisions in the Dodd-Frank Act which will affect hedge funds that engage in derivative transactions.⁹⁹ Since hedge funds are active participants in derivative instruments, they will be affected by the Dodd-Frank Act's regulatory framework for the derivative instruments. For example, under these provisions, all swaps should be reported to a registered swap data repository.

Section 929X of the Dodd-Frank Act requires additional information reporting requirement on short sales. The Act requires the SEC to promulgate rules providing for public disclosure of the name of the issuer and the amount of short sales for each security on a monthly basis.¹⁰⁰

Prior to the introduction of new regulations, restrictions on hedge fund public solicitation have dissuaded them from the provision of almost all kinds of hedge fund related information to the public. The Jumpstart Our Business Startups Act (the JOBS Act),¹⁰¹ enacted on April 5, 2012, requires the SEC to revise its rules so that the prohibitions against general solicitation or general advertising shall not apply provided that all purchasers of the securities are accredited investors. Issuers should take reasonable steps to verify that purchasers of the securities are accredited investors.

⁹⁹ The Dodd-Frank Act uses a combination of the institutional and functional approach to regulation. Therefore, as applied to hedge funds, some of the provisions of the Dodd-Frank Act will apply because of the entity itself being a hedge fund, while other provisions will apply because the entity engages in certain financial activities.

¹⁰⁰ Lloyd, Clancy and Kumar, *Hedge Funds and Systemic Risk*, pp. 70-71.

¹⁰¹ See 15 U.S.C. § 77d-1. The goal of this Act is to bolster economic growth and job creation by "improving access to public capital markets for emerging growth companies." See Lyman Johnson, "Why Register Hedge Fund Advisers- A Comment," *Washington and Lee Law Review* 70 (2013), pp. 718-720.

Indeed, with the increased direct and indirect investor protection mechanisms embedded in the Dodd-Frank Act, a marginal move in the availability of hedge funds for the general public seems to be a sound regulatory approach. The opening up of this option is achieved by the enactment of the JOBS Act which is to encourage the capital formation for small issuers. Although a degree of investor protection is needed to capital formation, the investor protection goals and the goal of capital formation are often in conflict. On the one hand, the efforts to increase the investor protection can substantially burden smaller firms in raising capital. On the other hand, the efforts to decrease the burden of capital formation, which usually involve decreasing the amount of information disclosure and the costs of compliance associated with it, can result in a lower level of investor protection.¹⁰²

In the end, it is important to emphasize that the mandatory disclosure system, if appropriately installed and implemented, can significantly increase the market discipline of hedge funds. In other words, although the purpose of mandatory disclosure requirements can be manifold, such requirements can particularly be useful in helping other market participants, specifically SIFIs such as prime brokers to protect themselves against the opaque hedge fund industry by further harnessing market discipline on the industry.

2.2. Collection of systemic risk data: Disclosure and examinations

The established notoriety for secrecy in the hedge fund industry which poses enormous challenges to the efforts directed at addressing their systemic implications could not stand the waves of post-crisis regulatory overhaul. Under the previous regime hedge funds were under almost no obligation of record keeping and reporting to the public, regulators, and investors, unless their investment triggered the application of certain regulations. This in turn, posed questions about the feasibility of the risk assessment and due diligence verification of hedge funds which they have towards their investors under their fiduciary duties.

However, such secrecy did not mean that they were completely unregulated. In fact, they were indirectly regulated by market participants such as their counterparties and creditors. Particularly, they were increasingly abiding by the standards of transparency such as exposure

¹⁰² *Ibid.*

reports, portfolio diversification and sectoral allocation of their investments imposed by their counterparties and sophisticated institutional investors. Furthermore, without disclosure of the minimum amount of information about the fund, its investment strategies, and the risks involved, the prospect of raising capital from investors or marketing the fund would not be very bright. Investors are particularly interested in the information on hedge funds regarding the existence of gates, side pockets, side letters, fee structure, and the redemption terms. Therefore, in their offering memoranda, hedge funds usually incorporate the information necessary for investors to make an informed decision.

At the same time, regulators face challenges in imposing more transparency requirements on hedge funds. The first challenge is that full transparency in the hedge fund industry is not a feasible option, largely because of the existence of proprietary information. Indeed, hedge fund managers gain their competitive edge from the proprietary information on which they build their trading strategies. If they were required to disclose the information to regulators or to the public, they would not be able to reap the benefits of their efforts. There are certain other risks in real time disclosure of information by hedge funds such as making disclosing hedge funds vulnerable to short squeeze which are discussed earlier. Taking account of the costs and potential unintended consequences of such a disclosure, full transparency is neither feasible nor optimal.¹⁰³

As discussed earlier, the second problem with imposing disclosure requirement is that it might generate the false sense of security in hedge fund investors, a phenomenon which is sometimes called the ‘legal placebo effect’.¹⁰⁴ The risk of legal placebo effect stems from the fact that the investors, particularly less sophisticated ones, will wrongfully believe that the due diligence about the safety and soundness of hedge funds is already performed by relevant authorities. Therefore, based on such a misguided belief, they would invest in hedge funds without doing their own homework in evaluating hedge funds’ true risks.

¹⁰³ There are proposals such as secure multi-party computation which can maintain the confidentiality and secrecy while acquiring the aggregate data which is important in the calculations related to the assessment of the systemic risk. See Abbe, Khandani and Lo, *Privacy-Preserving Methods for Sharing Financial Risk Exposures*, 65-70.

¹⁰⁴ Aviram, *The Placebo Effect of Law: Law's Role in Manipulating Perceptions*, 54-104. See also Aviram, *Allocating Regulatory Resources*, 739-769.

In addition, the lessons from financial history show that the registration and disclosure of financial institution including hedge funds with the relevant regulator is not a panacea. For example in case of the collapse of Amaranth in 2006, the application of disclosure and transparency requirements did not raise the regulatory red-flags in time.¹⁰⁵ Indeed, Amaranth was registered with the SEC and its disclosure did not prevent its collapse, nor did it prevent the perceived collateral damages to the financial system or its counterparties.¹⁰⁶ Moreover, detailed disclosure and full transparency which includes disclosure of unnecessary information for assessing systemic risk impose an excessive burden on regulators and can bury them under the piles of unnecessary information amongst which important information might have been hidden.

Last but not least, one of the unintended consequences of transparency in hedge funds' operation is that such transparency can undermine hedge funds' benefits to the financial markets such as their contrarian position taking and liquidity provision. As suggested in the first chapter, hedge funds are contrarian position takers in financial markets and they can potentially mitigate the volatility and potential adverse effects of a financial crisis. Mandatory disclosure of positions taken by hedge funds can discourage them from taking contrarian positions in financial markets and hence can potentially reduce liquidity in markets. This is due to the fact that such requirements can exacerbate the conflict of interest between hedge funds, their counterparties and competitors. If hedge funds disclose information with respect to their position to their trading counterparties, there is a potential that the information can be used in the detriment of the disclosing hedge fund. Therefore, it is argued that position transparency can potentially make financial systems less stable because it essentially removes the class of investors which are otherwise liquidity providers in times of crisis.¹⁰⁷

Hence, a compromise should be reached between a non-disclosure system and full disclosure system. Along this line of reasoning, it can be argued that the adequate transparency might be

¹⁰⁵ Patrick Stevenson, "Fund of Hedge Funds: Origins, Role and Future," in *Financial Stability Review; Special Issue, Hedge Funds*, ed. Banque de France, 2007), pp. 154-155.

¹⁰⁶ Though Amaranth collapse did not cause any systemic problem, almost no commentator believes that it was because of the registration. Some commentators believe that because it had limited exposure and investment in limited sectors of energy, its collapse did not amount to a systemic risk and financial instability. See Roach Jr., *Hedge Fund Regulation- "What Side of the Hedges are You on?",* p. 171.

¹⁰⁷ King and Maier, *Hedge Funds and Financial Stability: Regulating Prime Brokers Will Mitigate Systemic Risks,* pp. 293-294.

achieved without compromising hedge fund proprietary information by the limited system of information disclosure. The limits can be put in three dimensions:

1. Scope of information disclosure; such as specifying what type of information would be disclosed. For example information which is deemed systemically important for the financial markets can be required to be disclosed.
2. Temporality; financial information is generally time sensitive. Namely, it is mainly valuable when it is disclosed on time and the passage of time erodes its value. Some scholars support the delayed disclosure system to guard against the perils of disclosure of the proprietary information for hedge funds.¹⁰⁸ However, given the temporal nature of financial information, it remains to be seen how effective this system of information can be.
3. Confidentiality both in scope and its temporality. Hedge fund information disclosure, by scope, should be limited to the aggregate performance, exposures, and specific risk indicators.¹⁰⁹ As mentioned earlier, if the confidentiality of the proprietary information of hedge funds is compromised, it can seriously affect hedge funds' benefits to the financial markets.

Accordingly, the U.S. regulators decided to intervene and address hedge fund opacity problem choosing a qualified disclosure system, i.e., disclosure system with certain levels of confidentiality. This system was a compromise and a balance between competing interests of hedge funds, their investors, counterparties, regulators, and finally the taxpayers at large.

2.2.1. Required information

In general, title 15 U.S.C. § 80b-4(b)(1) sets out general guidelines for the SEC to delimit the scope of the disclosure requirement. The foremost general criterion that Congress sets out about the information to be disclosed and reports to be filed with the SEC is that the information

¹⁰⁸ Zingales, *The Future of Securities Regulation*, p. 393.

¹⁰⁹ It is reported that “[s]ome well-known quantitative third party risk management software providers now offer products and infrastructure that allow the fund manager and investors to share information without compromising confidentiality.” See Stevenson, *Fund of Hedge Funds: Origins, Role and Future*, pp. 154-155.

should be necessary and appropriate for the public interest, the protection of investors, and the assessment of systemic risk by the FSOC. Therefore, in requiring information disclosure, the Private Fund Act is guided by three main concerns involving protecting the public interest, protecting investors, and assessing the systemic risk.

Title 15 U.S.C. § 80b-4(b)(3) explicitly requires the private fund advisers to maintain the records and reports containing the description of the following items which are subject to inspection by the SEC:

1. the amount of AUM and use of leverage, including off-balance-sheet leverage;
2. counterparty credit risk exposure;
3. trading and investment positions;
4. valuation policies and practices of the fund;
5. types of assets held;
6. side arrangements or side letters, whereby certain investors in a fund obtain more favorable rights or entitlements than other investors;
7. trading practices; and
8. Such other information as the SEC, in consultation with the FSOC, deems necessary and appropriate in the public interest and for the protection of investors or for the assessment of systemic risk, which may include the establishment of different reporting requirements for different classes of fund advisers, based on the type or size of private fund being advised.¹¹⁰

2.2.2. Examination of records and confidentiality

Although information regulation enables third party monitoring,¹¹¹ such measures, if not accompanied by additional complementary measures such as adequate oversight would likely pose accountability problems due to potential for manipulation of information disclosure process

¹¹⁰ The duration of maintenance of the records and reports shall be determined by the SEC in line with the general principles of protecting public interest, investor protection, and systemic risk assessment.

¹¹¹ Jody Freeman, "Private Parties, Public Functions and the New Administrative Law," *Administrative Law Review* 52, no. 3 (2000), pp. 852-853.

by the industry.¹¹² Therefore, there is an additional need for examination and supervision of the disclosed information.

Such needs are intended to be met by the Private Fund Act by subjecting the advisers to the SEC inspections. The records kept by the private fund investment adviser are subject to the periodic inspection the frequency of which will be determined by a schedule established by the SEC. In addition to the periodic inspections, the SEC may conduct additional or special examinations in the furtherance of the public interest, protection of investors, and assessment of systemic risk.

The Private Fund Act establishes an inter-agency information sharing mechanism within which the SEC is required to make available to the FSOC copies of all systemically important reports, documents, records, and information provided to the SEC by an investment adviser. The systemic importance of the information will be determined by the FSOC.¹¹³

With respect to the concerns about leaking proprietary information, the Private Funds Act requires the SEC to maintain the confidentiality of reports.¹¹⁴ The SEC shall not be compelled to disclose any information. However, it cannot withhold information from Congress, upon an agreement of confidentiality, or from any other federal department or agency or any Self-regulatory Organizations (SROs) requesting the report or information for purposes within the scope of its jurisdiction. In addition, the SEC should comply with an order of a court of the United States in an action brought by the United States or the SEC to disclose the information to the court.

The FSOC has almost the same obligation to maintain the confidentiality of information.¹¹⁵ It should also conform to the Act in a manner consistent with the level of confidentiality established for the SEC. The Private Fund Act further requires other recipients of the information from the SEC such as any department, agency, or self-regulatory organization to maintain the confidentiality of the information in the same level consistent with the level of confidentiality established for the SEC.¹¹⁶ Therefore, all recipients of such proprietary information from the private funds including the SEC, the FSOC, and any other department, agency, or self-regulatory

¹¹² *Ibid.*

¹¹³ 15 U.S.C. § 80b-4(b)(7)(A)

¹¹⁴ 15 U.S.C. § 80b-4(b)(8)

¹¹⁵ 15 U.S.C. § 80b-4(b)(7)(B)

¹¹⁶ 15 U.S.C. § 80b-4(b)(9)

organization shall be exempt from the requirements of the Freedom of Information Act (FOIA).¹¹⁷

The Private Fund Act defines ‘proprietary information’ as any information which includes sensitive, non-public information regarding:

1. the investment or trading strategies of the investment adviser;
2. analytical or research methodologies;
3. trading data;
4. computer hardware or software containing intellectual property; and
5. any additional information that the SEC determines to be proprietary.¹¹⁸

After granting discretionary powers to the SEC, the Private Fund Act further requires the SEC to provide an annual report to Congress on how it had used the data collected from private funds to monitor the markets for the protection of investors and the integrity of the markets.¹¹⁹

In addition, the Private Fund Act sets out limitations on the power of the SEC with regard to its future disclosure policies. According to this section, the SEC does not have the authority to require investment advisers to disclose the identity, investments, or affairs of their clients. However, the SEC can impose disclosure requirements so far as such disclosure is necessary or appropriate in a particular proceeding or investigation the enforcement of which is related to the provisions regulating the private investment advisers or for purposes of assessment of potential systemic risk.¹²⁰

2.3. Assessment of information regulation in the Dodd-Frank Act

As discussed earlier, transparency plays an important role in the effectiveness of the market discipline. It also reduces uncertainty and increases liquidity in financial markets. Nevertheless, the usefulness of hedge fund data in estimating systemic risk and forecasting financial crises is questioned. In the hedge fund industry, the complexity of financial instruments, and the speed with which the trades occur and risks evolve are extraordinarily high. Therefore, it is very

¹¹⁷ 15 U.S.C. § 80b-4(b)(10)(A)

¹¹⁸ 15 U.S.C. § 80b-4(b)(10)(B)

¹¹⁹ 15 U.S.C. § 80b-4(b)(11)

¹²⁰ 15 U.S.C. § 80b-10(c)

unlikely that the disclosure of information can effectively be used by regulators to assess the potential systemic risk of hedge funds.¹²¹

In addition, information disclosure can impose substantial costs in terms of compliance on the industry, because it is the industry and not the regulator that shoulders the costs of disclosure requirements and compliance issues. In particular, the introduction of the detailed forms such as the form PF can potentially be very costly to the industry. Furthermore, the industry should shoulder the costs of the inspections and examinations to be conducted by the SEC. There are additional concerns about the discretionary powers granted by the Dodd-Frank Act to the SEC in conducting the examinations and inspections. Since the nature and politics of regulation encourages regulators to take a pro-active stance on regulation, it is not known how much costs the SEC's inspection and examination will impose on hedge funds.¹²² Regardless of the amount of costs, hedge funds may pass these costs on to the investors, which will eventually discourage them from investing in hedge funds, and further squeeze hedge funds' profit margin. Thus, in terms of compliance costs, information disclosure requirements for hedge funds can create potential *de facto* barriers to entry into the industry.

The disclosure of proprietary trading strategies could be very costly for hedge funds. By disclosing the detailed information, they risk being copycatted by other financial firms which can erode the value of their proprietary investment strategies. Therefore, there are two conflicting interests: increasing the transparency of the market and maintaining hedge fund benefits to the financial markets. In any case, the former should not come at the expense of the latter.¹²³ To achieve that end, the qualified system of information disclosure is introduced in the Private Funds Act to balance such conflicting interests by providing protections in terms of confidentiality to hedge funds' proprietary information.

Nonetheless, there remains the concern that with the increased amount of disclosure, the confidentiality of hedge fund data might in practice be compromised. Failure to sufficiently

¹²¹ Lloyd, Clancy and Kumar, *Hedge Funds and Systemic Risk*, pp. 72-74. See also Johnson, *Why Register Hedge Fund Advisers- A Comment*, p. 721.

¹²² There are circumstances in which regulators should not have taken any action, but they act (type I error) and circumstances in which regulators should have taken action, but they fail to do so (type II error). It is argued that the regulators usually minimize type II errors at the expense of type I error. See Daniélsson, Taylor and Zigrand, *Highwaymen or Heroes: Should Hedge Funds be Regulated? A Survey*, p. 537.

¹²³ Weber, *Hedge Funds: A Central Bank Perspective*, p. 166.

protect the confidentiality of hedge fund proprietary information and to enforce the relevant provisions of the law would substantially decrease the benefits of hedge funds to the financial markets.

Overall, hedge fund transparency will substantially be increased after the implementation of the Dodd-Frank Act's disclosure requirements. It is not only the requirements of the Private Fund Act that will require more hedge fund related information to be provided to the markets, but also hedge fund related information will be made available to the markets through other channels such as disclosure of short selling, and creation of the swap data repository. These are the new sources of information established by the Dodd-Frank Act which will make certain information about hedge funds available.

One of the downsides of the Dodd-Frank Act's transparency requirements is that they may result in higher likelihood of herding behavior among hedge funds. It is long acknowledged that one of the potential unintended consequences of imposing mandatory disclosure, particularly disclosure to investors rather than regulators, is that it might give rise to herding behavior in the market.¹²⁴ Therefore, one of the unintended consequences of enhanced disclosure and transparency, particularly involving the disclosure of proprietary information, might be the increase in the propensity of hedge funds to herd.

In addition, hedge funds voluntary disclosure to the markets will be increased due to the new provisions of the JOBS Act. Prior to this Act, hedge funds were timid in making any public disclosure because it could be regarded as general solicitation or public offering of their securities, hence infringing the private placement provisions of the securities laws. The JOBS Act provides a new channel for hedge funds to provide more information to the markets and the general public, thereby increasing the overall transparency of the industry.

¹²⁴ Stephen Bainbridge, "Mandatory Disclosure: A Behavioral Analysis," *University of Cincinnati Law Review* 68 (2000), 1023-1060.

For example, it is argued that the Regulation Fair Disclosure (Reg FD) in the U.S. which prohibits corporations from selective disclosure solely to market analysts or institutional investors would give rise to herd behavior among investors. See Scott Russell, "Regulation Fair Disclosure: The Death of the Efficient Capital Market Hypothesis and the Birth of Herd Behavior," *BUL Rev.* 82 (2002), 527. See also Anil Arya et al., "Unintended Consequences of Regulating Disclosures: The Case of Regulation Fair Disclosure," *Journal of Accounting and Public Policy* 24, no. 3 (0, 2005), 243-252.

The exemption granted to foreign hedge fund advisers can potentially be problematic and may create a potential loophole. The hedge fund industry is global and it is hard to assess the systemic risk of hedge funds without having aggregate information about the overall industry. The provisions exempting foreign private funds can be exploited by regulatory arbitrage by hedge funds. However, because other major jurisdictions started imposing similar regulations and requirements,¹²⁵ regulatory arbitrage is unlikely to happen.

Most of the above-mentioned concerns are at least partially alleviated by the fact that the Dodd-Frank Act has a laddered regulatory strategy towards information disclosure. It imposes less stringent requirements on start-up hedge funds. This laddered approach is particularly depicted in the fact that only hedge funds with AUM of more than 1.5 billion are required to fill out the complex sections of the form PF and hedge funds with less than \$150 million in AUM are not even required to register with the SEC.¹²⁶

2.4. Contingent direct regulation of hedge funds (Prudential regulation of SINBFCs)

The Dodd-Frank Act grants the authority to the FSOC to determine whether a non-bank financial company (which among other things includes hedge funds) shall be supervised by the Fed and be subject to the prudential standards. Such a determination should be made on a nondelegable basis and by a vote of not fewer than two-thirds of the voting members including the affirmative vote of the Chairperson of the FSOC.¹²⁷ If the FSOC determines that the “material financial distress at the U.S. nonbank financial company, or the nature, scope, size, scale, concentration, interconnectedness, or mix of the activities of the U.S. nonbank financial company, could pose a threat to the financial stability of the United States”, it will subject the company to the prudential supervision of the Fed.¹²⁸

Therefore, according to the above provision, the FSOC will designate a Nonbank Financial Company (NBFC) as a SINBFC and subject it to the prudential standards of the Fed if either of

¹²⁵ See, e.g., the Directive 2011/61/EU of the European Parliament and of the Council of 8 June 2011 on Alternative Investment Fund Managers and Amending Directives.

¹²⁶ However, they should register with the State regulators.

¹²⁷ The Secretary of the Treasury is the chairperson of the FSOC.

¹²⁸ 12 U.S.C. § 5323 (a)(1). See also 12 CFR § 1310.10

the following two standards is met. Under the first standard, a NBFC will be subject to the prudential standards of the Fed if the FSOC determines that the material financial distress at the NBFC could pose a threat to the U.S. financial stability. Under the second standard, a NBFC will be subject to the prudential standards of the Fed “if the nature, scope, size, scale, concentration, interconnectedness, or mix of the activities” of the NBFC could pose a threat to U.S. financial stability.¹²⁹ The Dodd-Frank Act also lists ten considerations for the FSOC to take into account while making such an assessment.¹³⁰ Furthermore, the FSOC has discretion to take account of any other risk-related factors that it deems appropriate.¹³¹

The considerations for designating the non-bank financial company as systemically important include, *inter alia*,

1. the extent of leverage;
2. off-balance sheet exposures;
3. the extent and nature of the transactions and relationships of the company with other significant NBFCs and significant bank holding companies (BHCs);
4. “the importance of the company as a source of credit for households, businesses, and State and local governments and as a source of liquidity for the United States financial system”;
5. whether the funds are managed or owned by the company;
6. the nature, scope, size, scale, concentration, interconnectedness, and mix of the activities of the company;
7. whether the company is already regulated by one or more financial regulatory agencies;
8. the amount and the nature of the financial assets of the company;
9. the amount and types of liabilities of the company including the degree of reliance on short-term funding; and
10. any other risk related factors that the FSOC deems necessary.¹³²

¹²⁹ 12 CFR Part 1310, Appendix A to part 1310—Financial Stability Oversight Council Guidance for Nonbank Financial Company Determinations.

¹³⁰ For more details, *See* 12 U.S.C. § 5323(a)(2)

¹³¹ 12 U.S.C. 5323(a)(2)(K) and (b)(2)(K)

¹³² 12 U.S.C. § 5323 (a)(2). *See also* 12 CFR § 1310.11

An analytical framework has been developed by the FSOC which puts all relevant factors including the above considerations into six categories: size, interconnectedness, substitutability, leverage, liquidity risk and maturity mismatch, and existing regulatory scrutiny.¹³³

Once a company is designated as a SINBFC, it will be subject to the prudential regulation by the Fed. Furthermore, the FSOC has the discretion to recommend that the Fed strengthen the prudential standards on a particular SINBFC and apply standards that are “more stringent than those applicable to other nonbank financial companies and bank holding companies that do not present similar risks to the financial stability of the United States”.¹³⁴

In April 2012, the FSOC promulgated the final rules expounding the process of designating a NBFC as systemically important. According to these rules, the FSOC may make such a designation if it determines that “‘material financial distress’ at the company could pose a threat to the U.S. financial stability or the nature, scope, size, scale, concentration, interconnectedness, or mix of the activities of the nonbank financial company’s business practices, conduct, or operations could pose a threat to U.S. financial stability, regardless of whether the nonbank financial company is experiencing financial distress.”¹³⁵

The rule introduces a three-stage process of evaluation in designating a nonbank financial company as a SINBFC. The firms meeting the first stage requirements will pass on to the next stage, and the firms meeting the second stage requirements will pass on to the third stage. A nonbank financial company will pass on the first stage if its total consolidated assets are \$50 billion or more and it meets or exceeds one of the following thresholds:

- \$30 billion in gross notional credit default swaps (CDSs);
- \$3.5 billion in derivatives liabilities;
- \$20 billion in total debt outstanding;
- a leverage ratio of 15 to 1;

¹³³ 12 CFR Part 1310, Appendix A to part 1310—Financial Stability Oversight Council Guidance for Nonbank Financial Company Determinations.

¹³⁴ 12 U.S.C. § 5325(a)(1)

¹³⁵ According to the FSOC, material financial distress exists when a nonbank financial company is in imminent danger of insolvency or defaulting on its financial obligations. *See* 12 CFR Part 1310.

- a ratio of total debt outstanding with maturity of less than 12 months to total consolidated assets of 0.1 (10 percent).¹³⁶

The FSOC can aggregate the risks posed by separate hedge funds managed by the same advisers, especially if the funds' investments are identical or highly correlated.¹³⁷ In Stage 1, the FSOC will solely rely on the information which is available through public and regulatory sources.¹³⁸

In Stage 2, the companies identified in the first stage will be analyzed. In this stage, in contrast to the quantitative thresholds of the first stage that should be met, the FSOC uses a wide range of quantitative and qualitative industry and firm specific factors which are available to them through public and regulatory resources to evaluate the risk profile of the individual company. In this stage, the FSOC can start the consultation process with the primary regulatory agencies of the company or its home country supervisors.¹³⁹ The firms meeting those thresholds will pass to the third stage. Following stage 2, the NBFCs identified for additional review will receive notice of being considered for a 'Proposed Determination' and pass to the third stage in which they will be subject to an in-depth evaluation.

In Stage 3, the FSOC will assess the potential risks of the company based on the information which is directly collected from the company and on the public and regulatory information which acquired in the process of the first and the second stage. It is in this stage that the NBFC can be designated as SINBFC by the two-thirds of the vote of the FSOC members including an affirmative vote of the Secretary of the Treasury.¹⁴⁰

As of 2012, only four hedge funds out of 50 hedge funds which are registered pursuant to the Dodd-Frank Act exceed the \$50 billion threshold. Therefore, the number of advisers exceeding the limit will be very limited.

Once a hedge fund is designated as a SINBFC, the Fed upon the recommendations of the FSOC will establish prudential regulations for such a fund. These prudential standards should include:

¹³⁶ See 12 CFR Part 1310.

¹³⁷ 12 CFR Part 1310, Appendix A to part 1310—Financial Stability Oversight Council Guidance for Nonbank Financial Company Determinations.

¹³⁸ *Ibid.*

¹³⁹ *Ibid.*

¹⁴⁰ *Ibid.*

1. risk-based capital requirements and leverage limits unless the Board of Governors, in consultation with the FSOC, determines that such requirements are not appropriate;
2. liquidity requirements;
3. overall risk-management requirements;
4. resolution plan and credit exposure report requirements; and
5. concentration limits.

The Fed may, but is not required to, establish the following additional prudential standards:

1. contingent capital requirement;
2. enhanced public disclosures;
3. short-term debt limits; and
4. other standards that the Board of Governors, on its own or pursuant to recommendations of the FSOC, deems appropriate.¹⁴¹

In short, from the standpoint of being systemically important, hedge funds can be put into three categories:

1. Hedge funds which are highly unlikely to be considered as systemically important. These hedge funds are not required to register with the federal regulatory agencies. However, the state registration requirements apply.
2. Hedge funds exceeding certain threshold (\$150 million of AUM) should register with the SEC. It is likely that these hedge funds contribute to financial instability through their interconnectedness with LCFIs or through herding behavior. Hence they are required to register with the SEC and disclose certain information thereto.
3. Hedge funds designated as SINBFCs. These hedge funds are considered systemically important not only because of their interconnectedness or herding behavior, but also because of their size and the level of leverage. Thus, they are subject to the prudential standards of the Fed.

The Managed Funds Association (MFA), a hedge fund industry association, estimates that applying the thresholds of the §113 of the Act, it is highly unlikely that any hedge fund would be designated as a SINBFC. In addition, the advisers who are approaching the threshold may divest

¹⁴¹ 12 U.S.C. § 5365(b)

of some assets to avoid being designated as SINBFC. Such a regulatory strategy is well designed to push the hedge funds which are in the periphery of the financial system not to approach to the apex of the system. If the prudential regulation by the Fed would be costly enough, it will decrease the probability that the law would apply to them with considerable elasticity.¹⁴²

2.4.1. Direct measures to address leverage and portfolio liquidity

As discussed in the first chapter, on the one hand, there is a possibility that the high levels of leverage coupled with illiquid hedge fund portfolios may lead to “massive deleveraging when the prime brokers withdraw credit in response to a financial shock.”¹⁴³ On the other hand, the same can happen if a significant number of hedge funds run on a prime broker in herd.¹⁴⁴ The Dodd-Frank Act establishes both direct and indirect regulatory measures to address the risks emanating from hedge funds’ leverage and liquidity. On the one hand, in its direct approach to regulating hedge funds, the Dodd-Frank Act imposes position limits on hedge funds and subjects them to stress tests. On the other hand, in indirect regulation of hedge funds’ leverage and liquidity, the Act imposes additional requirements on hedge funds’ counterparties particularly those designated as Systemically Important Bank Holding Companies (SIBHCs). In addition, it foresees a self-regulatory organization (SRO) for hedge funds which can potentially play a role in the self-regulation of liquidity and leverage of in the hedge fund industry.

2.4.2. Position limits

As mentioned above, the structure of financial regulation in the U.S. benefits from both institutional and functional approaches to regulation. Most provisions introduced by the Dodd-Frank Act target hedge funds as institutions. Other regulations will automatically be applied to hedge funds not only by virtue of their legal entity, but also because of the instruments and strategies that hedge funds employ in the furtherance of their objectives. Needless to say, such regulations will directly apply to hedge funds as they do to any other financial entity engaging in those instruments, strategies, or transactions. For example, the Dodd-Frank Act authorizes the

¹⁴² For the concept of elasticity of law and periphery and apex (hierarchy of the financial system), See Pistor, *A Legal Theory of Finance*, 315-330.

¹⁴³ Lloyd, Clancy and Kumar, *Hedge Funds and Systemic Risk*, pp. 92-96

¹⁴⁴ These possibilities are studied in detail in the first and second chapters of this dissertation.

CFTC to impose limits on the size of positions held by any person in futures and options markets.¹⁴⁵ The mere engagement in such transactions will trigger the regulatory rules and standards which will apply to any entity regardless of its legal status.

The Dodd-Frank Act imposes certain limits on the individual financial instruments and the “aggregate number or amount of positions in contracts based on the same underlying commodity by any person, including any group or class of traders.”¹⁴⁶ These limits will apply to physical commodities other than excluded commodities. They will not apply to the bona fide hedging positions. The CFTC is also granted with the authority to determine the limits and exempt commodity or class of transactions from position limits.¹⁴⁷ Given the discretion granted to the CFTC, the actual impact of these provisions will depend on their implementation by the CFTC.¹⁴⁸

These position limits can reduce the concentration and increase the liquidity of hedge fund portfolio.¹⁴⁹ However, there are certain limits and exceptions that can diminish the effects of such measures. First, the position limits only apply to physical commodities. And they do not apply to the positions in markets such as markets for financial derivatives. Secondly, position limits may not adequately address the systemic risk arising from the mid-sized hedge funds taking highly-correlated positions (herding). Thirdly, the exemption of bona fide hedging positions from the position limits can potentially be problematic. Although such exemptions are necessary, it is difficult to distinguish bona fide hedging positions from speculative positions. Therefore, in implementation phase, the effectiveness of position limits might be compromised.¹⁵⁰

In addition, as for the SINBFCs, the Dodd-Frank Act imposes limits on short-term debt. Based on such authority given by the Dodd-Frank Act, the Fed can impose financing requirements.

¹⁴⁵ 7 U.S.C. § 6a

¹⁴⁶ 7 U.S.C. § 6a(a)(6)

¹⁴⁷ 7 U.S.C. § 6a(a)(7)

¹⁴⁸ *Ibid.*

¹⁴⁹ *Ibid.*

¹⁵⁰ *Ibid.*

Such requirements can inhibit the fire-sales in the financial distress and hence can prevent potential liquidity spirals.¹⁵¹

2.4.3. Stress tests

Once a hedge fund is designated as a SINBFC, the Fed must conduct annual stress test of the fund. The aim of stress tests is to evaluate whether the SINBFC has enough capital as a buffer to absorb losses as a result of adverse economic conditions. The stress test is done under three sets of assumptions about economic circumstances: baseline, adverse, and severely adverse environment.¹⁵²

A SINBFC should conduct semiannual stress tests. In addition, any financial company with more than \$10 billion in total consolidated assets which is regulated by a primary federal regulatory agency should conduct an annual stress test, and should submit a report of the stress test to the Fed and its primary federal regulatory agency. In addition, such a company is required to publish a summary of the results.¹⁵³

Conclusion

In general, the effectiveness of the Dodd-Frank Act in achieving its objectives remains highly controversial. The effects of the newly introduced regulations in the U.S. on the hedge fund industry also remain unclear. For instance, some commentators suggest that the financial world will be as prone to bailouts as it used to be prior to the Dodd-Frank Act.¹⁵⁴ Other scholars view the potential regulatory arbitrage as the element which can render most of the regulatory

¹⁵¹ *Ibid.*

¹⁵² 12 U.S.C. §5365(i)(1)(B)(i)

¹⁵³ 12 U.S.C. §5365(i). Under §2 of Dodd-Frank Act, the SEC is the primary federal financial regulatory agency for hedge fund advisers. In November 2011, the Fed issued a final rule on capital and stress-testing requirements for the BHCs. It is expected that those requirements will be extended to NBFCs supervised by the Fed pursuant to section 113 of the Dodd-Frank Act.

¹⁵⁴ Skeel, *Making Sense of the New Financial Deal*, p. 182.

measures of the Dodd-Frank Act ineffective. It is also suggested that the hedge fund industry is not dramatically affected by the new regulatory measures.¹⁵⁵

As the findings of the second chapter suggest, problems involving leverage and liquidity can potentially be at the heart of the financial crisis, and the Dodd-Frank Act addresses the problem by introducing direct and indirect measures to limit hedge funds' potential excessive leverage and illiquidity. In addition, the Dodd-Frank Act takes a laddered regulatory approach to regulation of hedge funds. The benchmark for direct regulation of hedge funds is their size. Hedge funds with less than \$50 billion in consolidated assets cannot be considered as SINBFCs. The number of advisers exceeding the \$50 billion AUM subject to regulation is extremely limited. Therefore the number of hedge funds that will be subject to stringent regulation such as being required to conduct stress tests will remain very limited. Hence, it is expected that the direct regulation of hedge funds will be of very limited impact on hedge funds at large and their liquidity.¹⁵⁶ Since hedge funds are unlikely to fall under the purview of direct regulation, they will mostly be regulated indirectly. However, there are concerns that market discipline which will be enforced by the indirect regulation of hedge funds cannot effectively address their potential risks. Particularly, it is argued that the prime brokers are not adequately equipped to monitor the liquidity risks of hedge funds.¹⁵⁷

There is a downside to the laddered regulatory approach to hedge funds which is basically based on hedge funds' size. The Dodd-Frank Act cannot address the risks arising from a large number of hedge funds' potential herd behavior. Since the Act is opted for firm-by-firm designation of hedge funds as SINBFCs, it is unlikely that the Act can address the small and mid-sized hedge funds herd behavior. To mitigate such risks, the Dodd-Frank Act grants discretion to financial regulators such as the SEC and CFTC to address industry-wide liquidity issues.

The positive side of such a regulatory strategy, however, is that it will induce hedge funds to reduce their size to avoid being designated as SINBFC and heavier and more costly regulation. This strategy is a sound regulatory strategy because it discourages firms from getting closer to the apex of the financial system. Few hedge funds will be designated as SINBFCs and become

¹⁵⁵ Wulf A. Kaal, "Hedge Fund Manager Registration under the Dodd-Frank Act," *San Diego Law Review* 50 (May-June 2013), 243-318.

¹⁵⁶ Lloyd, Clancy and Kumar, *Hedge Funds and Systemic Risk*, pp. 92-96.

¹⁵⁷ *Ibid.*

subject to the direct regulations of the Fed. Most hedge fund leverage and liquidity regulation will rest with the prime brokers which in turn are regulated by the Fed.

On the other hand, there are additional considerations with respect to hedge fund regulation which should be taken into account. The most important of these considerations is the costs of such regulation. Specifically, it should be determined whether the restrictions of hedge fund leverage and liquidity may adversely affect their positive contribution to financial markets. It is suggested that the smaller funds will be more affected by the requirements of the Dodd-Frank Act than bigger hedge funds.¹⁵⁸ As discussed earlier, one of the most policy relevant aspects of hedge fund regulation relates to “the transient nature of hedge funds”. Structurally and organizationally, banks are capable of developing robust and complex regulatory compliance department because they often have longer life expectancy and there are considerable economies of scale in their regulatory costs. While considering the higher attrition rate¹⁵⁹ in the hedge fund industry, it might not be optimal or efficient to force hedge funds to develop regulatory compliance departments for such short-lived institutions.¹⁶⁰ Such regulatory requirements can damage start-up and small hedge funds disproportionately.

The next concern is about the regulatory arbitrage, namely, the regulation of hedge funds in the U.S. might give rise to regulatory arbitrage and potential exodus of hedge funds to regulatory safe heavens or other jurisdictions with lightly regulated markets. However, it seems that with the current level of coordination between regulators, and more interventionist approach taken in the EU,¹⁶¹ the prospects of hedge fund regulatory arbitrage is a very gloomy one, because other hedge fund major jurisdictions are introducing more stringent regulations on the industry.

Last but not certainly least, timing in reporting matters and it is not clear whether regulators can move as quickly as markets do, or quickly enough to have an impact in inhibiting systemic risk. Given the inherent sluggishness of regulation and legal processes, it is highly unlikely that regulators can use disclosed information by hedge funds to mitigate concerns about systemic risk and financial instability.

¹⁵⁸ Kaal, *Hedge Fund Manager Registration under the Dodd-Frank Act*, 243-318.

¹⁵⁹ Attrition rate refers to rate of shrinking in the number of hedge funds due to hedge fund closures.

¹⁶⁰ Lloyd, Clancy and Kumar, *Hedge Funds and Systemic Risk*, pp. 92-96.

¹⁶¹ This will be studied in chapter 6 of this dissertation.

CHAPTER 5: HEDGE FUND REGULATION IN THE U.S. (II): THE VOLCKER RULE AND THE INDIRECT REGULATION APPROACH

Introduction

The benefits and the potential risks of hedge funds were extensively discussed in the first and the second chapters of the thesis. This discussion revealed that the size and leverage of hedge funds are far from being systemically important. However, the empirical evidence on hedge fund interconnectedness and herding behavior is mixed. Therefore, these two considerations remain a major concern for regulators. It is further argued that the presence of systemic risk provides a rationale for public policy intervention in the hedge fund industry. However, systemic risk regulation of hedge funds would rather focus on hedge fund interconnectedness and herd behavior than on their size and leverage. Following this logic, the U.S. post-crisis regulation of hedge funds, unlike its European counterpart, opted for being less direct and interventionist and more indirect in its approach which focuses on the relationship of the hedge fund industry with the Large Complex Financial Institutions (LCFIs). In order to focus on the interconnectedness of hedge funds with LCFIs, the U.S. regulators adopted an indirect regulatory approach. As discussed in the third chapter, the direct or entity regulation involves regulatory measures focusing immediately on the regulation of the target industry as a “discrete activity or as part of the broader, regulated investment services universe.”¹ In contrast, the imperatives or commands of indirect regulation is mediated by or transmitted through an intermediary to the (primarily intended) regulated entity or activity, which is ultimately the target. The indirect regulation of hedge funds in the U.S. is epitomized in the introduction of the Volcker Rule which focuses on the banking entities and places restrictions on their relationships with private funds.

Again, as discussed in the second chapter, LCFIs have at least three main relationships with hedge funds; they can be hedge funds’ prime brokers, their trading counterparties, and their owners or managers. These three main roles are not mutually exclusive, and one LCFI can simultaneously undertake all three tasks.² The greatest concern arises when those three roles

¹ Athanassiou, *Hedge Fund Regulation in the European Union: Current Trends and Future Prospects*, p. 227.

² King and Maier, *Hedge Funds and Financial Stability: Regulating Prime Brokers Will Mitigate Systemic Risks*, p. 290.

overlap and concentrate in one LCFI. The Volcker Rule (bearing the name of its mastermind, Paul Volcker) is one of the regulatory reforms which aims at addressing problems associated with hedge fund interconnectedness with LCFIs. It is indeed an attempt to indirectly regulate hedge funds through direct regulation of banks which often perform the role of hedge fund counterparties, creditors, sponsors, investors, or prime brokers. For years, depository institutions such as commercial banks used to be involved in alternative investments providing various services for hedge funds. Among other things, commercial banks used to extend credit to hedge funds, act as their intermediaries and counterparties, manage their assets, invest in hedge funds, act as their prime broker, custodian of their assets, and even establish hedge funds for themselves (known as bank proprietary trading desk). Subject to certain exceptions, section 619 of the Dodd-Frank Act³ prohibits banking entities (depository institutions) from engaging in proprietary trading and investing in or sponsoring hedge funds and private equity funds. The primary goal of this provision, which is known as the Volcker Rule, is to prohibit the banking system from speculative trading with the banks' own capital, mitigate the potential conflict of interests between banking entity and its customers, and reduce the risks to the banks and non-bank financial companies designated as Systemically Important Nonbank Financial Companies (SINBFCs) which are subject to supervision by the Board of Governors of the Federal Reserve System (the Board).⁴

1. The Volcker Rule: A historical retrospect

To better understand the evolution of the Volcker Rule, some historical context is in order. The Volcker Rule's prohibition on the proprietary trading and sponsorship of hedge funds and private equity funds is reminiscent of the restrictions first introduced by the Glass-Steagall Act⁵ which restricted commercial banks from engaging in the high risk and speculative investment banking activities.

Commercial banking basically involves deposit taking and making loans. Although the sources of funding and the methods through which commercial banks are making loans are diversified,

³ 12 U.S.C. § 1851

⁴ Financial Stability Oversight Council, *Study & Recommendations on Prohibitions on Proprietary Trading & Certain Relationships with Hedge Funds and Private Equity Funds*, January 2011), p. 15.

⁵ The Volcker Rule is sometimes called 'the Glass-Steagall Lite'.

such a function remains the core activity of commercial banks.⁶ On the contrary, investment banking involves activities such as underwriting (assisting firms in raising capital), advisory services, mergers, acquisitions and loan restructuring, trading and brokerage services, and asset management services including both traditional and alternative asset management.⁷

In the last decades of the 19th century commercial banks were increasingly entangled with the investment banking activities raising concerns about the conflict of interests within the banking industry. The first attempt to separate the investment banking from commercial banking was made in 1902 by a ruling by the Comptroller of the Currency according to which National Banks were prohibited from engaging in investment banking business. However, in 1903 the First National Bank of Chicago could circumvent this ruling by creating its securities affiliate.⁸ Being approved by the Comptroller,⁹ this method of avoiding the ruling soon became widespread and commercial banks could effectively perform investment business through their securities affiliates.¹⁰

Thereafter, as part of the regulatory overhaul after the Great Depression, the enactment of the Banking Act of 1933 known as ‘the Glass-Steagall Act’¹¹ officially separated investment banking from commercial banking. The simultaneity of the introduction of the Federal Deposit Insurance Corporation (FDIC) and the Glass-Steagall Act included in the same bill (the Banking Act of 1933) was not a simple coincidence. Initiated by Senator Carter Glass and Congressman Henry Steagall, the Glass-Steagall Act was to prevent the risk of speculation of banks at the expense of the proposed FDIC. Pursuing such a goal, it restricted the commercial banking activities to commercial lending and trading in less risky activities such as government bonds, while other activities were placed in the investment banking framework.¹²

⁶ Iannotta, *Investment Banking: A Guide to Underwriting and Advisory Services*, pp. 1-2.

Commercial banking plays an important role in the operation of the payment system as well. Given such a narrow definition, commercial banks are sometimes called ‘narrow banks’.

⁷ *Ibid.*

⁸ Morrison and Wilhelm Jr., *Investment Banking: Institutions, Politics, and Law*, pp. 196-197.

⁹ Since the securities affiliate was formed as a state bank, and the regulation of the state banks were with the relevant state authorities, the comptroller did not object to this innovation. *See Ibid.*

¹⁰ *Ibid.*

¹¹ Indeed, only four sections of the Banking Act of 1933, comprises the Glass-Steagall Act.

¹² Acharya and Richardson, *Implications of the Dodd-Frank Act*, p. 5.

Some commentators argue that the true motive behind the Glass-Steagall Act was the lobbying by investment banks which resulted in an Act which protected them from competing with commercial banks. *See Jonathan R. Macey,*

The similarities between the rationales for the enactment of the Glass-Steagall Act and the enactment of the Volcker Rule are striking. One of the impulses driving the Glass-Steagall Act was the financial crisis of the 1930s which triggered sweeping regulatory reforms. The reason that Congress enacted the Glass-Steagall Act was that from 1930 to 1933, around 11,000 banks failed.¹³ The Congressional hearings on the bill proposing the Glass-Steagall Act found the causes of the crash in the practices of the banking entities which were proprietary in nature, such as underwriting and investment in securities.¹⁴ Although there were no hedge funds at that time, interconnectedness of the hedge fund-like investment strategies (proprietary trading) with large complex banking institutions imposing significant losses on financial institutions and giving rise to systemic risk acted as a catalyst for the enactment of the Glass-Steagall Act.

Passed in 1933, the Act recognized that with the introduction of the deposit insurance mechanism, and requiring member banks to be insured by the FDIC, some limits should be set to their activities. Hence, to prevent opportunistic behavior such as excessive risk taking at the expense of the FDIC, the Act prohibited federally insured banks from engaging in investment banking and using deposits for trading on their own account. The practical way of doing this was to separate commercial banking from investment banking.

The second reason behind the Glass-Steagall Act was the conflict of interest embedded in the comingling of the investment banking business with commercial banking. Specifically, the Glass-Steagall Act was to address the conflict of interests embedded in financing companies by financial intermediaries and those offering the securities to investors. Although some scholars doubt that this situation was a serious case of conflict of interests,¹⁵ the main concern was that the commercial banks being the main lenders to the companies, and having good knowledge of

"Special Interest Groups Legislation and the Judicial Function: The Dilemma of Glass-Steagall," *Emory Law Journal* 33, no. 1 (1984), 1-40.

¹³ For an estimated number of bank failures during the Great Depression, See John R. Walter, "Depression-Era Bank Failures: The Great Contagion or the Great Shakeout?" *Federal Reserve Bank of Richmond Economic Quarterly* 91, no. 1 (2005), pp. 44-46.

¹⁴ See Edwin J. Perkins, "The Divorce of Commercial and Investment Banking: A History," *Banking Law Journal* 88, no. 6 (1971), 483-528. Quoted from: R. Rex Chatterjee, "Dictionaries Fail: The Volcker Rule's Reliance on Definitions Renders it Ineffective and a New Solution is Needed to Adequately Regulate Proprietary Trading," *Brigham Young University International Law & Management Review* 8 (2011), p. 36.

¹⁵ Randall S. Kroszner and Raghuram G. Rajan, "Is the Glass-Steagall Act Justified? A Study of the U.S. Experience with Universal Banking before 1933," *American Economic Review* 84, no. 4 (1994), 810-832.

their financial situation would sell risky (about to default) securities to unsophisticated investors.¹⁶

This conflict of interest primarily lies in the different duties and functions that are entrusted to the commercial and investment banks. Commercial banks have to give the customers sound and impartial advice while investment banks and securities dealers' functions include, inter alia, generating profits by underwriting, selling, trading, and distribution of securities. Therefore, a bank acting as both a customer's agent and a dealer on the same transaction inevitably faces a conflict of interests. For instance, an investment bank within a universal banking model that underwrites initial public offerings (IPOs) might ill-advise the clients and customers (depositors) into buying the low-quality and less-promising securities.¹⁷ To mitigate these conflicts of interests, the Glass-Steagall Act prohibited commercial banks from underwriting securities altogether by walling off commercial banking from investment banking.¹⁸

There were enormous controversies about the costs and benefits of the Glass-Steagall wall. Many commentators questioned its underlying rationale.¹⁹ For example, it was argued that securities underwritten by the banking entity's affiliates within the universal banks outperformed comparable securities underwritten by independent non-conflicted investment banks. What confirms these findings is that superior performance is mostly attributable to the lower-rated and most information-sensitive issues of securities.²⁰ This finding clearly runs counter to the idea that mixing investment and commercial banking can encourage managers to take advantage of the government guarantees on deposits and overall encourage greater risk taking.

¹⁶ Zingales, *The Future of Securities Regulation*, pp. 415-416.

¹⁷ One of the main cases of conflict of interests arose in the banks between its different departments. The problem was that the research departments of investment banks were financed by the profits of the investment banks. Such a situation gave rise to the conflict of interest between banks' analysts and their investment banking division. Because under such a system the banks' analysts might be inclined or pressured to support and recommend companies that the investment bankers of the bank underwrote its securities. In the end, discoveries of such conflict of interest led to the separation of research division and investment banking in two different subsidiaries by establishing Chinese wall between research and corporate finance division within investment banks. See Heffernan, *Modern Banking*, pp. 19-23.

¹⁸ The Glass-Steagall Act also contained exceptions. For example, commercial banks were allowed to underwrite municipal bonds, U.S. government bonds, and engage in private placements.

¹⁹ For example, Macey believes that this separation was a result of the lobbies by investment banks to keep commercial banks at bay. See Macey, *Special Interest Groups Legislation and the Judicial Function: The Dilemma of Glass-Steagall*, 1-40.

²⁰ Kroszner and Rajan, *Is the Glass-Steagall Act Justified? A Study of the U.S. Experience with Universal Banking before 1933*, p. 819.

Based on their findings, Kroszner and Rajan argue that the investor protection argument which underlies the role of conflict of interests for separating investment activities from banking activities is not justifiable. They further argue that since the public markets and rating agencies were aware of the potential conflict of interest, they imposed a 'lemons market' discount on information sensitive securities underwritten by the affiliates of commercial banks. In response to that, banking entities' affiliates turned away from underwriting information-sensitive securities and started underwriting securities that were less information-sensitive.²¹ Their finding confirms the idea that the market forces can provide sufficient checks on the power of the affiliates of commercial banks and adequate monitoring mechanisms for the resolution and reigning in such potential conflict of interests. Based on almost the same logic, other empirical evidence also suggests that the universal banks did not exploit such conflicts of interest.²²

However, the wall erected by the Glass-Steagall Act between commercial and investment banking activities proved to be easily penetrable even before being torn down by the Gramm-Leach-Bliley Act in 1999. The enactment of the Gramm-Leach-Bliley Act started an era of deregulation of the financial industry within which commercial banks expanded their activities into securities underwriting. Indeed, at the end of the 20th century, the investment banks could operate as they did in the beginning of the century.²³ The fall of the Glass-Steagall wall started the period in which financial markets became dominated by universal banks. Under the universal banking system, the bank, as one legal entity, offered a full range of banking and non-banking financial services.²⁴ The services offered by universal banks include financial intermediation, liquidity provision (market making), providing payment facilities, trading in financial instruments, conducting proprietary trading, acting as brokers, offering advisory services, investment management, and insurance services.²⁵

²¹ *Ibid.* Though counterintuitive, it seems that market discipline inspired self-regulation originated from the reputational concerns in repeated commercial activities (versus enforced self-regulation) was to a great extent effective in regulating the conflict of interests in commercial banking. *Ibid.* See also Morrison and Wilhelm Jr., *Investment Banking: Institutions, Politics, and Law*, pp. 121-154.

²² Manju Puri, "Commercial Banks in Investment Banking Conflict of Interest or Certification Role?" *Journal of Financial Economics* 40, no. 3 (3, 1996), 373-401.

²³ Morrison and Wilhelm Jr., *Investment Banking: Institutions, Politics, and Law*, p. viii.

²⁴ Heffernan, *Modern Banking*, p. 19.

²⁵ *Ibid.* One of the effects of the gradual erosion and final repeal of the Glass-Steagall Act was the collapse of the underwriting spreads both for equity and debt underwritings. This is mostly attributed to the fact that the repeal of the Glass-Steagall Act allowed commercial banks to enter the securities underwriting business and made the markets more competitive with the end result of reduction in the spreads. Since debt offerings are less information sensitive,

2. The Volcker Rule: Motivation and objectives

In general, the Volcker Rule seeks to address three problems in financial industry. Managing systemic risk by addressing the contagion channels between hedge funds and depository institution, managing conflict of interests where depository institutions engage in proprietary trading and investment in or sponsorship of hedge funds, and limiting the transfer of government subsidies from depository institutions to private funds (cross-subsidization of private funds).

2.1. Managing systemic risk by closing contagion channels

One of the main objectives of the Volcker Rule is to address the risks originating from interconnectedness and inter-linkages of hedge funds with systemically important financial institutions (SIFIs) with the aim of containing contagion of risks from hedge funds to commercial banks. The Volcker Rule has its genesis in the recommendations of the Group of Thirty (chaired by Paul Volcker) issued immediately after the financial crisis. The report highlights several problems with proprietary trading and interrelationships of banking entities with hedge funds. The first and foremost of these problems involves potential systemic aspects of hedge funds and their interconnectedness with LCFIs. The report goes on emphasizing that, among other things, large losses in proprietary trading and sponsorship of hedge funds and exposure to structured credit products during the financial crisis placed banking entities at risk and undermined their ability to meet their responsibilities towards their clients, counterparties, and investors.²⁶

In order to understand the systemic risk concerns about hedge funds and their relationship with banks, it is important to highlight hedge funds as part of the shadow banking system. The shadow banking system (also known as securitized banking) is a system of credit intermediation involving activities and institutions outside the traditional banking system.²⁷ It mostly refers to the origination, acquisition, and pooling of debt instruments into diversified pools of loans and

they responded more rapidly to the forces of competition emanating from the new entrants than the equity offering with higher information sensitivity. See Morrison and Wilhelm Jr., *Investment Banking: Institutions, Politics, and Law*, pp. 24-25.

²⁶ The Group of Thirty. Working Group on Financial Reform, *Financial Reform: A Framework for Financial Stability*, p. 27.

²⁷ Financial Stability Board, *Progress in the Implementation of the G20 Recommendations for Strengthening Financial Stability: Report of the Financial Stability Board to G20 Finance Ministers and Central Bank Governors*

financing the pools with short term external debt.²⁸ It is mostly because of this function that the shadow banks are given the label of “non-banks performing bank-like functions”.²⁹ It is also due to its financial intermediation function that the shadow banking system is considered as an alternative term for market finance³⁰ because it “decomposes the process of credit intermediation into an articulated sequence or chain of discrete operations typically performed by separate specialist non-bank entities which interact across the wholesale financial market”.³¹ In the recent global financial crisis, the shadow banking system played a major role;³² however, it attracted less attention in regulatory overhaul triggered by the repercussions of the crisis.

Taking the above definitions of the shadow banking into account, it seems that the key to identifying shadow banks is spotting the maturity transformation function in their activities. Maturity transformation entails a mechanism for intermediation through which the short-term deposits are transformed into long-term credits, i.e., borrowing short and lending long. In other words, it involves issuing short-term liabilities to finance long-term assets.³³ Banks’ role in maturity transformation which involves holding longer terms assets than liabilities delivers major economic and social value by enabling non-bank sectors of the economy to hold shorter term assets than liabilities, ultimately encouraging long-term capital investments.³⁴

The maturity transformation though beneficial to the overall economy, involves major risks. This risk arises from the nature of maturity mismatch between assets (particularly long-term loans) and liabilities (particularly demand deposits) of banking entities which historically resulted in many bank runs and panics.³⁵ The banks have developed specific arrangement to address risks

²⁸ Gennaioli, Shleifer and Vishny, *A Model of Shadow Banking*.

²⁹ The “non-banks credit intermediation” is another term for shadow banking used by the FSB. See Financial Stability Board, *Progress in the Implementation of the G20 Recommendations for Strengthening Financial Stability: Report of the Financial Stability Board to G20 Finance Ministers and Central Bank Governors*.

³⁰ European Repo Council, *Shadow Banking and Repo*.

³¹ *Ibid.* See also European Commission, *Green Paper: Shadow Banking*.

³² Gary Gorton and Andrew Metrick, "Securitized Banking and the Run on Repo," *Journal of Financial Economics* 104, no. 3 (2012), 425-451.

The role of shadow banks in the recent financial crisis is well illustrated in detail in Gorton, *Slapped by the Invisible Hand: The Panic of 2007*.

³³ Paces and Dirk, *Regulation of Banking and Financial Markets*". More often than not, the maturity transformation in banking is accompanied by liquidity transformation; however, there might be instances that banks engage in liquidity transformation without engaging in maturity transformation.

³⁴ Financial Services Authority (FSA), *The Turner Review: A Regulatory Response to the Global Banking Crisis*, March 2009), p. 21. See also Gary B. Gorton, *Misunderstanding Financial Crises: Why we Don't See them Coming* (New York: Oxford University Press, 2012).

³⁵ Kindleberger and Aliber, *Manias, Panics, and Crashes: A History of Financial Crises*.

arising from involving in maturity transformation which is mostly reflected in their liquidity policies. These policies often involve limiting the extent of the maturity transformation of banks and “the insurance via committed lines from other banks”³⁶ or borrowing from interbank repo markets.

In addition to banks’ own risk mitigating strategies, to prevent the runs on banks, their deposits are insured by the government. The main benefit from deposit insurance is preventing bank runs and panics, thereby sustaining financial stability.³⁷ Further, banks are provided with access to the ‘discount window’ or the ‘lender of last resort’ (LOLR) facilities of central banks. The LOLR function of central banks is devised to prevent bank runs on illiquid but solvent banks when they have liquidity problems due to their inability to borrow from interbank market or other facilities of central banks.³⁸ All these protections are to ensure that a banking entity’s main function, i.e., maturity transformation, and their role in payment system are not impaired because of sudden liquidity shocks.

However, unlike banks that are allowed to accept deposits, shadow banks mostly rely on credit markets for funding and are prohibited from taking deposits.³⁹ Accordingly, they also are not provided with a mechanism similar to deposit insurance scheme to insure their short-term liabilities. Furthermore, shadow banks do not enjoy explicit government guarantees such as access to liquidity back up (discount window). And this is where the risks lie in the shadow banking system.

³⁶ Financial Services Authority (FSA), *The Turner Review: A Regulatory Response to the Global Banking Crisis*, p. 21.

³⁷ Alan S. Blinder and Robert F. Wescott, *Reform of Deposit Insurance: A Report to the FDIC*, March 20, 2001) Indeed, the protection of small depositors is an incidental benefit of deposit insurance schemes.

³⁸ For more information on the Lender of Last Resort (LOLR) function of central banks, See Xavier Freixas et al., "Lender of Last Resort: What have we Learned since Bagehot?" *Journal of Financial Services Research* 18, no. 1 (2000), 63-84. See also Xavier Freixas and Bruno M. Parigi, "The Lender of Last Resort of the 21st Century," in *The First Global Financial Crisis of the 21st Century: Part I June-December 2008*, eds. Andrew Felton and Carmen M. ReinhartVoxEU.org Publication, 2009), 163-167.

Historically, the LOLR function in the market was played by private financial institutions. A bold example of taking up of such a role in the crisis of 1907 was J. P. Morgan’s provision of liquidity to markets and institutions in the banking panic of that year. See Robert F. Bruner and Sean D. Carr, *The Panic of 1907: Lessons Learned from the Market’s Perfect Storm* (Hoboken, New Jersey: John Wiley & Sons, Inc., 2007).

However, after the 1913, the year in which the Federal Reserve came into being, it took up such a function.

³⁹ Even with all those prohibitions, money market mutual funds (MMMFs) developed products that were similar to demand deposits.

Structured Investment Vehicles (SIVs), investment banks, and mutual funds created deposit-like investment opportunities with the prospects of upside gain by attracting investment from investors by promising on-demand redemption rights and implicit or explicit guarantees to the investors that the capital invested in the fund will not fall below its initial investment value.⁴⁰ However, the risk in a system which heavily relies on short-term liabilities is that if a liquidity crisis hits, the financial institutions have to immediately sell assets to meet redemptions by investors, such a behavior contributes to the systemic liquidity crises.⁴¹ Such maturity mismatches in shadow banks causing deleveraging and resulting in fire sales and liquidity spirals are vastly evidenced in the recent financial crisis.⁴² These individual deleveraging and fire sales in the shadow banking can spread through contagion channels and interconnectedness with banks ultimately contributing to financial instability. Therefore, as one of the major drivers of banking regulation was systemic concerns, the same concern applies to the shadow banking.

In addition, since traditional banks are already regulated, there are concerns that unregulated or lightly regulated shadow banks without those government guarantees might pose greater systemic risk than the regulated traditional banks.⁴³ Besides the risks posed to the interbank repo market, a host of other concerns might be raised with respect to systemic risk arising from the shadow banking system including, *inter alia*, the interconnectedness of shadow banks with traditional banking system and other shadow banks, lack of transparency and insufficient disclosure, agency problems in the securitization process, regulatory arbitrage and their level of leverage.⁴⁴

Likewise, the maturity transformation in the hedge fund industry can happen through hedge funds or hedge fund-like entities' engagement in originating derivative instruments such as

⁴⁰ These were sometimes called Negotiable Order of Withdrawal accounts or (NOW accounts).

⁴¹ Financial Services Authority (FSA), *The Turner Review: A Regulatory Response to the Global Banking Crisis*, p. 21.

⁴² Brunnermeier, *Deciphering the 2007–2008 Liquidity and Credit Crunch*, 77-100. See also Markus K. Brunnermeier and Lasse Heje Pedersen, "Market Liquidity and Funding Liquidity," *The Review of Financial Studies* 22, no. 6 (Jun., 2009), 2201-2238.

⁴³ It is apt to note that regulation by itself should not mean that the banks are safer than shadow banks. Empirical evidence suggests that the banks' capital are far lower than that of shadow banks; meaning that shadow banks on average are far less leveraged than traditional regulated banks. Taking excessive risk by leverage is seen as an unintended consequence of the government guarantees for banks. See Admati and Hellwig, *The Bankers' New Clothes: What's Wrong with Banking and What to Do about It*.

⁴⁴ See European Repo Council, *Shadow Banking and Repo*.

mortgage backed securities (MBSs)⁴⁵ and collateralized debt obligations (CDOs). Although hedge funds cannot easily engage in maturity transformation, they may be engaging in liquidity transformation when they invest in securitized debt instruments and particularly in MBSs.⁴⁶ Therefore, some types of hedge funds can be considered shadow banks. As mentioned above, absent government safety net, because of the engagement of shadow banks in maturity, credit, or liquidity transformation, they can be as fragile as traditional banks.⁴⁷

Hedge funds' potential role in credit intermediation can make not only hedge funds, but also banking entities which are connected to hedge funds very fragile in case of any shocks to the system. For example, the SIVs which heavily engaged in maturity transformation also helped traditional banking entities to conceal the risks of off-balance-sheet items.⁴⁸ One of the aims of the Volcker Rule is to address the problems originated from the use of shadow banks by banking entities. The Volcker Rule tries to close some channels of contagion through which the risks of the shadow banks might propagate to LCFIs such as banks.

2.2. Managing conflict of interest

One of the motivating concerns for the Volcker Rule, as it was for its predecessor, the Glass-Steagall Act, was that the combination of commercial banking and proprietary trading involves serious conflict of interests. Though necessary for certain reasons such as hedging and market-making activities of banking entities, the strategies used for proprietary trading purposes are essentially different from the core banking functions (maturity and liquidity transformation), and are sources of conflict of interests between the clients of a bank and its proprietary trading desk. The Group of Thirty's report confirms that the risks, market volatilities, and conflict of interests originating from banking entities' proprietary trading and their investment in hedge funds and private equity funds are difficult to measure and regulate. For example, with regard to conflict of interest, if a banking entity incurs losses in proprietary trading, it might tend to cover those losses at the expense of clients' interests.

⁴⁵ To see how investments in MBS can be considered as part of the shadow banking activities, *see* Admati and Hellwig, *The Bankers' New Clothes: What's Wrong with Banking and what to do about It*, Chapter 10.

⁴⁶ For the distinction between maturity transformation and liquidity transformation, *See Ibid.*, Chapter 10.

⁴⁷ Zoltan Pozsar et al., *Shadow Banking* (New York, 2010).

⁴⁸ Financial Services Authority (FSA), *The Turner Review: A Regulatory Response to the Global Banking Crisis*, p. 20.

In addition, there is an embedded conflict of interest in the comingling of commercial banking and investment banking activities which include proprietary trading. Commercial banking which mostly involves deposit taking and making loans enables banks to have access to substantial amounts of nonpublic information about the financial condition of the institutions to which they make loans. This is most evidenced in the commercial banks engaged in relationship lending. If the commercial banking activities and investment banking activities come together, as it is the case in universal banks, they can trade on the non-public information acquired through their course of commercial banking business. The proprietary trading operated in the proprietary trading desks of banks are well-positioned to engage in opportunistic behavior and exploit non-public information at the expense of the customers of the bank.

The third layer in which there might be concerns about the conflict of interests is within the investment banking business itself. For example, investment banking units of banking entities offer advisory services for corporate customers on financing, mergers and acquisitions, and many other different issues about the firms. Such a role in financial markets gives them privileged access to substantial amounts of non-public information. Indeed, if the Chinese wall between advising units of universal banks and their trading desks is not impenetrable, the information leaked from the advisory and lending units of banks to trading desks could be used by the traders of the bank to profit from such non-public information potentially at the expense of customers.

Two residual concerns about proprietary trading and the activities related to hedge funds are about the fact that such activities involve complex financial products and transactions, such as structured products which are relatively illiquid and hard-to-value financial instruments. This inherent complexity further increases the information asymmetry between market participants, mainly between originators and investors. Increased information asymmetry breeds opportunistic behavior and amplifies the concerns for aggravated conflict of interests.⁴⁹ Although the issue of conflict of interests has already been addressed in different laws and regulations,⁵⁰ and banks

⁴⁹ Financial Stability Oversight Council, *Study & Recommendations on Prohibitions on Proprietary Trading & Certain Relationships with Hedge Funds and Private Equity Funds*, pp. 48-50.

⁵⁰ In the U.S., three categories of laws impose conflict of interest restrictions for banking entities in their dealings with their customers. First, the fiduciaries' duty of loyalty under state laws; secondly, the investment advisers and commodity trading advisers' duty of loyalty under federal and states securities and commodities laws, and the duty of loyalty attached to benefit plan fiduciary under ERISA. And finally, the prohibition under the securities Laws on obtaining an advantage by using nonpublic information acquired about a customer or an issuers, such as laws prohibiting insider trading. *See Ibid.*

have erected walls between ‘customer-serving activities’ and ‘proprietary trading desks’ to prevent information flow, the Volcker Rule attempts to close the remaining loopholes in the banking entities involvement in proprietary trading and hedge and private equity funds investment.⁵¹

2.3. Limiting cross-subsidization

One of the main objectives of the Volcker Rule is to prevent the flow of government subsidies to private funds. As mentioned above, because of their role in maturity transformation, depository institutions suffer from inherent fragility. Such fragility caused recurrent crises throughout the history of banking. To prevent such crises from occurring, governments provided safety nets by creating a web of government guarantees for banking entities. In the U.S., there are both explicit and implicit government guarantees for the banks. Explicit guarantees include deposit insurance schemes and privileged access to the Fed’s LOLR facilities such as its discount window in times of illiquidity for individual banks or for the banking system as whole. In addition, implicit guarantees for the banks are mostly in the form of bailouts for too-big-to-fail or too-interconnected-to-fail banks.

Although it is argued that a publicly funded deposit insurance scheme should neither subsidize nor tax banking entities,⁵² theoretical and empirical studies suggest that there are substantial subsidies within current schemes of government explicit and implicit guarantees offered to banks.⁵³ The potential flow of the taxpayer subsidized funds to private funds in the form of implicit insurance or provision of emergency liquidity by their parent banks can incentivize them to engage in opportunistic behavior, i.e., taking excessive risks at the expense of their parent banks. Their parent banks in turn will shift some of their losses to the taxpayers rather than themselves incurring them. Therefore, regulators should take measures to prevent the transmission of these taxpayer subsidized funds to private unregulated funds.

⁵¹ *Ibid.*

⁵² See Blinder and Wescott, *Reform of Deposit Insurance: A Report to the FDIC*.

⁵³ Bryan T. Kelly, Hanno Lustig and Stijn Van Nieuwerburgh, "Too-Systemic-to-Fail: What Option Markets Imply about Sector-Wide Government Guarantees," *NBER Working Paper Series, no. 17149* (2011).

Even prior to the enactment of the Volcker Rule, there were mechanisms in place devised to limit the inappropriate transfer of government subsidies to unregulated entities. These mechanisms include sections 23A and 23B of the Federal Reserve Act.⁵⁴ The provisions of the Federal Reserve Act on ‘covered transactions’ were criticized on the grounds that the banking entity has nothing to gain from a below-market transfer of credit to a troubled affiliate.⁵⁵ However, the bail outs of hedge funds by their parent company (banking entity) in the recent financial crisis proved otherwise. For example, the Bear Stearns, Goldman Sachs, and Citigroup bailed out their internal hedge funds just before their collapse.⁵⁶ It is argued that these bailouts contributed to the collapse of Bear Stearns, a systemically important financial institution.

To prevent the transfer of government subsidies to speculative proprietary trading, the Volcker Rule generally prohibits proprietary trading by banks and their investment in hedge and private equity funds which are completely detached from their customer serving activities.⁵⁷ In addition to the ban on proprietary trading by banks, the Volcker rule contains an anti-guarantee provision which prohibits banks from guaranteeing the obligations or performance of hedge funds and private equity funds.⁵⁸

Another residual concern is the concern about transparency which paved the way for the enactment of the Volcker Rule. The Group of Thirty’s report further suggested that the complexity of the proprietary trading and the need for confidentiality in such operations limited the transparency of the markets for both investors and creditors.⁵⁹ It is argued that more transparent markets are more stable than opaque ones. Opaque markets are particularly prone to instabilities caused by illiquidity originating from uncertainty about the counterparty credit risks of market participants.⁶⁰ Because they are uncertain about counterparty risks, financial institutions are less willing to lend to each other in times of distress. This behavior of individual

⁵⁴ Covered transaction will be discussed in this chapter, *see* the section titled ‘prohibition on covered transactions’.

⁵⁵ Daniel R. Fischel, Andrew M. Rosenfield and Robert S. Stillman, "The Regulation of Banks and Bank Holding Companies," *Virginia Law Review* 73, no. 2 (Mar., 1987), pp. 326-327.

⁵⁶ Darrell Duffie, "The Failure Mechanics of Dealer Banks," *The Journal of Economic Perspectives* 24, no. 1 (Winter, 2010), p. 59.

⁵⁷ Financial Stability Oversight Council, *Study & Recommendations on Prohibitions on Proprietary Trading & Certain Relationships with Hedge Funds and Private Equity Funds*, p. 56.

⁵⁸ 12 U.S.C. § 1851 (d)(1)(G)(v)

⁵⁹ The Group of Thirty. Working Group on Financial Reform, *Financial Reform: A Framework for Financial Stability*, p. 27.

⁶⁰ Bengt Holmström and Jean Tirole, "Private and Public Supply of Liquidity," *Journal of Political Economy* 106, no. 1 (February, 1998), 1-40.

banks can easily result in a credit crunch and liquidity shocks. Moreover, the report of the Group of Thirty alludes that the board of directors of the banking entities within which proprietary trading and other banking activities are simultaneously conducted may not be able to understand and control their diverse and complex mix of activities.⁶¹

3. The Volcker Rule prohibitions

The Volcker Rule is a two-pronged provision. The first section of this chapter studies the Volcker Rule's prohibition of proprietary trading, whereas the second section is dedicated to the Volcker Rule's prohibition of investment and sponsorship of hedge funds and private equity funds by banking entities.

3.1. Prohibitions on proprietary trading

The proprietary trading provisions of the Volcker Rule prohibit a banking entity⁶² from engaging in trading activities as principal to profit from the near-term price movements.⁶³ A 'banking entity' is defined as "any insured depository institution,⁶⁴ any company that controls an insured depository institution, or that is treated as a bank holding company for purposes of section 8 of the International Banking Act of 1978, and any affiliate or subsidiary⁶⁵ of any such entity."⁶⁶

⁶¹ In addition, the report raised concerns about the firms supervised by government and protected from the full forces of market discipline that engage in proprietary trading. It suggested that such a situation gives rise to unfair competition with the so-called 'free-standing' institutions. *See* The Group of Thirty. Working Group on Financial Reform, *Financial Reform: A Framework for Financial Stability*, p. 27.

Hence the report concludes that the large systemically important financial institutions should be restricted in engaging in proprietary trading which poses high risks and serious conflict of interests. Furthermore, the report recommends that the sponsorship of hedge funds and private equity funds by banking institutions should be prohibited and strict capital and liquidity requirements should be imposed on proprietary trading. In addition, the firms securitizing debt instruments should be required to retain a meaningful part of the credit risk in the bank's balance sheet known as 'skin in the game' requirement. *Ibid.*

The report also suggested the prohibition on the comingling of the bank's own investment and the investment of bank's clients which gives rise to conflicts of interests. In other words, the report suggested that the banks should not comingle their own funds in hedge funds in which their clients invest. *See Ibid.*

⁶² For the definition of a banking entity, *see* 12 U.S.C. § 1851(h)(1).

⁶³ 12 U.S.C. § 1851(a) and (h)(4)

⁶⁴ An insured depository institution is defined in section 3 of the Federal Deposit Insurance Act (12 U.S.C. § 1813).

⁶⁵ Under sections 2(d) and 2(k) of the Bank Holding Company Act "subsidiary" and "affiliate" are defined to include "any company that a bank holding company or other company "controls.""

The term ‘proprietary trading’ when used with respect to a banking entity or SINBFC means “engaging as a principal for the trading account⁶⁷ of [a] banking entity or [SINBFC] in any transaction to purchase or sell, or otherwise acquire or dispose of, any security, any derivative, any contract of sale of a commodity for future delivery, any option on any such security, derivative, or contract, or any other security or financial instrument that the appropriate Federal banking agencies, the [SEC], and the [CFTC] may . . . determine.”⁶⁸

Proprietary trading offered attractive opportunities for banks. For example, it is reported that in 2004, 75% of the \$6.7 billion of Goldman’s earnings before tax came from trading and investments.⁶⁹ However, the losses from proprietary trading played a role in putting LCFIs such as Lehman Brothers, Merrill Lynch, Morgan Stanley, and Citigroup at risk prior to the financial crisis.⁷⁰ In addition, mixing systemically risky security holdings with economically important financial intermediation at banks and other financial institutions was perceived as one of the major causes of the recent financial crisis.⁷¹

Since a banking entity’s main function is maturity transformation, banks have special cost-advantage in servicing the loans to households, small businesses and other industrial sectors which cannot easily be replicated outside the banking sector; namely, the bank loans are not substitutable.⁷² Meanwhile, other financial institutions such as hedge funds can easily perform

⁶⁶ The definition of the ‘banking entity’ in the Volcker Rule includes affiliates and subsidiaries of a banking entity as well. Such a definition creates a circular definition that would consider all advised funds of the banking entities which are normally considered as affiliate of the bank to the restrictions of the Volcker Rule. However, setting up an advised fund is an explicitly permitted activity for banks. The potential inclusion of hedge and private equity funds in the banking definition can have several unintended consequences. Therefore, there is a need for excluding the permitted hedge and private equity funds from the definition of the ‘banking entity’. See Financial Stability Oversight Council, *Study & Recommendations on Prohibitions on Proprietary Trading & Certain Relationships with Hedge Funds and Private Equity Funds*, pp. 68-69.

⁶⁷ The statute defines a ‘trading account’ as “[A]ny account used for acquiring or taking positions in the securities and instruments described in [the definition of —proprietary trading] principally for the purpose of selling in the near term (or otherwise with the intent to resell in order to profit from short-term price movements), and any such other accounts as the appropriate Federal banking agencies, the [SEC], and the [CFTC] may, by rule . . . determine.” See 12 U.S.C. § 1851(h)(6).

⁶⁸ 12 U.S.C. § 1851(h)(4)

⁶⁹ Justin Fox, "Goldman: We Run Wall Street," *CNNMoney*, 16 may 2005.

⁷⁰ See Chatterjee, *Dictionaries Fail: The Volcker Rule’s Reliance on Definitions Renders it Ineffective and a New Solution is Needed to Adequately Regulate Proprietary Trading*, pp. 47-48. See also United States Government Accountability Office (GAO), *Proprietary Trading: Regulators Will Need More Comprehensive Information to Fully Monitor Compliance with New Restrictions when Implemented* (Washington, DC: United States Government Accountability Office, July 2011)1-49.

⁷¹ Acharya and Richardson, *Implications of the Dodd-Frank Act*, pp. 7-8.

⁷² Eugene F. Fama, "What's Different about Banks?" *Journal of Monetary Economics* 15, no. 1 (1, 1985), 29-39.

proprietary trading. Compared to banks, these financial institutions have less leverage and do not have access to government safety net. Therefore, it is argued that the Volcker Rule can be justified on the grounds that the non-core banking functions can be performed in less systemically important part of the financial system.⁷³

3.1.1. Proprietary trading exceptions (Permitted activities)

Aside from the general ban on proprietary trading, the Volcker Rule accommodates certain exceptions as ‘permitted activities’.⁷⁴ These permitted activities mostly involve banking activities perceived to be ultimately beneficial to the broader economy and necessary for maintaining the safety and soundness of financial institutions.⁷⁵ These permitted activities under the Volcker Rule include:

1. market-making related activity;
2. risk-mitigating hedging;
3. underwriting;
4. transactions on behalf of customers;
5. transacting in government securities;
6. certain insurance activity;
7. investments in small business investment companies;
8. public welfare investments;
9. certain qualified rehabilitation expenditures under federal or state tax laws;
10. certain offshore activities; and
11. Other activities that Agencies determine would promote and protect the safety and soundness of banking entities and U.S. financial stability’.⁷⁶

The main problem with these exceptions is identifying prohibited activities from permitted activities. Although the ‘bright line’ proprietary trading desks can be easily identified, under the currently established banking practices, significant proprietary trading activities can take place

⁷³ Acharya and Richardson, *Implications of the Dodd-Frank Act*, p. 15.

⁷⁴ 12 U.S.C. § 1851(d)(1)

⁷⁵ Financial Stability Oversight Council, *Study & Recommendations on Prohibitions on Proprietary Trading & Certain Relationships with Hedge Funds and Private Equity Funds*, pp. 16-17.

⁷⁶ *Ibid.*

under the guise of statutorily permitted activities.⁷⁷ Therefore, effectively distinguishing prohibited activities from permitted activities is at least as important as establishing rules and a supervisory framework aimed to prohibit proprietary trading by banking entities across the board.

The problem of distinguishing proprietary trading from permitted activities is particularly acute in case of market making, hedging, underwriting, and other transactions on behalf of customers which share similar features with proprietary trading. In addition, the features of permitted activities vary in different markets or asset classes which pose an additional challenge in making a distinction between the prohibited and permitted activities. For example, the features of permitted activities in a liquid equity securities market may significantly differ from the features of permitted activities in an illiquid over-the-counter derivatives market.⁷⁸

Another challenge is that as an unintended consequence, the broad restrictions on proprietary trading may deter permitted beneficial activities such as market making, hedging, and underwriting. Likewise, loosely defined restrictions are likely to be exploited by banking entities to engage in the prohibited proprietary trading activities.⁷⁹ In this section, four items from among the permitted activities will be studied because of their potential systemic implications. These four items include underwriting, market making, risk mitigating hedging, and other transactions on behalf of customers.

3.1.1.1. Underwriting

Investment banks play a crucial role in mitigating information problems in financial markets. The crux of such a role is mitigating information asymmetries between issuers of securities and investors in those securities in initial public offerings (IPOs). The extent of the information asymmetries between issuers and investors is such that it may discourage investors from investing in securities altogether. To mitigate the information asymmetry, investment banks put their own reputation on the line and signal to investors that the securities being offered are of

⁷⁷ *Ibid.*

⁷⁸ *Ibid.*

⁷⁹ *Ibid.*

acceptable quality. The medium through which this function is performed is ‘underwriting’ which is essential for facilitating equity and debt issuance to raise capital.

However, the downside for the investment banks is that underwriting basically requires that the investment banks assume principal risks because underwriting in most cases involves taking on the financial risks that the public offering might not sell to investors. Most common form of underwriting is known as a ‘firm commitment underwriting’. In this type of underwriting, an underwriter or a syndicate of underwriters make commitments in advance to purchase a defined number of securities issued by the firm if they are not fully sold in the public offering. In such circumstances, the underwriting firms themselves sometimes intervene in the market in order to support the offered securities. This intervention to purchase the securities to support them can hardly be distinguished from proprietary trading.⁸⁰

3.1.1.2. Market Making

Market making is another beneficial activity which is considered as a permitted activity under the Volcker Rule. Section 619 explicitly puts ‘market making-related’ activities under the rubric of permitted activities provided that it is “designed not to exceed the reasonably expected near term demands of clients, customers or counterparties.”⁸¹

Market making, similar to underwriting, requires taking principal risks. However, the exposure to the risk while performing market making varies widely. In ‘agency’ or ‘riskless principal’ transactions, market making involves either the market maker matching a buyer and a seller who afterwards transact together, or securing commitments from both sides of the transaction and then buying the financial instrument from the seller and then selling it to the buyer. This type of market making involves less risk and does not give rise to opportunities for impermissible proprietary trading.

On the other hand, market making may involve ‘principal transactions’ in which market makers have to commit capital to complete transactions. In principal transactions, in the absence of a buyer or seller, the market maker assumes the role of a counterparty, which requires capital

⁸⁰ *Ibid.*

⁸¹ 12 U.S.C. § 1851(d)(1)(B). The same requirement applies to underwriting.

commitment and holding an inventory to provide liquidity to the markets. Such market making activity is essential to liquidity and well functioning of the markets particularly in markets in which illiquid securities are traded. To mitigate the risks of such activities, the market maker may resort to dynamic hedging practices.

Therefore, current practices in market making business can be employed to have the same effects as proprietary trading does. Since market making activities in most cases require holding inventory of securities to provide liquidity to markets, the same inventory can be built to engage in prohibited proprietary trading. Accordingly, one of the major challenges is that the proprietary trading might be concealed under the guise of market making operations. Therefore, one of the main challenges to implementing the Volcker Rule is distinguishing the inventory levels appropriate to provide liquidity to the market and facilitate the client-driven transactions from the prohibited proprietary transactions.⁸²

Indeed, one of the criticisms to the Volcker Rule was that it might in fact result in restrictions to the banks' market making activities thereby reducing the liquidity in secondary markets. Nevertheless, even if the Volcker Rule prohibitions result in unintended restrictions on banking entities market-making activities, it cannot be seen as merely a negative consequence of the Volcker Rule. Some commentators argue for more dispersed and diversified market-making in financial markets.⁸³ This is because the liquidity becomes most relevant in times of financial distress where large financial institutions and dealers taking on market making function are not able to offer market making services because of financial distress.⁸⁴ Therefore, it seems that as a desirable unintended consequence, the Volcker Rule can help diversify the market making industry which can contribute to the liquidity of markets.

3.1.1.3. Risk-mitigating hedging

Hedging is another important exemption from the prohibitions of the Volcker Rule. It is basically a risk mitigating activity and a tool for risk management. Therefore, it will be self-defeating for

⁸² *Ibid.*

⁸³ Acharya and Richardson, *Implications of the Dodd-Frank Act*, p. 17.

⁸⁴ *Ibid.*

the Volcker Rule to impair the ability of financial institutions to engage in hedging activities. To avoid such a result, the Volcker Rule accommodates an exception for risk mitigating hedging.

As stated above, market making activities of investment banks often involve building inventory which requires taking positions held for providing liquidity to the markets. However, taking such positions may expose the bank to outsized market risks. Therefore, investment banks should engage in risk management techniques that can reduce their exposure to potential volatilities of the markets affecting their temporary positions held in their inventory for market making purposes. Since banking entity's strategies in engaging risk mitigating hedging can be very similar to proprietary trading activities, such activities present another challenge in implementing the Volcker Rule. The aim is that the Volcker Rule should not impede the ability of the banking entity to engage in 'risk-mitigating hedging' while preventing banks from engaging in prohibited proprietary trading.

In addition, hedging activities involve employing derivative instruments and that may affect regulators' ability to identify the true purpose of the transaction. If positions created to hedge do not correlate with the assets in the inventory, or if banking entity seeks to acquire independent return by employing hedging techniques, these techniques can be used to circumvent the prohibitions of the Volcker Rule. In order to identify permitted risk-mitigating hedging activities from prohibited proprietary trading activities, the hedging strategy of the banking entity should be clearly defined and "directly related to an underlying set of fundamental risk factors to which the entity is exposed".⁸⁵

Based on the nature of the risk and the amount of the exposure of financial institutions, there are different methods of hedging financial risks to which the banks are exposed. For example, banking entity's several market making desks which are exposed to similar risk factors may conduct their risk management on a portfolio basis helping them better hedge the true exposures of banking entity. However, linking such hedging at portfolio levels to the entities trading operations in a transparent way can hardly be achieved. Therefore, such an obscurity makes it difficult to distinguish hedging activities from prohibited proprietary trading.⁸⁶ In addition, to hedge a position, there needs to be a commitment of principal risk. Such a commitment should

⁸⁵ Financial Stability Oversight Council, *Study & Recommendations on Prohibitions on Proprietary Trading & Certain Relationships with Hedge Funds and Private Equity Funds*, pp. 20-21.

⁸⁶ *Ibid.*

carefully be monitored to link the hedging activities to such exposures. While the comingling of principal risks and others in one portfolio might make such a determination very difficult.

3.1.1.4. *Other transactions on behalf of customers*

Within the ambit of the permitted activities also falls the “purchase, sale, acquisition, or disposition of securities and other instruments ... on behalf of customers.”⁸⁷ Such an exception to the Volcker Rule is intended not to impede the bank’s role in facilitating customer-driven transactions. It permits the banking activities which are customer serving as opposed to the speculative activities with the bank’s own capital.⁸⁸ Under the Volcker Rule, prime brokerage services of banks fall under this category of permitted activities.

3.1.2. *Backstops or limits on permitted activities*

As stated above, in order not to interfere with the smooth functioning of financial markets, the Volcker Rule exempts certain activities from the application of the prohibitions of the Volcker Rule. These permitted activities that involve taking principal risk cover a range of activities which are at the core of banking functions such as market making, underwriting, asset management, hedging, transactions on behalf of customers, and transactions in government securities. However, these permitted activities themselves are in turn subject to so-called prudential ‘backstops’.⁸⁹ Indeed, as a fallback strategy, the Volcker Rule also imposes exceptions to its exceptions. Namely, the permitted activities under the Volcker Rule are subject to exceptions which place a ban on the permitted activities if they:

1. result in a material conflict of interest between the banking entity and its clients, customers or counterparties;
2. result in a material exposure by the banking entity to high-risk assets or high-risk trading strategies;
3. pose a threat to safety and soundness of the banking entity; or

⁸⁷ 12 U.S.C. § 1851(d)(1)(D).

⁸⁸ *Ibid.*

⁸⁹ *Ibid.*

4. pose a threat to financial stability of the United States.⁹⁰

The first limit to the permitted activities under the Volcker Rule is where such permitted activities result in a material conflict of interest. As mentioned earlier, the management of conflict of interest was one of the main concerns which at the first place motivated the Volcker Rule. Therefore, it would be self-defeating if the Volcker Rule provisions themselves amount to conflict of interests. Hence, if the permitted activities under the Volcker Rule result in a material conflict of interest, they shall no longer be permitted.⁹¹

The second important exception to the permitted activities under the Volcker Rule is a circumstance in which the permitted activity would directly or indirectly result in a material exposure by the banking entity to high risk assets or high-risk trading strategies.⁹² Since risk features of financial strategies and instruments are dynamic and can change overtime, the relevant regulatory agencies should adopt flexible frameworks rather than rigid definitions of ‘high-risk assets’ and ‘high-risk trading strategies’ with the focus on the risks that an asset or strategy can cause a banking entity’s failure or serious losses to the banking entity.⁹³ Since standards are more durable,⁹⁴ dynamic, flexible,⁹⁵ and less prone to regulatory arbitrage,⁹⁶ in devising such a flexible approach, it is important to make use of standards rather than rules.

In its report, the Financial Stability Oversight Council (FSOC) presents some non-exhaustive features which can be indicative of high-risk assets or high risk trading strategies. These features include, rapidly growing new products, assets and strategies with embedded leverage, historical volatility of the asset or strategy, their value at risk (VaR), hard to value assets, assets whose exposure cannot be quantified, risky assets whose risks cannot be adequately hedged away, and assets with features that the application of capital and liquidity standards cannot adequately account for their risks. In order to assess the firm’s exposure to high-risk assets or trading

⁹⁰ 12 U.S.C. § 1851(d)(2)(A)

⁹¹ 12 U.S.C. § 1851(d)(2)(A)(i)

⁹² 12 U.S.C. § 1851(d)(2)(A)(ii). The Dodd-Frank Act does not define a high-risk asset or high-risk trading strategy. Providing such definitions is to be done by the relevant agencies.

⁹³ *Ibid.*

⁹⁴ Isaac Ehrlich and Richard A. Posner, "An Economic Analysis of Legal Rulemaking," *The Journal of Legal Studies* 3, no. 1 (1974), pp. 277-278.

⁹⁵ Schaefer, *Legal Rule and Standards*, p. 348.

⁹⁶ McBarnet, *Financial Engineering or Legal Engineering? Legal Work, Legal Integrity and the Banking Crisis*, p. 72.

strategies, the report further suggests that the relevant regulators require banking entities to establish an expert committee to appropriately assess such risks.⁹⁷

The third statutory limitation on the Volcker Rule's permitted activities involves cases in which those activities would pose a threat to the safety and soundness of a banking entity.⁹⁸ To assess the financial soundness of the banking entities, the regulatory agencies should utilize "the metrics and frameworks adopted for the prohibition of proprietary trading and the monitoring of broader risks."⁹⁹

The fourth and the last limit for the permitted activities under the Volcker Rule is that these activities might pose a threat to the financial stability of the United States.¹⁰⁰ Although it seems unlikely that an activity which has already complied with the above mentioned prudential backstops would pose a threat to the U.S. financial stability, there might be concerns that an imbalance in the financial system might be caused by a permitted activity that does not threaten the safety and soundness of an individual financial institution. In this case, the regulatory agencies can prohibit those activities permitted under the Volcker Rule.¹⁰¹

For SINBFCs supervised by the Board, the Volcker Rule does not impose any restrictions on their activities. However, it mandates the Board to adopt prudential rules including imposition of higher capital charges or other restrictions addressing potential risks and conflict of interests to further the realization of the objectives of the Volcker Rule.¹⁰²

3.2. Restrictions on investment in hedge and private equity funds

The Volcker Rule provisions as related to hedge funds and private equity funds prohibit a banking entity from investing in, or having certain relationships with hedge and private equity

⁹⁷ Financial Stability Oversight Council, *Study & Recommendations on Prohibitions on Proprietary Trading & Certain Relationships with Hedge Funds and Private Equity Funds*, pp. 50-51.

⁹⁸ 12 U.S.C. § 1851(d)(2)(A)(iii)

⁹⁹ *Ibid.*

¹⁰⁰ 12 U.S.C. § 1851(d)(2)(A)(iv)

¹⁰¹ *Ibid.* In addition, to protect the safety and soundness of the banking entities, the Volcker Rule requires regulators to impose additional capital requirements and quantitative limitations. Nevertheless, the Volcker Rule should not be construed to limit the ability of a banking entity or non-bank financial company supervised by the Fed to sell or securitize loans.

¹⁰² 12 U.S.C. § 1851(a)(2)

funds as defined under the exclusions of the Investment Company Act of 1940.¹⁰³ These restrictions prohibit a banking entity from acquiring or retaining any equity, partnership, or other ownership interest in or sponsoring a hedge fund or a private equity fund.¹⁰⁴ The Volcker Rule's prohibitions on investment in hedge and private equity funds and its prohibitions on proprietary trading basically share the same objectives. Namely, not only do these restrictions intend to eliminate the federal support for speculative investing strategies of banking entities with their own capital, but also they intend to reduce the conflict of interest between a banking entity and its customers. In the meantime, it reduces the risk to banking entities and SINBFCs designated to be supervised by the Board.¹⁰⁵

As mentioned above, one of the objectives of the Volcker Rule is to restrict the cross-subsidization of private funds through depository institutions. Banks are provided with an explicit safety net which usually has two prongs. The first component of the U.S. system of safety net is the banks' access to the LOLR facilities of the Federal Reserve. The second component is the deposit insurance which is provided by federal government to prevent runs on the member banks. In addition, there is an implicit or *de facto* safety net for banks which are deemed to be too-big-to-fail, too-interconnected-to-fail, or too-correlated-to-fail. Ultimately, these safety nets are partially funded by the taxpayer money to sustain the essential role of banks in providing credit and their role in payment system. By imposing restrictions on the banking entities' investment in hedge funds and private equity funds, the Volcker Rule aims at cutting the transfer of subsidies from banks to private funds.

On the other hand, similar to proprietary trading, the sponsorship of hedge and private equity funds can potentially be a source of risk and liquidity stress to banks. A banking entity might bail out a sponsored or advised fund which is in the brink of failure out of reputational concerns. Such support for failing hedge funds and private equity funds are well-documented in the recent financial crisis.¹⁰⁶ Moreover, the complexities involving in the investment in hedge and private equity funds and the inherent opaqueness of those funds limit the ability of market participants to

¹⁰³ 15 U.S.C. § 80a-1

¹⁰⁴ 12 U.S.C. § 1851(a)(1)(B)

¹⁰⁵ *Ibid.*

¹⁰⁶ Duffie, *The Failure Mechanics of Dealer Banks*, p. 59.

properly manage the risks to the banking entities sponsoring those funds.¹⁰⁷ Such opaqueness creates more uncertainty about the safety and soundness of the financial institutions sponsoring hedge and private equity funds or having significant investment in those funds.

Along with the concerns about cross-subsidization of hedge funds through the transfer of government subsidies to speculative proprietary trading, the Volcker Rule generally prohibits the investments by banks in hedge and private equity funds which are completely detached from their customer serving activities.¹⁰⁸ Such a goal is achieved by the use of broad language of the Volcker Rule which requires that a banking entity shall not “acquire or retain any equity, partnership, or other ownership interest in or sponsor a hedge fund or a private equity fund.”¹⁰⁹

The aim of the Volcker Rule’s restrictions on the banking entity’s investment or sponsorship of hedge funds that are not related to the provision of “bona fide trust, fiduciary, or investment advisory services” to its customers is manifold. Since banking entity’s investment in or sponsorship of hedge funds can be used to circumvent the Volcker Rule’s restrictions on proprietary trading, such a prohibition on hedge fund sponsorship ensures that banks will not be able to circumvent proprietary trading prohibitions by investing in hedge and private equity funds. The second objective is to limit the scope of private fund activities of banking entities to customer-related services¹¹⁰ such as prime brokerage activities. It is also to eliminate the contingencies in which banking entities might bail out the funds they advise, sponsor or significantly invest in out of potential reputational concerns.¹¹¹

Under the Volcker Rule, a hedge fund and private equity fund is an issuer that would be an investment company, as defined in the Investment Company Act of 1940¹¹² but for section 3(c)(1) or 3(c)(7) of that Act, or such similar funds as the appropriate federal banking agencies, the Securities and Exchange Commission (SEC), and the Commodity Futures Trading Commission (CFTC) may determine.¹¹³ Therefore, hedge funds and private equity funds are

¹⁰⁷ Financial Stability Oversight Council, *Study & Recommendations on Prohibitions on Proprietary Trading & Certain Relationships with Hedge Funds and Private Equity Funds*, p. 56.

¹⁰⁸ *Ibid.*

¹⁰⁹ 12 U.S.C. § 1851(a)(1)(B)

¹¹⁰ For a definition of a ‘customer’ and its difference with ‘client’ and the problems arising from the need for clear definition of these terms with respect to the Volcker Rule, *see Ibid.*

¹¹¹ *Ibid.*

¹¹² 15 U.S.C. 80a-1

¹¹³ 12 U.S.C. § 1851(h)(2).

defined to include any issuer that relies on the exemptions of the definition of investment company under sections 3(c)(1) or 3(c)(7) of the Investment Company Act.¹¹⁴ According to the Investment Company Act “an issuer that is not making and does not presently propose to make a public offering of its securities and either (i) has outstanding securities that are beneficially owned by not more than one hundred persons or (ii) has outstanding securities that are owned exclusively by qualified purchasers” is excluded from the definition of investment company.¹¹⁵ Along with hedge funds, the exemptions from the Investment Company Act are used by a large number and variety of other legal entities. These entities include special purpose acquisition vehicles, ‘certain ERISA qualified employee pension funds’, controlled subsidiaries, and certain joint ventures and potentially venture capital funds.¹¹⁶

There are major problems with the definitions of a hedge and private equity fund under the Volcker Rule. The first and foremost is that those definitions are both over and under-inclusive. Therefore, the prohibitions of the Volcker Rule might include funds that were not intended to be regulated under the Volcker Rule. In other words, not all investment funds traditionally considered as hedge and private equity funds rely on the exemptions of section 3(c)(1) or 3(c)(7) of the Investment Company Act. It is possible to create investment funds relying on other exemptions of the Investment Company Act which does not literally come under the definition of hedge funds and private equity funds, but such funds may pursue the same strategies as hedge and private equity funds do. These funds might not be captured by the Volcker Rule definitions. For example, commodity pools that do not mainly invest in financial instruments are in this category of funds. This under-inclusiveness of the definition is partly addressed by the grant of congressional authority to regulators to bring ‘similar funds’ within the scope of the Volcker Rule.¹¹⁷ In determining which funds should be included in the category of similar funds, regulators should consider the investment activities and other features of the fund including compensation structure, trading and investment strategy, use of leverage and investor composition.¹¹⁸ Indeed, the statutory exemptions of the Investment Company Act are not intended to exclusively apply to hedge funds and private equity funds. Therefore, the criteria for

¹¹⁴ *Ibid.*

¹¹⁵ 15 U.S.C. § 80a-3(c).

¹¹⁶ *Ibid.*

¹¹⁷ *Ibid.*

¹¹⁸ *Ibid.*

delineating the exceptions that the Volcker Rule intends to grant to certain funds remain to be determined by the future rule making.

As discussed earlier, the potential challenge of definitional problems is that it provides best opportunities for legal engineering and regulatory arbitrage.¹¹⁹ Likewise, the regulation of hedge funds relying on definitions along with the appeal to the literal meaning of words in adjudication and legal interpretation can be used to undermine the very purpose of the Volcker Rule.

The Volcker Rule's prohibition on the banking entities' relationship with hedge funds is not a general and outright ban; it also has its exceptions. Indeed, a banking entity is allowed to organize and offer a fund in connection with its bona fide trust, fiduciary, and investment advisory services. In addition, banking entities are allowed to invest in these types of funds up to a *de minimis* amount. This exemption enables banking to establish start-up funds and attract investors in connection with their customer-related business.

3.2.1. Permitted Activities

The Volcker Rule excludes certain activities from the broad prohibitions on investment in hedge and private equity funds by banking entities. The philosophy behind such 'permitted activities' is that banking entities in general play important roles in providing financial services including providing bona fide trust, fiduciary and investment advisory services. Where hedge fund and private equity fund related activities of banking entities supports the customer-focused advisory services of banking entities, they should be allowed. In general, a banking entity is allowed to organize, offer or invest in a hedge fund and private equity fund if:

1. the banking entity provides bona fide trust, fiduciary, or investment advisory services;
2. the fund is organized and offered only in connection with the provision of bona fide trust, fiduciary, or investment advisory services and only to persons that are customers of such services of the banking entity;
3. the banking entity does not acquire or retain an equity interest, partnership interest, or other ownership interest in the funds except for a *de minimis* investment;

¹¹⁹ McBarnet, *Financial Engineering or Legal Engineering? Legal Work, Legal Integrity and the Banking Crisis*, p. 72.

4. the banking entity complies with the restrictions under paragraphs (1) and (2) of subparagraph (f);¹²⁰
5. the banking entity does not, directly or indirectly, guarantee, assume, or otherwise insure the obligations or performance of the hedge fund or private equity fund or of any hedge fund or private equity fund in which such hedge fund or private equity fund invests;
6. the banking entity does not share with the hedge fund or private equity fund, the same name or a variation of the same name;
7. no director or employee of the banking entity takes or retains an equity interest, partnership interest, or other ownership interest in the hedge fund or private equity fund, except for any director or employee of the banking entity who is directly engaged in providing investment advisory or other services to the hedge fund or private equity fund;
8. the banking entity discloses to prospective and actual investors in the fund, in writing, that any losses in such hedge funds or private equity funds are borne solely by investors in the funds and not by the banking entity, and otherwise complies with any additional rules of the appropriate Federal banking agencies, the SEC, or the CFTC, designed to ensure that losses in such hedge or private equity funds are borne solely by investors in the funds and not by the banking entity. And
9. Certain other conditions including the banking entity's compliance with the restrictions on 'covered transactions' under Sections 23A and 23B of the Federal Reserve Act are met.¹²¹

Under the Volcker Rule, a banking entity can offer prime brokerage services to hedge funds or private equity funds in which affiliated hedge funds of the banking entities have taken interest

¹²⁰ These two provisions are those that generally prohibit the investment of banks in hedge funds.

“(f) Limitations on relationships with hedge funds and private equity funds

(1) In general

No banking entity that serves, directly or indirectly, as the investment manager, investment adviser, or sponsor to a hedge fund or private equity fund, or that organizes and offers a hedge fund or private equity fund pursuant to paragraph (d)(1)(G), and no affiliate of such entity, may enter into a transaction with the fund, or with any other hedge fund or private equity fund that is controlled by such fund, that would be a covered transaction, as defined in section 371c of this title, with the hedge fund or private equity fund, as if such banking entity and the affiliate thereof were a member bank and the hedge fund or private equity fund were an affiliate thereof.

(2) Treatment as member bank

A banking entity that serves, directly or indirectly, as the investment manager, investment adviser, or sponsor to a hedge fund or private equity fund, or that organizes and offers a hedge fund or private equity fund pursuant to paragraph (d)(1)(G), shall be subject to section 371c-1 of this title, as if such banking entity were a member bank and such hedge fund or private equity fund were an affiliate thereof.” 12 U.S.C. § 1851(f)

¹²¹ 12 U.S.C. § 1851(d)(1)(G)

subject to the ‘arm’s length’ requirements of the sections 23B of the Federal Reserve Act. Furthermore, it should again be emphasized that since offering prime brokerage services is neither considered as sponsoring nor investing in hedge funds, by no means does the Volcker Rule prohibit a banking entity from offering prime brokerage services to independent hedge funds and private equity funds.¹²²

3.2.1.1. *De Minimis Investments*

As one of the exceptions to the Volcker Rule, taking or retaining a 3% or lower *de minimis* investment in a hedge fund or private equity fund that the banking entity organizes or offers in connection with bona fide trust, fiduciary and investment advisory functions is permitted subject to certain limitations and conditions.¹²³ The amount of the *de minimis* investment should be immaterial to the banking entity and should at most comprise up to 3% of the total ownership interest of such fund following an initial one-year seeding period; namely after one year from the fund’s establishment. In the one-year seeding period, the banking entity is allowed to provide even up to 100% of the capital of hedge funds or private equity funds.¹²⁴ However, the aggregate of all the interests of the banking entity in all hedge funds and private equity funds should not exceed 3% of the Tier 1 capital of the banking entity.¹²⁵

Initially, in the first proposed bill to the Congress there was an outright ban on such investments, however, the first political compromise allowed banking entities to invest up to 3% of its tangible common equity in hedge funds or private equity funds. Tangible common equity consists of shareholder equity and is perceived as the strongest form of a bank’s capital. However, even this exception could not please the industry, at last another amendment was made

¹²² Financial Stability Oversight Council, *Study & Recommendations on Prohibitions on Proprietary Trading & Certain Relationships with Hedge Funds and Private Equity Funds*, pp. 57-59.

¹²³ The first condition to be met is that such investment should be for the purposes of establishing the fund, and the second is that the investment should be a *de minimis* investment.

¹²⁴ 12 U.S.C. § 1851(d)(4)(B)(ii)(I)

¹²⁵ 12 U.S.C. § 1851(d)(4)(B)(ii)(II)

and changed the 3% of tangible common equity to 3% of Tier 1 capital the scope of which is much broader than the amount of tangible common equity.¹²⁶

Moreover, the Volcker Rule's permission of the *de minimis* investments in hedge and private equity funds is subject to another constraint. Namely, the amounts of the banking entity's investment in hedge funds should be deducted from the banking entity's capital. Such deductions will further be increased proportionate to the leverage of the fund.¹²⁷ Last, but not least, it is suggested that to prevent the conflict of interest particularly within the scope of the *de minimis* exception, such an investment should be in connection with customer-related activities.¹²⁸

3.2.1.2. Prohibition on 'covered transactions'

The Volcker Rule further prohibits a banking entity that serves as an investment manager, or adviser, or sponsor to a hedge or private equity fund and any affiliate of such entity from entering into a 'covered transaction' as defined in Section 23A of the Federal Reserve Act.¹²⁹ The 'covered transaction' includes making loans, purchasing assets, extending guarantees, etc.¹³⁰ Section 1851(f)(2) of the Volcker Rule requires that in general

"No banking entity that serves, directly or indirectly, as the investment manager, investment adviser, or sponsor to a hedge fund or private equity fund, or that organizes and offers a hedge fund or private equity fund pursuant to paragraph (d)(1)(G), and no affiliate of such entity, may enter into a transaction with the fund, or with any other hedge fund or private equity fund that is controlled by such fund, that would be a covered transaction, as defined in section 371c of this title [12 U.S.C. 371c], with the hedge fund or private equity fund, as if such banking entity and the affiliate thereof were a member bank and the hedge fund or private equity fund were an affiliate thereof."¹³¹

¹²⁶ Shahien Nasiripour, "Financial Reform Bill Passes: Banks Keep Derivatives Units, Volcker Rules Softened; House-Senate Conference Passes Financial Reform Bill After Marathon Session," *Huffington Post*, sec. Business, June 25, 2010.

¹²⁷ Financial Stability Oversight Council, *Study & Recommendations on Prohibitions on Proprietary Trading & Certain Relationships with Hedge Funds and Private Equity Funds*, pp. 65-67.

¹²⁸ *Ibid.*

¹²⁹ 12 U.S.C. § 1851(f).

¹³⁰ 12 C.F.R. 223.3(h) (Regulation W).

¹³¹ 12 U.S.C. § 1851(f)(1).

The second condition imposed on the permitted activities of banking entities in connecting with investing in hedge funds and private equity funds is that such activities should be subject to the requirements of the section 23A of the Federal Reserve Act which imposes strict qualitative and quantitative restrictions on ‘covered transactions’ between a banking entity and an affiliate. Section 23A includes two quantitative and two qualitative rules:

1. A bank’s total covered transaction with an affiliate should not exceed 10% of the banks’ total capital.
2. The total amount of the bank’s covered transactions with all affiliates combined should not exceed 20% of the bank’s capital.
3. Any extension of credit should be fully secured by the qualifying collateral. The value of the collateral should be between 100% and 130% of the amount of the covered transactions.
4. A bank cannot purchase a low-quality asset from an affiliate.

In addition, section 23B imposes ‘arm’s length’ requirements for the terms of any transaction between a banking entity which organizes or offers or sponsors a hedge fund or private equity fund or acts as their investment manager or adviser to the hedge fund or private equity fund. The arm’s length requirement means that these transactions should be concluded on market terms and conditions. Therefore, virtually all financial transactions between a banking entity (insured depository institution) and an affiliate cannot be more favorable than market terms. Such restrictions are particularly effective in reducing the opportunities for conflict of interest and transfer of the benefits of banks’ deposit insurance and safety net from insured depository institutions to unregulated entities.¹³²

Prior to the Dodd-Frank Act, many private equity funds, foreign investment funds, and commodity funds could avoid being treated as an affiliate because they were not considered as registered investment company under the Investment Company Act, and hence were not deemed to be an affiliate for the purposes of sections 23A and 23B of the Federal Reserve Act.¹³³ Therefore, sections 23A and 23B of the Federal Reserve Act’s prohibitions on the banking entities did not deem all hedge funds and private equity funds sponsored by a banking entity as

¹³² *Ibid.*

¹³³ However, even such funds were covered by these provisions if the banking entity owned more than 5% of the fund’s capital.

affiliates of the banking entity. Nonetheless, after the introduction of the Volcker Rule, all hedge funds and private equity funds offered or advised or sponsored by the banking entity will be subject to stricter restrictions. Indeed, under the Volcker Rule, “a banking entity will not just be restricted in the amount of ‘covered transactions’ it can engage in with a hedge fund and private equity fund that it manages or sponsors, it will be prohibited from engaging in any such transaction.”¹³⁴

Another permitted activity for banking entity under the Volcker Rule concerns the establishment of feeder funds where it is necessary for the banking entity, in connection with its customer-focused advisory services to provide customers with access to third party hedge funds or private equity funds through establishing such funds which invest in third-party funds. Organization of such funds is justified because in such a structure the risks associated with the feeder funds are entirely borne by the investors therein and do not pose any risk to the banking entity itself.¹³⁵ However, there might be concerns for conflict of interest if a banking entity “directs a feeder fund or fund of fund investment to a third-party hedge fund or private equity fund with which the banking entity has other business relationships.”¹³⁶

To avoid such circumstances, regulators should particularly be keen to ensure compliance of the banking entity’s business activities with the third party funds with the Volcker Rule’s prohibition of the ‘covered transactions’ (e.g. “making loans, purchasing assets and extending guarantees”) and the restrictions that the section 23B of the Federal Reserve Act’s ‘arm’s length’ transaction requirement pose on such business relationships. In addition, regulators should ensure that such arrangements does not create opportunities for banking entities to protect the hedge fund or private equity fund from losses or bail them out in case of distress. Furthermore, it should also be ensured that such arrangements do not give rise to contingencies in which the banking entity might be exposed to outsized risks by those funds.¹³⁷

¹³⁴ *Ibid.*

¹³⁵ *Ibid.*

¹³⁶ *Ibid.*

¹³⁷ *Ibid.*

3.2.2. Limits on permitted activities

Similar to limitations on permitted activities under the proprietary trading provisions, the Volcker Rule accommodates limitations on the permitted activities under the provisions prohibiting certain business relationship of banking entities with hedge funds. Indeed, the same statutory ‘backstops’ for the permitted activities with respect to proprietary trading equally applies to permitted activities under the provisions limiting the business relationship of banking entity with hedge funds and private equity funds. These statutory backstops involve the circumstances in which the permitted banking entity’s relationship with hedge funds and private equity fund results in a material conflict of interest, material exposure to high-risk assets or high-risk trading strategies, a threat to the safety and soundness of the banking entity, or a threat to the U.S. financial stability.¹³⁸

4. The Volcker Rule: A success story?

The Volcker Rule’s prohibitions on proprietary trading and banking entity’s investment and sponsorship of hedge funds and private equity funds pursue three main objectives: addressing problems arising from hedge fund interconnectedness with LCFIs, preventing cross-subsidization of hedge funds by their parent depository institution having access to government explicit and implicit guarantees, and regulation of conflict of interests in the relationship between banks, their customers and hedge funds. In addition to the Volcker Rule’s aims to protect the taxpayers’ money from being spent on the future bailouts and protect the consumer from unfair competition and practices within the industry, it should also avoid resulting in a situation in which the U.S. financial institutions might internationally become competitively disadvantaged.¹³⁹ It is clear that achieving all these often conflicting objectives is the greatest challenge of the Volcker Rule. Therefore, its success or failure should be evaluated against the goals it sets to achieve at the lowest cost to market efficiency and for the competitiveness of the U.S. financial institutions.

In terms of achieving these objectives, the Volcker Rule was only partially successful. The first reason was the political compromises made in the process of legislation. Indeed, Paul Volcker

¹³⁸ 12 U.S.C. § 1851(d)(2)

¹³⁹ Alison K. Gary, "Creating A Future Economic Crisis: Political Failure and the Loopholes of the Volcker Rule," *Oregon Law Review* 90 (2012), p. 1350.

himself is quoted saying that the bill (containing the Volcker Rule) “went from what is best to what could be passed” in the process of its enactment.¹⁴⁰ The most striking of these compromises are best depicted in the extensive exceptions to the provisions of the Volcker Rule which, as some commentators suggest, made it toothless.¹⁴¹ Facing such exceptions, even Paul Volcker himself admits that the success of the Volcker Rule depends much on the way it is going to be implemented.¹⁴²

In addition to the political compromises which to a certain degree, undermined the Volcker Rule’s impact, one of the key aspects of the Volcker Rule implementation is how to distinguish permitted activities and prohibited activities which ultimately boils down to a definitional problem.¹⁴³ Indeed, there is an ample need for definitions in the Volcker Rule. For example, since the Volcker Rule requires that the banking entities can offer organized or sponsored funds only to ‘customers’ of a banking entity, the term customer should be defined not to allow all its clients and counterparties to take advantage of the term ‘customer’. On the other hand, for example, the *de minimis* exception applies in two cases. It is applied “to restrict the exposure of a banking entity to 3% of any single fund” and also to limit the banking entity’s aggregate exposure to 3% of its Tier 1 capital.¹⁴⁴ In both these cases, calculating the *de minimis* investment will be a challenge to regulators and supervisors.

Therefore, future definitions of the key terms in the Volcker Rule will play a major role in minimizing the risk of evasion of the Volcker Rule’s provisions. The question which remains unanswered is that whether regulators would be able to create mechanisms to distinguish prohibited activities from permitted activities which in most cases share very common features. Given that the regulators have already tried and failed to appropriately define proprietary trading in 2005 and came to the conclusion that preventing proprietary trading requires a ‘subjective,

¹⁴⁰ Louis Uchitelle, "Volcker Pushes for Reform, Regretting Past Silence," *The New York Times*, sec. Business, July 10, 2010.

¹⁴¹ Gary, *Creating A Future Economic Crisis: Political Failure and the Loopholes of the Volcker Rule*, p. 1349.

¹⁴² Uchitelle, *Volcker Pushes for Reform, Regretting Past Silence*.

¹⁴³ For example, one of the concerns about the Volcker Rule is the concerns about its unintended consequences with respect to the definitions particularly regarding the terms ‘hedge fund’, ‘private equity fund’, ‘proprietary trading’, ‘market making’, ‘hedging’, and ‘customer-driven transactions’. Inappropriate definitions of such terms might have adverse systemic impact on financial institutions, particularly on their liquidity management.

¹⁴⁴ Financial Stability Oversight Council, *Study & Recommendations on Prohibitions on Proprietary Trading & Certain Relationships with Hedge Funds and Private Equity Funds*, pp. 6-7.

case-by-case evaluation',¹⁴⁵ the future definitions might fare no better. Since such an assessment, more often than not, will require a case-by-case analysis of the activities, it is not known what the costs of such assessments would be in practice. Furthermore, it remains to be seen what the response could be, should the costs of such case-by-case assessment exceed their benefits.

On the other hand, it is important not to permit the prohibited activities to occur throughout the entire banking entity and not just within its certain units. Effective regulation should prevent banking entities from pushing their proprietary trading activities from their existing proprietary trading desks to other operational units. So far, major bank have already spun-off or closed-down their standalone 'bright line proprietary trading' businesses.¹⁴⁶ However, such activities might migrate to other divisions in the investment banks. To avoid such a situation (regulatory arbitrage either by banks or by hedge funds), the Volcker Rule gives regulatory agencies extensive powers both in rule making and implementation of the Volcker Rule.¹⁴⁷

In addition to the definitional problems which might undermine the attainment of the Volcker Rule's objectives, in terms of addressing interconnectedness, its success, to a great extent, depends on its future implementation by the regulatory agencies. For example, one of the provisions of the Volcker Rule containing an exception which is considered as a loophole by some scholars involves permitting *de minimis* investment of banking entity in a hedge fund up to 3% of bank's Tier 1 Capital. Though essential for the viability of the hedge fund industry, there are concerns that this exception can potentially be exploited by banks and hedge funds. Moreover, the Volcker Rule permission for banking entity to serve as a general partner, managing member, or trustee of a hedge fund, or subject to certain conditions, to have controlling interest in a hedge fund,¹⁴⁸ can be seen as another potential loophole that hedge funds can exploit with the end result of putting banking entities at risk. Although it is suggested that an all-out prohibition of bank involvement with hedge funds is the best way that can prevent losses

¹⁴⁵ Bradley K. Sabel, "General Accountability Office Struggles with Dodd-Frank's Volcker Rule," <http://blogs.law.harvard.edu/corpgov/2011/08/26/general-accountability-office-struggles-with-dodd-franks-volcker-rule/>

¹⁴⁶ Financial Stability Oversight Council, *Study & Recommendations on Prohibitions on Proprietary Trading & Certain Relationships with Hedge Funds and Private Equity Funds*, pp. 17-18.

¹⁴⁷ However, the Dodd-Frank Act in general and the Volcker Rule in particular have been criticized for delegating too many details to regulatory agencies.

¹⁴⁸ 12 U.S.C. § 1851(d)(1)(G).

to the banking entity emanating from hedge funds,¹⁴⁹ such a general ban could inhibit many benefits that hedge funds deliver to banks and vice versa.

Another criticism to the Volcker Rule is that it might give rise to certain unintended consequences. Some studies suggest that pursuant to the enactment of the Volcker Rule, some activities may move to the shadow banking sector because of the increased regulatory costs to banks.¹⁵⁰ Therefore, the Volcker Rule may relocate the proprietary trading activities from regulated banks to lightly regulated hedge funds.¹⁵¹ Although preventing banking entities from engaging in proprietary trading by subsidized funds is the very objective of the Volcker Rule, as an unintended consequence, the Rule relocates the proprietary trading to lightly regulated financial institutions. In addition, it is likely that the exodus of proprietary trading might happen from the U.S. banks to non-U.S. banks and financial institution if, compared to other main jurisdictions, the costs of implementation of the Volcker Rule for the regulated firms exceed the potential benefits that such regulation can offer. In this case, at least at first blush, it seems that the costs far outweigh the benefits (if any) to financial institutions. However, such concerns are at least partially ameliorated because after the global financial crisis most shadow banks, including hedge funds, became subject to regulation under the Dodd-Frank Act in the U.S. and the Alternative Investment Fund Managers Directive (AIFMD) in the EU. Moreover, there is considerable pressure on offshore jurisdictions such as the Cayman Islands and the British Virgin Islands to tighten their regulation of hedge funds to prevent regulatory arbitrage to those jurisdictions.

As mentioned earlier, the Volcker Rule is seen as the Dodd-Frank Act's version of Glass-Steagall's separation of investment banking from commercial banking, and accordingly it is dubbed the Glass-Steagall Lite.¹⁵² It follows that the Volcker Rule can be subject to most of the objections to the Glass-Steagall Act which culminated in its erosion through time and its repeal in 1999. For instance, seen as the aftermath of the Glass-Steagall Act, it is contemplated that the Volcker Rule's prohibition on proprietary trading might increase systemic risk because it will not

¹⁴⁹ Gary, *Creating A Future Economic Crisis: Political Failure and the Loopholes of the Volcker Rule*, p. 1362.

¹⁵⁰ İnci Ötker-Robe et al., "Impact of Regulatory Reforms on Large and Complex Financial Institutions," (2010), p. 26.

¹⁵¹ Charles K. Whitehead, "The Volcker Rule and Evolving Financial Markets," *Harvard Business Law Review* 1 (2011), 39-73.

¹⁵² Acharya and Richardson, *Implications of the Dodd-Frank Act*, p. 15.

allow banking entities to adequately diversify their risks. However, it seems that the concerns about adverse effect of the Volcker Rule on diversification of banking entities and its overall impact on financial instability is unfounded, because it is idiosyncratic or firm-specific risk and not systemic risk that can be diversified away.¹⁵³ On the contrary, it is argued that although diversification originating from mixing bank and non-bank activities can reduce the likelihood of individual banking default, it increases the likelihood of systemic risk. In other words, the fact that integrated conglomerates composed of both banks and non-banks are financed by risk-insensitive (or information-insensitive) deposits weakens the market discipline on their non-bank divisions.¹⁵⁴ Therefore, those divisions will be inclined to take more risks. Such a conclusion, namely -the cost of mixing traditional banking activities with other financial services within financial holding companies (FHCs) of universal banks increases the market risk of the firm— is also supported by recent empirical studies arguing that diversification gains are more than offset by the costs associated with the exposure to volatile activities.¹⁵⁵

Another criticism based on the analogy of the Volcker Rule with the Glass-Steagall is based on highlighting the potential forgone efficiencies in terms of economies of scale and scope.¹⁵⁶ Theory and empirical evidence on optimal size of a banking entity is very mixed. On the one hand, it is suggested that the efficient size for a banking entity might be very low.¹⁵⁷ On the other hand, some empirical evidence shows substantial economies of scale in banking.¹⁵⁸ However, it is suggested that big banks' profitability might not be attributable to efficiencies in scale, but it should be studied in light of the implicit guarantees offered to too-big-to-fail banks. The distortive effect of these guarantees is such that some mergers in banking industry were motivated by achieving too-big-to-fail status and gaining access to implicit government

¹⁵³ *Ibid.*

¹⁵⁴ Xavier Freixas, Gyöngyi Lóránth and Alan D. Morrison, "Regulating Financial Conglomerates," *Journal of Financial Intermediation* 16, no. 4 (10, 2007), 479-514.

¹⁵⁵ Kevin J. Stiroh and Adrienne Rumble, "The Dark Side of Diversification: The Case of US Financial Holding Companies," *Journal of Banking & Finance* 30, no. 8 (8, 2006), 2131-2161.

¹⁵⁶ For an overview of the scale and scope economies in financial institutions, See Allen N. Berger, William C. Hunter and Stephen G. Timme, "The Efficiency of Financial Institutions: A Review and Preview of Research Past, Present and Future," *Ibid.* 17, no. 2-3 (4, 1993), 221-249.

¹⁵⁷ *Ibid.*

¹⁵⁸ Hughes and Mester, *Who Said Large Banks Don't Experience Scale Economies? Evidence from a Risk-Return-Driven Cost Function.*

guarantees.¹⁵⁹ Therefore, it seems that the objections to the Volcker Rule which aims at prohibiting depository institutions from engaging in proprietary trading or spinning off their hedge and private equity funds on the grounds of diversification and economies of scale and scope are not founded on sound theoretical and empirical evidence.

With respect to prohibiting cross-subsidization of hedge funds through banks, the basic argument for the Volcker Rule is that it is not justifiable to let the financial institutions invest on their own accounts while funding their activities at below-market rates coming from the government explicit and implicit guarantees.¹⁶⁰ Indeed, in terms of cross-subsidization concerns, the Volcker Rule and its exceptions struck a reasonable balance between preventing such opportunistic behavior (taking advantage of government subsidies) while not stifling the investment of banks in hedge funds and private equity funds particularly in those funds that are in the start-up phase.

With respect to the management of conflict of interest, the extensive exceptions in the Volcker Rule both to proprietary trading and investment in hedge funds and private equity funds, though marginally mitigates the conflict of interests, falls short of providing a conflict-of-interest-proof environment for all stakeholders notably the banking entity, its customers, and hedge funds. However, it remains to be seen how the management of conflict of interests will be conducted in practice.

5. Miscellaneous indirect measures for regulating hedge funds

5.1. Leverage and portfolio liquidity

As suggested in the second chapter of this dissertation, there is a possibility that the high levels of leverage coupled with illiquid hedge fund portfolios may lead to “massive deleveraging when the prime brokers withdraw credit”¹⁶¹ or when hedge funds herd to liquidate their positions in response to a financial shock. The Dodd-Frank Act establishes both direct and indirect regulatory

¹⁵⁹ Brewer and Jagtiani, *How Much did Banks Pay to Become Too-Big-to-Fail and to Become Systemically Important?*, 1-35.

¹⁶⁰ This argument equally applies to other financial institutions having access to government subsidies such as government-sponsored enterprises (GSEs) such as Fannie Mae and Freddie Mac and implicitly guaranteed enterprises such as those perceived to be too-big-to-fail. Acharya and Richardson, *Implications of the Dodd-Frank Act*, p. 15.

¹⁶¹ Lloyd, Clancy and Kumar, *Hedge Funds and Systemic Risk*, pp. 92-96.

measures to address the risks emanating from hedge funds' leverage and liquidity. On the one hand, in its direct approach to regulating hedge funds, the Dodd-Frank Act imposes position limits on hedge funds and subjects them to stress tests. On the other hand, in indirect regulation of hedge funds' leverage and liquidity, the Act imposes additional requirements on hedge funds' counterparties particularly those designated as Systemically Important Bank Holding Companies (SIBHCs). In addition, it foresees a self-regulatory organization (SRO) for hedge funds.

Some banks providing prime brokerage services to hedge funds are themselves considered systemically important bank holding companies (SIBHCs). If banking entities are designated as such, the Fed would establish prudential standards for these institutions. Such standards in principle are more restrictive than the ones applied to other Bank Holding Companies (BHCs) which are not considered systemically important.¹⁶² The Fed is supposed to establish enhanced standards for the Systemically Important Bank Holding Companies (SIBHCs) regarding their risk-based capital, leverage, liquidity, and credit exposure reporting requirement. SIBHCs are also required to undertake annual stress tests.¹⁶³ Although these requirements such as leverage limits are directly applied to banks and prime brokers, they can indirectly affect hedge funds by limiting the sources of leverage for the hedge fund industry or by tightening up their ability to take indirect leverage themselves through, for example, short selling.

Notwithstanding the merits of the indirect regulation in addressing potential systemic risk of hedge funds, it is suggested that the indirect regulation of hedge funds through prime brokers is unlikely to address the liquidity risks of hedge funds.¹⁶⁴ Because hedge funds often use multiple prime brokers and no one prime broker has access to all information about a hedge fund's portfolio liquidity.¹⁶⁵ Prime brokers can be time inconsistent as well, and as the memories of the past liquidity and financial crises fade, the prime brokers will be less willing to maintain market discipline on hedge funds. In addition, the competitive pressures in the prime brokerage industry may result in a race-to-the-bottom in terms of prime brokers regulatory standards to be indirectly applied to hedge funds.

¹⁶² 12 U.S.C. §5365(a)(1)(A)

¹⁶³ *Ibid.*

¹⁶⁴ *Ibid.*

¹⁶⁵ *Ibid.*

5.2. Self-regulation for addressing hedge fund liquidity and leverage

The Dodd-Frank Act requires the Government Accountability Office (GAO) to conduct a study on the feasibility of establishing a Self-regulatory Organization (SRO) for overseeing hedge funds. In July 2011, the GAO found that such an organization is feasible. However, its establishment would require a legislative action. Other problems include: higher start-up costs, difficulties in imposing fees, and governance structure which can address the needs of both small and large firms. The report finds that the Financial Industry Regulatory Authority (FINRA) provides a good model for a hedge fund SRO. The SEC will be in charge of overseeing the private funds' SRO.¹⁶⁶

With respect to self-regulatory measures, it is argued that although the delegation of regulatory functions to SROs may result in a meaningful regulation in some settings such as reporting requirements, it might be less effective in addressing potential systemic risk through the market channel. This is mostly because of the fact that systemic risk regulation of hedge funds requires adequate information on the overall financial market conditions and it is unlikely that SROs can have sufficient information required to address the systemic risk concerns related to hedge funds.¹⁶⁷

5.3. Margins in derivative trades

Another aspect of functional financial regulation which will automatically be applied to hedge funds as soon as they engage in trading in certain financial instruments is the Dodd-Frank Act's regulatory treatment of the appropriate margin in derivatives trades. These regulations do not directly apply to hedge funds; instead they mainly apply to the derivatives clearing organization, and through these organizations will apply to hedge funds. Hence, this book categorizes them under indirect regulation. Financial derivatives are described as "financial weapons of mass destruction".¹⁶⁸ Among derivatives, swaps are considered the riskiest and perhaps the most systemically important derivative instruments. In the recent financial crisis, the failure of some systemically important financial institutions such as the American International Group (AIG)

¹⁶⁶ *Ibid.*

¹⁶⁷ *Ibid.*

¹⁶⁸ Warren Buffet, Letter to Berkshire Hathaway Shareholders, February 21, 2003.

was attributed to its engagement in trade in swaps. Therefore, the Dodd-Frank Act specifically considers the financial overhaul of swap markets.

Title VII of the Dodd-Frank Act mandates the central clearing of certain swaps through regulated derivatives clearing organization. In addition, it defines new category of financial market participants as ‘Major Swap Participants’ (MSPs). An MSP is any person who is not a swap dealer and maintains a substantial position in swaps,¹⁶⁹ and “whose outstanding swaps create substantial counterparty exposure that could have serious adverse effects on the financial stability of the United States banking system or financial markets”, or “is a financial entity that is highly leveraged relative to the amount of capital it holds and that is not subject to capital requirements, and maintains a substantial position in outstanding swaps.”¹⁷⁰ Given the active role of hedge funds in derivatives markets, they can be considered as MSPs.

The Dodd-Frank Act compels the CFTC and the SEC to determine which types of swaps must be centrally cleared (cleared swaps). Once such a determination is made, the swap participants should submit those swaps to a derivatives clearing organization. The main idea is that the standard form swaps be cleared centrally while the swaps which are tailored to the unique situations of each company, would be traded in the over-the-counter (OTC) markets.

The Dodd-Frank Act requires the imposition of minimum initial and variation margin requirements on uncleared swaps. In addition, it imposes minimum capital requirements on MSPs.¹⁷¹ Therefore, the initial and variation margin is required unless the swap is exempted by

¹⁶⁹ This definition excludes the positions held for hedging or mitigating commercial risks, positions maintained by any employee benefit plan for the primary purpose of hedging or mitigating any risk “directly associated with the operation of the plan” in determining whether an entity is a major swap participant. An MSP means “any person who is not a swap dealer, and--

(i) maintains a substantial position in swaps for any of the major swap categories as determined by the Commission, excluding--

(I) positions held for hedging or mitigating commercial risk; and

(II) positions maintained by any employee benefit plan (or any contract held by such a plan) as defined in paragraphs (3) and (32) of section 1002 of Title 29 for the primary purpose of hedging or mitigating any risk directly associated with the operation of the plan;

(ii) whose outstanding swaps create substantial counterparty exposure that could have serious adverse effects on the financial stability of the United States banking system or financial markets; or

(iii)(I) is a financial entity that is highly leveraged relative to the amount of capital it holds and that is not subject to capital requirements established by an appropriate Federal banking agency; and

(II) maintains a substantial position in outstanding swaps in any major swap category as determined by the Commission.” *See* 7 U.S.C. § 1a(33)(A)

¹⁷⁰ 7 U.S.C. § 1a(33)(A)

¹⁷¹ 7 U.S.C. § 6s(e)

the CFTC or the SEC. Again, regulatory agencies are offered a great deal of discretion with regard to the implementation of these provisions of the Dodd-Frank Act.¹⁷²

5.4. Hedge fund runs on prime brokers and collateral restrictions

One of the main concerns about hedge funds is the counterparty credit risk of prime brokers. At the center of such a concern is the reuse of collateral that hedge funds post to secure the funds they borrow from their prime brokers. Reusing collateral can increase the counterparty risk of prime brokers in times of financial distress in which uncertainty about the counterparty credit risks is in its height.

For example, assume that the hedge fund (A) posts a collateral to the prime broker (B) to take a loan, the prime broker (B) in turn posts the same collateral to secure a loan it is receiving from another financial institution (C). Suppose that (B) defaults on the loan to (C), since this transaction is a secured transaction, (C) has the right to take over the collateral that (B) posted to secure the loan. The problem with such recourse to the collateral is that if (A) does not default on the loan, he has the right to the collateral, while the default of (B), makes (C) the right holder on the same collateral as well.

Now, suppose that there is another round of rehypothecation. In this case, (C) posts the collateral to take a loan from (D), and (C) also defaults on the loan, (D) will also be the right holder to repossess the collateral, there will be one (the same) collateral for several financial claims. In this case, the counterparty does not know where the collateral is, who the right holder on that collateral is, and in case of default by the borrower, whether she can take the collateral or not. Such uncertainty can panic several right-holders in adverse economic conditions and may generate a run.¹⁷³ It is long established that aggregate uncertainty can impair the ability of the private sector to provide liquidity due to the fact that this sector cannot be fully insured against the aggregate shocks.¹⁷⁴ Given that rehypothecation of assets can amplify the uncertainties in financial markets, rehypothecability of collateral may play a major role in a liquidity crisis. In light of this explanation, one of the aims of the Dodd-Frank Act is to protect the margins that

¹⁷² Lloyd, Clancy and Kumar, *Hedge Funds and Systemic Risk*, pp. 74-77.

¹⁷³ Regulation T in the U.S. prohibits the use of collateral to the amount of %140 of the collateral, while in the UK, there is no limit on that.

¹⁷⁴ Bengt Holmström and Jean Tirole, *Private and Public Supply of Liquidity*, 1-40.

hedge funds post with their prime brokers-dealers as collateral to secure their derivative positions.

According to section 724 of the Dodd-Frank Act, parties accepting money, securities or property to margin, guarantee, or secure a swap cleared by a derivatives clearing organization should register as Futures Commission Merchants (FCMs). The FCMs should treat all money, securities, and property of any swaps customer as belonging to the swap customer. They are also required to separately account for and not commingle the customer's funds with the funds of the FCM.

In addition, section 724 requires the segregation of assets for uncleared swaps. According to this requirement, a swap dealer or an MSP should notify the party wanting to enter a swap transaction at the beginning of the swap transaction that it has "the right to require the segregation of the funds or other property supplied to margin, guarantee, or secure the obligations of the counterparty." The aim of this provision is to prevent the swap dealer or an MSP from using customers' assets posted with them as collateral to be used as margin, guarantee, or as a security for any of its trades.¹⁷⁵

Market discipline has already, to some extent, reduced the susceptibility of prime brokers to runs by hedge funds. Many hedge funds require prime brokers not to rehypothecate the collateral posted by hedge funds according to which hedge fund cash should be kept in separate accounts.

One of the aims of the Dodd-Frank Act is to discourage hedge funds' run on prime brokers. To further such an objective, the collateral posted by hedge funds should not be commingled with the prime broker's funds. Such a protection offered to hedge funds' collateral can in fact reduce the likelihood of hedge fund runs on prime brokers. Moreover, requirements for central clearing of derivatives can reduce hedge funds' concerns about prime brokers' default risks. On the other hand, margin requirements imposed by the central clearing houses, can reduce the overexposure of prime brokers to hedge funds and vice versa.

In order to prevent hedge fund runs on prime brokers, a new liquidation procedure will play a decisive role. However, since multiple institutions should approve the application of such liquidation procedure, particularly in time of financial distress, even short delays in liquidating a

¹⁷⁵ Lloyd, Clancy and Kumar, *Hedge Funds and Systemic Risk*, pp. 77-79.

firm can have a severe impact on the firm and its counterparties, and may cause a run on the ailing prime broker.

One of the most serious criticisms of the Dodd-Frank Act involves the fact that although it affects the transparency of hedge funds,¹⁷⁶ it does next to nothing to address the problems arising from concentration of positions and financial strategies of hedge funds. In the next section, the reforms addressing potential hedge fund herding will be studied and it will be argued that some of the provisions of the Dodd-Frank Act can mitigate the possibility of herding behavior in the hedge fund industry.

5.5. The Dodd-Frank Act and hedge fund herding

As suggested in the first and second chapters, the systemic importance of financial institutions highly depends on their interconnectedness with LCFIs, their collective behavior in financial markets, and the inter-linkages between financial markets and the real economy.¹⁷⁷ Therefore, one of the major concerns about hedge funds that cannot be individually considered as systemically important is their collective, simultaneous, and correlated actions which can destabilize the financial system.

Given that most financial crises are preceded by asset price bubbles and herding behavior plays an important role in the formation of such bubbles, the study of herd behavior is of crucial importance in identifying hedge funds' potential systemic implications. Although hedge funds engage in a vast majority of instruments and investment strategies, they may potentially mimic the investment strategies of other funds. Namely, funds with different investment styles can be theoretically correlated in their positions. It is very likely that in response to a financial shock, hedge fund managers copycat the strategy of other managers, and engage in crowded trades resulting in style convergence. Since in the event of tail risks these concentrations can be very devastating, such hedge fund concentration and co-movements should be taken into account by their prime brokers and other counterparties in devising their risk management strategies.¹⁷⁸

¹⁷⁶ The transparency by itself can increase market discipline and hence reduce the leverage and potential market concentrations.

¹⁷⁷ European Central Bank, *Recent Advances in Modelling Systemic Risk using Network Analysis* (Frankfurt am Main, January 2010), p. 6.

¹⁷⁸ Eechoud et al., *Future Regulation of Hedge Funds—A Systemic Risk Perspective*, pp. 285-287.

Indeed, in the presence of style convergences and strategy correlations in distressed markets, diversifying by exposures to different hedge funds might not work.

As suggested in the second chapter, the empirical evidence on hedge fund herding is mixed and herding behavior among hedge funds still remains a significant regulatory concern. However, regulation of style convergence and herding behavior of hedge funds is perhaps the most challenging regulatory task. At first blush, it might seem that to limit herding by hedge funds, it might take very extreme measures of command-and-control regulatory instruments to impose on hedge funds' investment strategies.¹⁷⁹

However, two main regulatory approaches are proposed to address herding behavior by hedge funds. The first approach focuses on micro-prudential regulation. Although this approach primarily focuses on the supervision of risk taking behavior of an individual firm, it plays a crucial role in the systemic stability of the financial system. It is well acknowledged that systemic risk cannot be dealt with by regulating every individual financial institution. However, micro-prudential regulation and individual bank's risk management aimed at management of the credit and liquidity exposures can be effective in mitigating the risks of herding by financial institutions. For example, measures such as maintaining higher capital and liquidity buffers, and limiting large exposures and concentrations which are key elements of risk management of banks can at the same time help mitigate systemic risk. If every individual financial institution limits and effectively manages its exposures to its counterparties, the risk of herding in distressed markets could be mitigated. In other words, by setting limits to large exposures, micro-prudential regulation can limit the interdependences of financial institutions and increase the resilience of the financial system at large.¹⁸⁰

The risk of herding is particularly pronounced in financial institutions which are highly levered by using short-term debt and those holding assets with lower market liquidity in distressed

¹⁷⁹ In a market economy, not only is taking such measures suboptimal, but also it is not logistically feasible for regulators. Such measures can deprive society from many benefits of financial markets and severely limit the economic freedom. For example, a temporary ban on short selling in response to hedge funds herding could be justifiable, however, if hedge funds sell their long positions simultaneously, it is hard to justify a ban on selling their own assets even if it results in systemic events. Given that even regulated banks with all their government implicit and explicit guarantees are not legally bounded to invest in a specific sector or an asset class, private funds are unlikely to be treated in a more restrictive manner than banks. Hence it is suggested that a flexible regulatory toolbox is needed to address herding behavior. *See Ibid.*

¹⁸⁰ European Central Bank, *Recent Advances in Modelling Systemic Risk using Network Analysis*, p. 6.

markets.¹⁸¹ Scholars suggest that these types of institutions should report and should be constrained in the factors that can contribute to their macro-prudential riskiness such as their leverage, maturity mismatch, and credit expansion.¹⁸²

The second approach proposes that if a financial institution is not systemic in itself, there is no reason for regulating that individual institution, and hence there is no need for micro-prudential regulation of those funds. Instead, such institutions should be subject to macro-prudential regulation.¹⁸³

Furthermore, addressing herding behavior of financial institutions and the associated risks requires the collection of detailed information about large exposures by market participants including hedge funds. In addition to the collection of information on hedge fund exposures, there are indirect indicators of herding behavior and the risks associated with such a behavior. For instance, higher correlations of hedge fund returns in their investment strategies could be seen as a sign of herding behavior. To be useful for the assessment of systemic risk, such assessment should be timely.¹⁸⁴ However, there is a high probability that regulators will not have access to such timely information.

So far, hedge fund regulation in the U.S. is based on their direct regulation which is mostly focused on hedge fund transparency, and the Volcker Rule which is focused on interconnectedness of hedge funds with LCFIs. At first blush, it seems that no regulatory measures have been employed to address hedge fund herding. However, though scattered in the Dodd-Frank Act, there are measures that can directly or indirectly address herding behavior among hedge funds. For example, creating central counterparty clearing houses aimed at mitigating counterparty credit risks in derivative transactions can be seen as a systemic risk mitigating strategy. Such measures can mitigate the risk of financial institutions running on their counterparties in herd. Therefore, the Dodd-Frank Act's regulations addressing that problem can partly contribute to the stability of the financial system as a whole by mitigating the likelihood of herding.

¹⁸¹ Brunnermeier et al., *The Fundamental Principles of Financial Regulation: Geneva Report on the World Economy*, p. 60.

¹⁸² *Ibid.*

¹⁸³ *Ibid.*

¹⁸⁴ Papademos, *Monitoring Hedge Funds: A Financial Stability Perspective*, p. 122.

Additional regulatory tools for addressing hedge fund herding could be found in the list of considerations for the designation of NBFCs as SINBFCs in the Dodd-Frank Act. For example, one of these criteria is the aggregate risks posed by NBFCs managed by a single adviser. Such consideration can particularly be highlighted if the investment strategies of the funds are identical or highly correlated.

In designating a hedge fund as SINBFC, the FSOC can take into account the leverage, concentration, interconnectedness and mix of activities and the types of the liabilities of the company including the degree of reliance on short-term financing which are the core drivers of herd behavior.¹⁸⁵ Therefore, given the broad powers granted to regulatory agencies along with broad criteria for designating hedge funds as SINBFCs which will subject them to prudential standards of the Fed, it seems that the Dodd-Frank Act provides the adequate tools for regulators to address the problems arising from their potential herding behavior.

In light of the studies on hedge fund potential systemic risk implications, it is suggested that new regulations address some problems while completely ignoring some other.¹⁸⁶ For example, regulations address the potential problems arising from hedge funds size, leverage, and to some extent interconnectedness, while leaving some of them almost completely untouched such as the potential problems stemming from hedge fund herding. Some commentators suggest that these regulations in the Dodd-Frank Act do not capture the co-movement of firms' assets with that of the aggregate financial sector in distressed market.¹⁸⁷ Therefore, in their view, to the extent related to the SINBFC designation, these provisions do not account for herding behavior of a collection of small financial institutions which can collectively be systemic, while individually they might not be considered by the FSOC as systemically important.

Nevertheless, the Dodd-Frank Act grants considerable discretionary powers to the FSOC in designating a firm as SINBFC. The FSOC can assess "any other risk-related factors" that it deems appropriate. Therefore, in making such a determination, the FSOC can assess the risks of NBFCs and their inter-linkages and potential correlations with other NBFCs and other financial

¹⁸⁵ Lloyd, Clancy and Kumar, *Hedge Funds and Systemic Risk*, pp. 86-89.

As discussed earlier in the criteria for designating a NBFC as a SINBFC, the FSOC can recommend more stringent standards for the SINBFC to be imposed by the board of governors of the Fed. For the criteria for such a designation see 12 U.S.C. § 5323 (a)(2). See also 12 CFR § 1310.11

¹⁸⁶ Acharya and Richardson, *Implications of the Dodd-Frank Act*, pp. 9-14.

¹⁸⁷ *Ibid.*

institutions including banking entities. In the appendix A to part 1310, the FSOC’s guidance for Nonbank Financial Company determinations, the FSOC mentions that “the Council may consider the aggregate risks posed by separate funds that are managed by the same adviser, particularly if the funds’ investments are identical or highly similar.”¹⁸⁸ Therefore, an individual company that may not individually be considered as systemically important may be considered as systemically important if its investment strategies are highly correlated with other funds managed by the same adviser. However, even if such funds are not managed by the same investment adviser, the FSOC can designate them as SINBFCs if their investment strategies are highly identical or similar based on the authority given to the FSOC to designate financial institutions as SINBFC based on “any other risk-related factors”.

Other provisions of the Dodd-Frank Act which address potential hedge fund herding include, concentration limits, and prohibition on rehypothecation in centrally-cleared derivatives. By the same token, although the Dodd-Frank Act exempts some small private funds from registering with the SEC, it still requires them to keep records, and report the information on small funds. These reports and records can be helpful in identifying potential herding behavior in the hedge fund industry.

Conclusion

The Volcker Rule pursues three major objectives, i.e., addressing problems arising from hedge fund interconnectedness with LCFIs, preventing cross-subsidization of hedge funds by banks, and regulating conflict of interests in the relationship between banks, their customers and hedge funds. Those goals along with imposing the least costs to market efficiency and to the competitiveness of the U.S. financial institutions provide benchmarks against which the success or failure of the Volcker Rule should be evaluated.

This chapter concludes that in terms of achieving its objectives, the Volcker Rule was only partially successful. There are several reasons for such a partial failure. The first reason concerns the political compromises made in the process of legislation which resulted in extensive

¹⁸⁸ 12 CFR Part 1310, Appendix A to part 1310—Financial Stability Oversight Council Guidance for Nonbank Financial Company Determinations.

exceptions. Although based on sound legal and economic basis, in many aspects these exceptions made the Volcker Rule toothless. Underlying reasoning for such a claim lies in the difficulty in distinguishing permitted activities from prohibited activities. Since making such a determination relies on a ‘subjective, case-by-case evaluation’, it makes the appropriate enforcement of the Volcker Rule too costly and burdensome.

The second concern involves regulatory arbitrage. It is important not to permit the prohibited activities to occur throughout the entire banking entity and not just within its certain units. Moreover, some activities may move to the lightly regulated shadow banking sector because of the increased regulatory costs to banks. Absent certain levels of international coordination, regulatory arbitrage would bring the Volcker Rule to its knees.

However, criticisms of the Volcker Rule based on the claim that it can reduce the liquidity and diversification in financial markets and institutions thereby increasing systemic risk are unfounded. Theoretical and empirical evidence suggests that the alleged economies of scale and scope in mixing banking activities with proprietary and hedge fund-related activities overlook the banking entities’ access to implicit and explicit government guarantees. Therefore, the claim that the Volcker Rule would impede the realization of economies of scale and scope in banking industry are largely unfounded.

With respect to cross-subsidization concerns, it seems that the Volcker Rule and its exceptions struck a reasonable balance between preventing such opportunistic behavior while not stifling the investment of banks in start-up hedge and private equity funds. With regard to the management of conflict of interests, the extensive exceptions in the Volcker Rule though marginally mitigate the conflict of interests, fall short of providing a conflict-of-interest-proof environment for all stakeholders.

CHAPTER 6: HEDGE FUND REGULATION IN THE EU: THE ALTERNATIVE INVESTMENT FUND MANAGERS DIRECTIVE

Introduction

Prior to the global financial crisis, the hedge fund industry was not regulated at the EU level. Instead, hedge funds were subject to regulations of the competent authorities of the Member States at the national level.¹ However, even at that time, there were concerns about hedge funds' role in financial markets and especially in the corporate governance of non-financial companies.² Perceived as the legacy of the American *laissez-faire* capitalism,³ hedge funds attracted considerable animosity from politicians of continental Europe. Calling for their abolition, hedge funds were demonized as being 'crazy' and 'hellish' which "fall like a plague of locusts" over the companies, "devour everything, then fly on to the next one".⁴ Not to fall behind in the race to demonization of hedge funds, others called hedge funds along with private equity firms

¹ For more details about hedge fund regulation prior to the Alternative Investment Fund Managers Directive (AIFMD), see Athanassiou, *Hedge Fund Regulation in the European Union: Current Trends and Future Prospects*. See also International Organization of Securities Commissions (IOSCO), *The Regulatory Environment for Hedge Funds, A Survey and Comparison, Final Report*, November, 2006).

² For example, hedge funds and private equity funds were harshly criticized by German politicians especially subsequent to thousands of job losses at Gröhe, a German tap maker. See Martin Arnold, "Hedge Fund Rules Defended by French MEP," *Financial Times*, May 16, 2010. See also Richard Milne, "'Locusts' of Private Equity Help Grohe," June 5, 2008.

For concerns about job losses due to the activities of private equity funds, see Ieke Van den Burg and Poul Nystrup Rasmussen, *Hedge Funds and Private Equity: A Critical Analysis* (Belgium, 2007), pp. 111-112.

For concerns about hedge fund activism and their campaign against Deutsche Börse, the Frankfurt stock exchange group, derailing Deutsche Börse's London Stock Exchange (LSE) bid, see Carter Dougherty, "Hedge Funds Derailed Deutsche Börse LSE Bid," *The New York Times*, March 8, 2005.

Such activism on the part of hedge and private equity funds raised calls from German government to regulate hedge funds at the EU level. In the EU, German and French governments have long been critical of hedge funds as vultures of capitalism and contradictory to the German idea of 'patient capital' and France's 'managed' capitalism. See James Buckley and David Howarth, "Internal Market: Regulating the so-called 'Vultures of Capitalism'," *Journal of Common Market Studies* 49 (2011), pp. 129-130.

See also Klaus C. Engelen, "Blinking Left, Driving Right," *International Economy* 19, no. 2 (2005), 56-63. For more details, see Buckley and Howarth, *Internal Market: Regulating the so-called 'Vultures of Capitalism'*, pp. 129-130. See also Vivien A. Schmidt, *The Futures of European Capitalism* (New York: Oxford University Press, 2002).

Given the effects of hedge funds and private equity funds on the firms' corporate governance which allegedly loosened the ties between financial sector and the industrial sector (by engaging in activities such as empty voting) in continental Europe, these countries supported the AIFMD to limit the activities of hedge and private equity funds. See Quaglia, *The 'Old' and 'New' Political Economy of Hedge Fund Regulation in the European Union*, p. 668.

³ Hedge funds are essentially considered as an Anglo-American phenomenon. It is estimated that the U.S. and the UK host almost 90 percent of hedge fund managers. Engert, *Transnational Hedge Fund Regulation*, pp. 364-365.

⁴ A statement quoted from Franz Müntefering, Germany's deputy chancellor. See Sebastian Mallaby, "Hands Off Hedge Funds," *Foreign Affairs* 86, no. 1 (2007), p. 92.

“‘aggressive’ gangs of ‘speculators’, bent on “snapping up firms, sacking workers and creaming off profits”.⁵ Against such a background of hostility towards the industry, the sweeping waves of regulatory reforms seemed to be inevitable.

It is suggested that the European regulation of hedge funds was mostly driven by politics rather than economics,⁶ and the Alternative Investment Fund Managers Directive (AIFMD) was a politically motivated directive aimed at regulating U.S. and UK-based financial institutions to obstruct their activities.⁷ Indeed, throughout the EU regulatory process, one of the deepest concerns about regulating hedge funds in the EU was that it might have been motivated by the protectionist preferences of certain Member States.⁸ Theoretically, there were two opposing paradigms which affected the process of hedge fund regulation in the EU; the ‘market-making’ paradigm⁹ pioneered by the UK promoting the financial innovation, and the ‘market-shaping’ paradigm supported by Germany and most Mediterranean countries such as France and Italy.¹⁰ The introduction of the draft Directive pegged the UK and Luxembourg, along with the hedge fund industry and its associations against Germany, Italy, and France.¹¹

Therefore, from the very beginning of the debate about regulating hedge funds at the EU level there were two opposing views about the draft Directive. On the one hand, some politicians of the Member States believed that the draft Directive did not sufficiently address the risks of hedge funds.¹² On the other hand, the British and American governments along with the industry association¹³ took the opposite stance and launched their lobbying power to trim down the draft

⁵ "Battle of the Big Beasts: Mutual Suspicions and National Interests Underlie European Rows Over Financial Regulation." *The Economist*, July 23, 2009. Such voices eventually echoed in the U.S., leading to hedge fund regulation on both sides of the Atlantic.

⁶ Buckley and Howarth, *Internal Market: Regulating the so-Called ‘Vultures of Capitalism’*, 123-143.

⁷ Ferran, *After the Crisis: The Regulation of Hedge Funds and Private Equity in the EU*, pp. 397-398.

⁸ *Ibid.*

⁹ ‘Market-making paradigm’ generally puts more emphasis on the competition and market efficiency relying on the ‘light touch, principles-based regulation and private sector governance’, while ‘market shaping paradigm’ emphasizes the objectives of financial stability, consumer protection, and forms of ‘veiled protectionism’ favoring prescriptive, rules-based regulation strongly steered by public authorities. See Quaglia, *The ‘Old’ and ‘New’ Political Economy of Hedge Fund Regulation in the European Union*, pp. 669-670.

¹⁰ *Ibid.*

¹¹ HM Treasury & FSA, *European Commission Consultation on Hedge Funds: Response*, January 2009), p. 6.

¹² Buckley and Howarth, *Internal Market: Regulating the so-Called ‘Vultures of Capitalism’*, p. 133.

¹³ Among the British industry associations, the Investment Management Association (IMA), the National Association of Pension Funds (NAPF), and the Alternative Investment Management Association (AIMA) raised concerns about the AIFMD.

Directive.¹⁴ One of the specific concerns of the British government was that the AIFMD would disproportionately impact the Member States. Given London's dominance in financial services, for example, the British Private Equity and Venture Capital Association (BVCA) believed that the Directive threatened the UK national strategic interests and compared the impact of the introduction of the Directive on the British economy with an attack on German manufacturing and French farming industry.¹⁵ Likewise, the British government was especially concerned about the role of the European Securities and Markets Authority (ESMA) and its power in regulating AIFs and sought to curtail its power.¹⁶

As mentioned above, some Member States especially Germany backed hedge fund regulation at the EU level even prior to the financial crisis. Following such calls from the Member States, the European Commission (hereinafter the Commission) established the Alternative Investment Expert Group, including several industry managers, mandated to discuss whether to regulate hedge funds or not. In its report in 2006, this group concluded that there is no need for EU legislation on hedge funds.¹⁷ Nevertheless, this did not put an end to Germany's efforts to push for hedge fund regulation. Later on, another German effort to regulate hedge funds in 2007 during the G8 summit failed.

The paradigm shift came at the dawn of the financial crisis during which the European Parliament issued the 'Rasmussen'¹⁸ and 'Lehne' reports.¹⁹ On September 23, 2008, the European Parliament issued a resolution requesting the Commission to submit a legislative proposal to cover all financial market participants including hedge funds and private equity

¹⁴ *Ibid.*

¹⁵ *See Ibid.*

¹⁶ *Ibid.* The Directive requires ESMA's involvement in at least 11 different areas from drafting guidelines and recommendation to the exercise of decision making powers. ESMA's powers range from drafting level 3 technical standards, assessing the uniform application of the Directive across all Member States, monitoring the interactions between Member State authorities regarding the passport provisions of the Directive to monitoring the cooperation among competent Member State authorities and authorities of the third countries. *See* Phoebus Athanassiou, "The AIFM Directive: An Overview of the Final Rules," *Journal of International Banking Law and Regulation* 26, no. 5 (2011), p. 242.

¹⁷ Alternative Investment Expert Group, *Report of the Alternative Investment Expert Group - Managing, Servicing and Marketing Hedge Funds in Europe*, July 4, 2006).

¹⁸ European Parliament, *Report of the European Parliament with Recommendations to the Commission on Hedge Funds and Private Equity (the 'Rasmussen' Report)*, A6-0338/2008., 2008a).

¹⁹ European Parliament, *Report of the European Parliament with Recommendations to the Commission on Transparency of Institutional Investors ('Lehne' Report)*, A6-0296-2008., 2008b).

funds.²⁰ Although, prior to the financial crisis, the Commission was reluctant to start an initiative to regulate hedge funds,²¹ and even opposed their regulation, the financial crisis and ensuing calls from the European Parliament along with increasing pressure by some Member States, such as Germany and France (holding the rotating presidency of the EU in the second semester of 2008) changed the tone and stance of the Commission towards regulating hedge funds and private equity funds,²² and pushed the Commission to issue proposed rules.²³

In December 2008, the Commission issued a consultation document involving regulation of hedge funds. However, most respondents preferred to have an international or global response to hedge funds' perceived risks rather than single European response.²⁴ Nevertheless, in June 2009, the Commission submitted its proposal as the draft AIFMD. On the one hand, the proponents of hedge fund regulation in the EU criticized the initial draft on the grounds of being too minimalistic.²⁵ On the other hand, the opponents of the draft proposal criticized it as an "evidence of political meddling and overreach".²⁶ In addition, some commentators criticized it for being a rushed draft without routine preparatory works being accomplished during its enactment resulting in "highly flawed initial draft".²⁷ On the legal issues, the proposal further came under fire for making "a mockery of any notion of subsidiarity – taking decisions at the lowest possible level" and for being "a classic exercise in closet protectionism".²⁸

Despite all these opposing views, the Directive (2011/61/EU) of the European Parliament and the Council was adopted on June 8, 2011 on Alternative Investment Fund Managers, published in the Official Journal of the European Union on July 1, 2011 and entered into force twenty days thereafter (July 21, 2011). The Directive must be transposed into the national law of the EU Member States by July 22, 2013.²⁹ This Directive is the first attempt to regulate hedge funds at

²⁰ Quaglia, *The 'Old' and 'New' Political Economy of Hedge Fund Regulation in the European Union*, pp. 672-674.

²¹ *Ibid.*

²² *Ibid.*

²³ *Ibid.*

²⁴ *Ibid.*

²⁵ Quoted in Tony Barber, Nikki Tait and Martin Arnold, "Paris Pushes EU to Impose Tighter Regulation on Hedge Funds," *Financial Times*, May 6, 2009. See also Ferran, *After the Crisis: The Regulation of Hedge Funds and Private Equity in the EU*, pp. 397-398.

²⁶ Quoted from: *Ibid.*

²⁷ See Buckley and Howarth, *Internal Market: Regulating the so-Called 'Vultures of Capitalism'*, pp. 129-130.

²⁸ See Ferran, *After the Crisis: The Regulation of Hedge Funds and Private Equity in the EU*, pp. 397-398.

²⁹ In most parts, the AIMFD is the equivalent of the Title IV of the U.S. "Dodd-Frank Wall Street Reform and Consumer Protection Act" passed on July 21, 2010 and became effective on July 21, 2011. Title IV of the Dodd-

the EU level. It is a sweeping regulation which includes hedge funds, private equity funds, real-estate funds, and infrastructure funds under the brand name of the Alternative Investment Funds (AIFs).

In addition, on January 29, 2014, the Commission adopted a proposal on banking structural measures improving the resilience of the EU credit institutions.³⁰ This proposal which is rightly viewed as the equivalent of the U.S. Volcker Rule lays down rules aimed at imposing structural changes on too-big-too-fail banks by setting restrictions on proprietary trading by banks and separation of their trading activities. However, since this proposal is yet to become law, this thesis will not investigate the proposal.

In the next section, the main concerns and motivations behind the enactment of the AIFMD will be studied. The aim is to ascertain to what extent the EU regulation of hedge funds is successful in accomplishing the objective of addressing the systemic implications of the hedge fund industry.

1. Regulation of hedge funds in the EU: Between systemic risk and investor protection

Financial regulation has three traditional objectives; constraining the use of monopoly power and preventing the distortions to competition and maintaining market integrity, investor protection, and addressing externalities.³¹ From among different objectives of financial regulation, this chapter focuses on the European regulatory responses to the systemic externalities of EU hedge funds.

Systemic risk is regarded as a byproduct of inter-connectedness of the global financial system, and its impact largely depends on the collective behavior of financial institutions, their

Frank involves the “Regulation of Advisers to Hedge Funds and Others”. As in the U.S., after the financial crisis, the EU regulators saw hedge funds as one of the perpetrators having a role in the global financial crisis or its deepening. All in all, negative approach and hostility against hedge funds, as symbols of American capitalism, in Europe was much more visible and intense. This sense and negative view contributed to the formation of a relatively thick, lengthy, and detailed equivalent for U.S. Private Fund Act in Europe.

³⁰ The full text of the proposal is available at: http://ec.europa.eu/internal_market/bank/structural-reform/index_en.htm#maincontentSec1

³¹ Brunnermeier et al., *The Fundamental Principles of Financial Regulation: Geneva Report on the World Economy*, p. 3.

interconnectedness, and the interaction between financial markets and the economy at large.³² In the financial system, the systemic risk propagates through either credit channels or market channels. With respect to the hedge fund industry, propagation of risks through a credit channel occurs where a failure of a hedge fund or a group of hedge funds results in losses to banks, prime brokers and other Large Complex Financial Institutions (LCFIs).³³

In addition, propagation through the market channel occurs where individual hedge funds or a group of them are significant investors or providers of liquidity in some asset classes. In such settings, if there is an increase in correlations in the performance of asset classes, forced liquidations by hedge funds in times of stress can result in temporary disruptions in market liquidity and prices that can stress other market participants. Such liquidations and disruptions can be amplified by the use of leverage,³⁴ particularly if the creditors run on the borrowers resulting in increased margin calls which can further cause more liquidations.³⁵ Furthermore, leveraged funds alone can potentially move the markets. If leveraged funds herd, disorderly unwinding of large and similar positions can cause a collapse in the asset prices and lead to market illiquidity.³⁶

Therefore, to address systemic risk concerns stemming from hedge funds, not only is it important to focus on the channels of propagation of systemic risk, including both market and credit channels, but also it is important to focus on the level and main sources of leverage in financial institutions. It follows that despite the fact that the systemic risk cannot be addressed by

³² European Central Bank, *Recent Advances in Modelling Systemic Risk using Network Analysis*, p. 6.

³³ Exposure of funds is an important source of counterparty risk for the providers of credit which are mostly prime brokers. Lenders can address the risks propagating through the credit channel by requiring sufficient collateral in direct provision of leverage. In addition to the derivative instruments such as Credit Default Swaps (CDSs), when providing leverage indirectly, initial and maintenance margins, margin calls, liquidation of and closing-out the positions are the mechanisms used to offer protection against the default of the counterparty. On the other hand, such exposures are mostly prudentially regulated and are often fully collateralized. However, if a hedge fund has multiple prime brokers and borrows from all of them, the lenders might have difficulty in assessing the soundness of the fund and its exact overall leverage. See European Commission, *Commission Staff Working Document Impact Assessment, Accompanying the Document, Commission Delegated Regulation Supplementing Directive 2011/61/EU of the European Parliament and of the Council with Regards to Exemptions, General Operating Conditions, Depositories, Leverage, Transparency and Supervision* (Brussels, 19.12.2012), pp. 64-65.

³⁴ *Ibid.*

³⁵ Financial Services Authority, *Assessing the Possible Sources of Systemic Risk from Hedge Funds: A Report on the Findings of the FSA's Hedge Fund Survey and Hedge Fund as Counterparty Survey* (London: , 2010), pp. 3-4.

³⁶ European Commission, *Commission Staff Working Document Impact Assessment, Accompanying the Document, Commission Delegated Regulation Supplementing Directive 2011/61/EU of the European Parliament and of the Council with Regards to Exemptions, General Operating Conditions, Depositories, Leverage, Transparency and Supervision*, pp. 64-65.

regulating individual financial institutions (micro-prudential regulation), requiring liquidity buffers, adequate capital, and limiting exposures and interdependences of hedge funds with LCFIs can contribute to the resiliency of the entire financial system.³⁷

As the first and second chapters of the thesis illustrated, although hedge funds' role in financial instability is highly contested, their size, leverage, interconnectedness with LCFIs, and the likelihood of herding are among the features that can make them systemically important. However, the data on hedge funds' size and leverage shows that these features are far from being systemically important. Nevertheless, empirical evidence on hedge fund interconnectedness and herding is mixed and it remains a major concern for regulators.

Despite the fact that the European hedge funds, and in general, European AIF industry, witnessed a dramatic growth in recent years, compared to the size of the worldwide hedge fund industry, and particularly compared to the jurisdictions such as the U.S., its size remains modest.³⁸ The overall assets under management (AUM) of the European AIFs, of which hedge funds are a portion, amounted to €2.2 trillion at the end of September 2011.³⁹ However, according to the estimates of EurekaHedge in 2010, the size of the European hedge fund industry (and not AIFs)⁴⁰ was \$340 billion, and the number of European funds was 3,401.⁴¹ Therefore, it

³⁷ European Central Bank, *Recent Advances in Modelling Systemic Risk using Network Analysis*, p. 6.

Such measures targeting the individual financial institutions are particularly applicable to the liquidity risks of the financial institutions.

³⁸ According to some estimates no more than 1,785 private equity firms were operating within the EU in 2009. Coupled with the hedge fund industry, they together generate €9 billion in tax revenue in 2008. The number of the employees of the private equity firms in Europe in 2008 amounted to 40,000 people. The UK's share is the greatest amounting to 18,000. In addition private equity firms invested around €51 billion in European companies in 2008. See Mats Persson, *The EU's AIFM Directive: Likely Impact and Best Way Forward*, (London: Open Europe Report, 2009).

³⁹ This number constitutes about 18% of the EU's GDP. It is also estimated that around 68% of the assets of AIFs are held by institutional investors among which 70% are pension funds and insurance companies. See European Commission, *Commission Staff Working Document Impact Assessment, Accompanying the Document, Commission Delegated Regulation Supplementing Directive 2011/61/EU of the European Parliament and of the Council with Regards to Exemptions, General Operating Conditions, Depositories, Leverage, Transparency and Supervision*, pp. 4-5.

⁴⁰ It should again be emphasized that the term Alternative Investment Fund is broader than hedge funds and include entities such as private equity funds, venture capital funds, real estate funds, and investment trusts.

⁴¹ However, it is estimated that the combined assets of the investment fund market in Europe, namely the market for UCITS and non-UCITS, in the fourth quarter of 2012 to the year end amounted to €8,944 billion. At the end of December 2012, around 70 percent (€6,295 billion) of that amount was invested in UCITS, and the remaining 30 percent in non-UCITS. See The European Fund and Asset Management Association, *Quarterly Statistical Release: Trends in the European Investment Fund Industry in the Fourth Quarter of 2012 and Results for the Full Year 2012* (Brussels, March 2013), p. 11.

seems that despite the insignificance of the size of the hedge fund industry, excluding other AIFs, and despite the fact that one of the main concerns throughout the regulatory process was the EU's premature and disproportionate action on the assumption of systemic importance of hedge funds,⁴² EU regulators opted for the regulation of such entities. In hindsight, it seems that systemic risk concerns were not the only regulatory concern for EU regulators. To find out the other objectives of hedge fund regulation pursued by the EU regulators, a quick retrospect to the EU's overall financial regulatory system and its difference from the U.S. financial regulation is in order.

One of the most significant differences between the EU and the U.S. hedge fund regulation is rooted in the basic underlying objectives of these two systems of securities regulation. In addition to investor protection and systemic risk concerns, European securities regulation has a third objective which is the creation of a single European market to ensure the free movement of goods, persons, services, and capital.⁴³ This objective can be achieved through harmonization of the laws at the EU level. Accordingly, one of the most prevalent objectives of the AIFMD is to provide an EU-wide consistent regulatory and supervisory framework for AIFMs.⁴⁴ In the furtherance of such an objective, the AIFMD takes a step forward and provides legal underpinnings for a single market for AIFMs and establishes a high level of investor protection in the Union.⁴⁵ However, in the U.S. such an objective had already been achieved mostly in the 1930s.⁴⁶ Although addressing systemic risk was the impetus for regulating EU hedge funds at the

It seems that given the size of the hedge fund industry in Europe, it attracted a disproportionate level of attention from regulators seeking to respond to the financial crisis.

⁴² Ferran, *After the Crisis: The Regulation of Hedge Funds and Private Equity in the EU*, p. 398.

However, it should be highlighted that the share of the non-UCITS (other AIFs other than hedge funds) which is governed and regulated by the AIFMD is far from insignificant. On the other hand, in Europe, geographic distribution of hedge funds is not even. Some jurisdictions, particularly the UK, have the biggest share of the hedge fund industry (around 80%), and also other jurisdictions such as Luxembourg and Switzerland, given the size of their economy have a disproportionate number of hedge funds.

⁴³ See R. Daniel Kelemen, *Eurolegalism: The Transformation of Law and Regulation in the European Union* (Cambridge, Massachusetts: Harvard University Press, 2011), pp. 93-94.

See also Tanja Boskovic, Caroline Cerruti and Michel Noel, *Comparing European and U.S. Securities Regulations: MiFID Versus Corresponding U.S. Regulations*, Vol. World Bank Working Paper No. 184, (Washington D.C.: World Bank Publications, 2010), pp. 14-15.

⁴⁴ European Commission, *Commission Staff Working Document Impact Assessment, Accompanying the Document, Commission Delegated Regulation Supplementing Directive 2011/61/EU of the European Parliament and of the Council with Regards to Exemptions, General Operating Conditions, Depositories, Leverage, Transparency and Supervision*, pp. 14-15.

⁴⁵ *Ibid.*

⁴⁶ The goal of creating a single market in financial products can easily be spotted in many parts of the Directives regarding the EU securities regulation. For example, recital 2 of the 2004/39/EC Directive states this objective and

EU level, such an objective was not put at the top of the EU regulators' agenda from the very beginning. Instead, this goal only constituted a secondary objective for the hedge fund regulation in the EU.⁴⁷

Given that the hedge funds operating in the EU can hardly be considered systemically important, the EU regulation of hedge funds was partly motivated by the incidents of fraud in hedge funds which resulted in losses to European investors (Madoff scandal).⁴⁸ As a result, the EU regulatory approach focuses mostly on investor protection issues rather than systemic risk concerns. In contrast, in the U.S., the systemic risk concerns were the driving force behind the regulation of hedge funds.

clearly demonstrates how it sees a higher level of investor protection as a means to achieve such an end. It clearly states that "it is necessary to provide for the degree of harmonization needed to offer investors a high level of protection and to allow investment firms to provide services throughout the Community."

⁴⁷ It might be the case that the EU regulators seized the opportunity to increase the share of the EU hedge fund industry by providing regulatory investor protection mechanisms and passport mechanisms, rather than addressing systemic concerns which are not justified, specifically in case of the EU hedge funds.

Besides these overarching objectives, the AIFMD has more specific objectives, such as supervision of financial market players with appropriate authorization and on-going supervision, systemic risk oversight and monitoring macro-prudential risks by competent authorities, risk management and enhanced management of micro-prudential risks in AIFs by AIFMs, transparency and greater public accountability of the AIFM investing and managing companies, and market efficiency and removal of barriers to efficient cross-border distribution and management of AIFs. *See Ibid.*

In hedge fund regulation regimes, the investor protection concerns are traditionally achieved through restricting retail investors' access to hedge funds. Indeed such investor protection schemes can potentially contribute to the financial stability. Since accredited and sophisticated investors can protect themselves from fraud and most investment risks, investing in markets dominated by sophisticated investors potentially ensures that the systemic risks through credit channels will be mitigated. This is mostly due to the fact that they can ensure that the entities in which they invest or to which they have exposures are safe and sound and the risks of failure are minimal. Such a capability can mitigate the contagion of systemic risks through direct credit channel. On the other hand, assuming that the accredited investors, most of whom are institutional investors, are best equipped to check the safety and soundness of their counterparties, the systemic risks through market channels can be reduced as well, due to the fact that they can ensure that their counterparties are well managed and their levels of leverage are reasonable. Such a market limit on leverage would ensure that these counterparties will not be subject to fire sales subsequent to margin calls. Therefore, entry limits for non-accredited investors not only can serve the investor protection purposes, but also, it can indirectly serve the systemic stability in the shadow banking sector and mitigate the systemic risk of hedge funds through both credit and market channel. *See Alexander Goodenough, "Dodd-Frank: Regulating Systemic Risk in the Offshore Shadow Banking Industry," George Mason Journal of International Commercial Law (2011), p. 149.*

⁴⁸ This happened despite the fact that Madoff was not a hedge fund manager. *See Eric Helleiner and Stefano Pagliari, The End of Self-Regulation? Hedge Funds and Derivatives in Global Financial Governance, 2009), p. 133.*

2. The AIFMD and regulation of hedge funds in the EU

Regulatory measures often have overlapping objectives. For example, regulatory measures serving investor protection objectives may simultaneously serve market integrity objectives. The regulatory instruments and strategies pursuing the market integrity can in turn contribute to market integration or financial stability. As a concrete example, the capital adequacy requirements which primarily serve financial stability objectives can also be used as a regulatory measure for protecting investors,⁴⁹ because having additional capital mitigates the risk of failure of a financial institution. Accordingly, the harms that might be imposed on investors originating from such a failure could be prevented. Also additional equity can be used to pay the investors some of their investment in case of a bankruptcy. Higher investor protection standards can in turn contribute to the market integration by increasing the level of trust among investors in a wider jurisdiction. This chapter is, however, focused on the regulatory measures aimed at addressing potential systemic risk of hedge funds. Nonetheless, if other regulatory measures serve the financial stability objectives, they will also be investigated.

The two main regulatory measures adopted in the AIFMD to address the systemic aspects of hedge funds are the obligation for managers of hedge funds to disclose information to both investors and competent authorities of the home Member States,⁵⁰ and the AIFMD's empowerment of the competent authorities of the Member States and the European Securities and Markets Authority (ESMA) to monitor and limit the level of leverage of hedge fund managers.⁵¹

⁴⁹ Eechoud et al., *Future Regulation of Hedge Funds—A Systemic Risk Perspective*, pp. 291-309.

However, in financial markets there are several regulatory measures which can be specifically employed to address the systemic risk of financial institutions. These measures include asset restrictions, capital adequacy standards, deposit insurance, disclosure standards, fit and proper entry tests, interest rate ceilings on deposits, liquidity requirements, reserve requirements, restrictions on services and product lines. See Herring and Litan, *Financial Regulation in the Global Economy*, p. 50. See also Richard J. Herring and Anthony M. Santomero, "What is Optimal Financial Regulation?" in *The New Financial Architecture: Banking Regulation in the Twenty-First Century.*, ed. Benton E. Gup (Westport, Connecticut: Quorum Books, 2000), p. 53.

Regulatory measures addressing systemic risk can be classified under two main headings. Regulatory measures are either ex-post intervention such as deposit insurance schemes in case of insolvency, discount windows (facilities supporting the liquidity of assets backing private debt in case of systemic events supporting interbank liquidity). Or they are ex-ante interventions which are preventive measures that can be classified under three main headings: risk based measures, structural limitations (for enhancing competition and market forces) and prudential measures. See Paccès and Dirk, *Regulation of Banking and Financial Markets*, pp. 17-18.

⁵⁰ For the definition of home and host Member State of the AIF or the AIFMD, see Article 4(1) of the Directive 2011/61/EU.

⁵¹ McDonald, *Containing Systemic Risk: New Developments in Trans-Atlantic Hedge Fund Regulation*, pp. 261-263.

In addition to registration,⁵² reporting, and leverage requirements, the AIFMD contains provisions which can, among other things, address potential systemic risk of hedge funds. These provisions, which can also be deployed to address investor protection and market integration objectives in the hedge fund industry, are as follows:

1. Regulation of risk management incentives by imposing organizational or structural requirements such as separation of risk management function from portfolio management function;
2. Capital requirements;
3. Liquidity requirements;
4. Provisions regulating investment in securitization positions;
5. Regulation of remuneration policies;
6. Rules regulating the relationships of depositaries/prime brokers and hedge funds;
7. Rules for valuation.⁵³

3. The AIFMD: Direct or indirect regulation of hedge funds?

Since systemic risk concerns mostly relate to the interconnectedness of hedge funds and their potential strategy correlations, this dissertation advocates the indirect regulation of hedge funds. As discussed in the third chapter, the direct or entity regulation involves regulatory measures focusing on the regulation of the industry itself as a “discrete activity or as part of the broader, regulated investment services universe.”⁵⁴ In contrast, the imperatives or commands of indirect regulation is mediated by or transmitted through an intermediary to the (primarily intended) regulated entity or activity.

The fact that the systemic risk channels through the interconnections of financial institutions and markets, and that they can be amplified by higher leverage, implies that hedge fund regulation should primarily target hedge funds’ counterparties and particularly their creditors who are the main providers of leverage to hedge funds.⁵⁵ In light of such findings, and based on the motives

⁵² Such registration and disclosure requirements should be for both hedge funds and prime brokers, or either for hedge funds or prime brokers.

⁵³ Eechoud et al., *Future Regulation of Hedge Funds—A Systemic Risk Perspective*, pp. 291-309.

All of these measures could be applied both to hedge funds themselves or their counterparties and creditors.

⁵⁴ Athanassiou, *Hedge Fund Regulation in the European Union: Current Trends and Future Prospects*, p. 227.

⁵⁵ For more details, see chapter 2 of this dissertation.

and the underlying reasons of the enactment of the AIFMD, it was expected that the AIFMD's focus be on hedge funds' interconnectedness with systemically important financial institutions (SIFIs). However, the AIFMD only marginally focuses on hedge funds' counterparties and the indirect regulation of hedge funds. Instead, regulatory measures chosen to address potential systemic externalities of hedge funds took the form of direct regulation of hedge funds themselves (AIFs)⁵⁶ or of their managers (AIFMs).⁵⁷

Most AIFs are managed by external managers. The presence of external managers is especially prevalent in case of hedge funds, where the manager can be based in the EU while the fund itself may be domiciled in an offshore jurisdiction such as the Cayman Islands.⁵⁸ The AIFMD explicitly states that it does not regulate AIFs.⁵⁹ As the name of the Directive suggests, it initially proposes indirect regulation of hedge funds through regulating their managers. However, in many instances, the Directive goes far beyond its name and employs direct measures to regulate hedge fund entities themselves.⁶⁰

There are several reasons for opting to regulate AIFMs rather than AIFs themselves. The first reason is that at the EU level, funds characterized as non-UCITS (Undertakings for Collective Investment in Transferable Securities) were already regulated at the Member State level. Therefore, the AIFMD like its counterpart in the U.S., the Private Fund Investment Advisers Registration Act (the Private Fund Act), applies to the Managers of the AIFs rather than AIFs themselves.⁶¹ It follows that the regulation of AIFs themselves by the Member States will remain intact and the provisions of the AIFMD will not affect the regulations applied to the AIFs at the

⁵⁶ The concept of alternative investment funds is a broader concept than hedge funds which includes private equity funds, venture capital funds, hedge funds, and some other investment vehicles. Though all hedge funds are considered AIFs, not every AIF is a hedge fund.

⁵⁷ Dardanelli, *Direct or Indirect Regulation of Hedge Funds: A European Dilemma*, p. 475.

⁵⁸ European Commission, *Commission Staff Working Document Impact Assessment, Accompanying the Document, Commission Delegated Regulation Supplementing Directive 2011/61/EU of the European Parliament and of the Council with Regards to Exemptions, General Operating Conditions, Depositories, Leverage, Transparency and Supervision*, pp. 4-5.

⁵⁹ Recital 10 of the Directive 2011/61/EU

⁶⁰ Dardanelli, *Direct or Indirect Regulation of Hedge Funds: A European Dilemma*, 463-480. He argues that the AIFMD is a direct regulation of hedge funds rather than indirect regulation. As suggested in the previous chapters, regulation of hedge fund managers instead of hedge funds themselves cannot be considered indirect regulation of hedge funds.

⁶¹ Duncan, Curtin and Crosignani, *Alternative Regulation: The Directive on Alternative Investment Fund Managers*, pp. 333-334.

Member State level.⁶² Hence, the Member States will continue to adopt and apply new regulations and requirements for the AIFs established in their territories.⁶³ In addition, the AIFMD finds it disproportionate to regulate the structure or composition of the portfolios of AIFs at the EU level. Furthermore, due to high level of diversity in types of AIFs, the AIFMD could hardly achieve extensive harmonization by regulating AIFs themselves at the EU level.⁶⁴ Accordingly, article 5(1) of the Directive imposes the duty of compliance with the provisions of the Directive on the AIFMs, rather than AIFs.⁶⁵

Nevertheless, despite the clear and explicit statement that the “Directive does not regulate AIFs”,⁶⁶ in case of an internally managed AIFs, in which the governing body of the AIF chooses not to appoint an external manager, the AIF itself shall be authorized as an AIFM and will be regulated as if it is an AIFM.⁶⁷ Therefore, where an AIF is its own AIFM, it becomes subject to regulations of the Directive. This means that in such a case, internally managed hedge funds will be regulated directly under the AIFMD.⁶⁸ Indeed, provisions regulating such contingencies clearly show the intent of the drafters of the Directive which is indicative of the direct regulation of hedge funds.⁶⁹ In the AIFMD little attention is paid to the prime brokers who are the main

⁶² Recital 10 of the Directive 2011/61/EU

⁶³ Recital 10 of the Directive 2011/61/EU. However, there are some constraints on the application of such authority and imposition of additional requirements on the AIFs by the Member States. For example, imposing additional regulation on AIFs should not compromise or negatively affect the exercise of the passport provisions of the AIFMD. *See* Recital 10 of the Directive 2011/61/EU

⁶⁴ Recital 10 of the Directive 2011/61/EU

⁶⁵ Article 5(1) of the AIFMD states that “Member States shall ensure that each AIF managed within the scope of this Directive shall have a single AIFM, which shall be responsible for ensuring compliance with this Directive.”

⁶⁶ Recital 10 of the Directive 2011/61/EU

⁶⁷ Article 5(1)(b) of the Directive 2011/61/EU

⁶⁸ *See also Ibid.*

⁶⁹ Dardanelli, *Direct or Indirect Regulation of Hedge Funds: A European Dilemma*, pp. 475-476.

On the other hand, other provisions of the directive have implications for the relationships of the AIF with third parties such as its relationships with depositaries and sub-depositaries, particularly about the duties of the AIFs, ability to delegate its functions, and its liability towards funds and investors and the AIF’s relationships with investment firms marketing the units or shares in the AIFs. *See* Art 6(8) of the Directive 2011/61/EU which states that “Investment firms authorised under Directive 2004/39/EC and credit institutions authorised under Directive 2006/48/EC shall not be required to obtain an authorisation under this Directive in order to provide investment services such as individual portfolio management in respect of AIFs. However, investment firms shall, directly or indirectly, offer units or shares of AIFs to, or place such units or shares with, investors in the Union, only to the extent the units or shares can be marketed in accordance with this Directive.” *See also* Duncan, Curtin and Crosignani, *Alternative Regulation: The Directive on Alternative Investment Fund Managers*, pp. 333-334.

counterparties through which hedge funds' potential systemic externalities are likely to channel to the financial markets and the real economy.⁷⁰

The AIFMD imposes greater degrees of direct regulation and supervision on AIFs or their managers than its counterpart in the U.S.⁷¹ Indeed, the 'most significant divergence' between the U.S. and the EU regulatory measures is the extent to which the AIFMD exercises direct regulatory control over fund managers.⁷² Such divergent paths are especially apparent in Article 7 of the AIFMD which grants enormous powers to the competent regulatory authorities of AIF's home Member States. This article specifically grants the power to the Member States' regulatory authorities to restrict the scope of the fund managers' authorization by setting direct limitations on the fund's investment strategies.⁷³

4. The AIFMD and direct regulation of hedge funds

This section studies regulatory measures targeting hedge funds' managers or hedge fund entities with the aim of regulating hedge funds' risk characteristics having systemic implications. These measures include authorization (registration), disclosure, capital, risk management, and liquidity management requirements, leverage limits, requirements for AIFs or their managers for investing in securitization position, and valuation requirements.

AIFMs should be authorized by the home Member State regulators.⁷⁴ In order to be authorized, they should meet certain requirements, such as capital requirements, independent valuation, depositary duties and liabilities, asset stripping restrictions, transparency requirements, leverage disclosures and limits, remuneration restrictions, and restrictions on the delegation of duties. Having been authorized by the competent authorities of one Member State, however, they can enjoy the passport mechanism introduced by the AIFMD and can market their products throughout the EU.

⁷⁰ Dardanelli, *Direct or Indirect Regulation of Hedge Funds: A European Dilemma*, 463-480.

⁷¹ McDonald, *Containing Systemic Risk: New Developments in Trans-Atlantic Hedge Fund Regulation*, pp. 261-263.

⁷² *Ibid.*

⁷³ *Ibid.*

⁷⁴ Article 6(1) of the Directive 2011/61/EU & Article 3(3)(a) of the Directive 2011/61/EU.

4.1. Authorization

The AIFMD requires the Member States to ensure that the AIFMs are at least subject to registration with the competent authorities of their home Member State and identify themselves and the AIFs under their management to the competent authorities of their home Member State at the time of registration. Member States should ensure that the AIFMs provide information on the investment strategies of the AIFs under their management to the competent authorities of their home Member State at the time of registration.⁷⁵ As part of the identification requirement, the AIFMs should communicate the total value of AUM to the competent authorities.⁷⁶

The AIFMD's registration requirements were not a new phenomenon in the regulation of hedge funds; such requirements were already in place in certain Member States such as the UK where the former Financial Services Authority (FSA) made the registration of hedge funds mandatory.⁷⁷ In addition to mandatory registration of hedge funds with the FSA, there was a voluntary disclosure system in place through the Hedge Funds as Counterparties Survey (HFACS) mechanism. However, the AIFMD set a step forward and required mandatory reporting of hedge funds and subjected them to the inspections by the competent authorities.⁷⁸

Although registration requirement imposed on hedge funds or their managers is a direct regulatory measure, it is a necessary complement for indirect regulation of hedge funds⁷⁹ and can help harness market discipline. Without such disclosure requirements, indirect regulation of hedge funds through their counterparties and creditors would be infeasible, due to the fact that without such minimum regulatory measures, regulatory authorities including surrogate regulators would not be provided with the adequate information needed for indirect regulation of hedge funds.

⁷⁵ Article 3(3) of the Directive 2011/61/EU

⁷⁶ Article 5(1), Regulation (EU) No 231/2013

⁷⁷ In 2013, the FSA dissolved into two separate regulatory authorities: the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA).

⁷⁸ Buckley and Howarth, *Internal Market: Regulating the so-Called 'Vultures of Capitalism'*, pp. 139-140.

⁷⁹ Dardanelli, *Direct or Indirect Regulation of Hedge Funds: A European Dilemma*, p. 475.

4.2. Definitions and scope

The AIFMD prohibits fund managers from managing and marketing hedge funds even to professional investors in the EU, unless they are authorized according to the provisions of the Directive. The Directive classifies hedge funds, along with several other funds, as AIFs. The AIFMD generally defines an AIF as any collective investment scheme which is not covered by the regulatory regime established by the UCITS. More specifically, under the AIFMD, an AIF is any collective investment undertaking which raises capital from a number of investors with a view to investing it in accordance with a defined investment policy for the benefit of those investors and does not require authorization pursuant to Article 5 of the UCITS Directive (Directive 2009/65/EC).⁸⁰

With respect to the scope, the AIFMD covers all EU AIFMs managing EU and non-EU AIFs, non-EU AIFMs managing EU AIFs, non-EU AIFMs marketing EU or non-EU AIFs in the EU.⁸¹ Therefore, the Directive applies to three categories of the AIFMs:

1. EU AIFMs managing one or more AIFs regardless of the fact that whether the AIF is an EU AIF or a non-EU AIF.
2. Non-EU AIFMs managing one or more EU AIFs: A non-EU AIFM managing an EU AIF should be authorized, regardless of the location of its (AIFM's) investors. In the same vein, a foreign AIFM will be subject to the Directive if it manages an EU AIF, regardless of the fact that whether the EU investors invest in that AIF or not. Therefore, a foreign manager may be subject to regulation in the Member State where the EU AIF is located ("either under MiFID or national law), or if its own jurisdiction is different, in its own jurisdiction, or in both jurisdictions. Hence, the AIFMD applies to all AIFMs managing EU or non-EU funds, regardless of the location of their investors, (whether the investors are located in the EU or not). In this case, the third country has the primary responsibility for regulating the relationships of investors and the AIF.⁸² The applicability of the

⁸⁰ Articles 4(1)(a) and 3 of the Directive 2011/61/EU

⁸¹ Article 2(1) of the Directive 2011/61/EU

⁸² Duncan, Curtin and Crosignani, *Alternative Regulation: The Directive on Alternative Investment Fund Managers*, pp. 334-335.

However, if an EU AIFM manages a non-EU AIF which is not marketed in the EU, such an AIFM can be exempted from the requirements of article 21 pertaining to the provisions about depositaries and article 24 related to the transparency requirements. See Article 34 of the Directive 2011/61/EU.

Directive is primarily determined in accordance with the location of the AIFM or the AIF, and secondarily in accordance with the location of the investors in the AIFs.⁸³

3. Non-EU AIFMs marketing one or more AIFs in the EU (regardless of whether the AIF is an EU AIF or a non-EU AIF):⁸⁴ A non-EU AIFM will be subject to the Directive if it markets an AIF in the EU. Therefore, foreign managers marketing the AIF to the EU investors shall be subject to the AIFMD regardless of the fund's location.⁸⁵ By implication, the scope of the directive stretches far beyond the European AIFMs and has potential extraterritorial effects.⁸⁶

Since definitions are most prone to regulatory arbitrage, the AIFMD attempts to partly address this problem in the definitional sections of the Directive involving its scope and application. Therefore, one of the safeguards that the AIFMD offers against hedge funds' regulatory arbitrage is embedded in the definitional sections of the term AIF. The Directive offers a very broad definition of an AIF. By doing so, it attempts to capture all non-UCITS and close the potential loopholes and mitigate the risk of regulatory arbitrage.⁸⁷

With the enactment of the AIFMD, the investment funds in Europe are classified into two broad categories of UCITS and AIFs. The UCITS category includes mutual funds and pension funds regulated under the UCITS Directive (85/611/EEC). These funds are available to retail investors. Non-UCITS or AIFs include hedge funds, private equity funds, and real estate funds which are governed by the AIFMD. The definition of the AIF which is primarily intended to include hedge funds and private equity funds, rules out many detailed considerations such as the organizational form of a fund, i.e., being open-ended or close-ended,⁸⁸ and its legal and contractual form.⁸⁹ In

⁸³ Such a primary reference to the location of AIFs is consistent with the theory that the goal of the AIFMD is to maintain the financial stability within the EU, while it is inconsistent with the goal of the directive to protect investors. *See Ibid.*

⁸⁴ *Ibid.*

⁸⁵ *Ibid.*

⁸⁶ The Directive only allows AIFMs to market AIFs located in the third country domiciles in the EU of the country where the AIFM domicile is if it "has entered into an agreement based on the OECD Model Tax Convention" among other things.

⁸⁷ Thomas MJ Mollers, Andreas Harrer and Thomas C. Kruger, "The AIFM Directive and its Regulation of Hedge Funds and Private Equity," *JL & Com.* 30 (2011), p. 91.

In addition to hedge funds directly regulated by the Directive, the Directive also regulates the relationship of the prime brokers and AIFMs (indirect regulation of hedge funds) therefore; it has implications for the business of these firms as well.

⁸⁸ In its initial draft, the AIFMD did not include the close-ended funds, while in the adopted version it covers all of them. *See Ibid.*

addition, the directive applies regardless of the nature of funds' investment strategies.⁹⁰ Although the AIFMD does not differentiate between public and non-public (private) marketing,⁹¹ one of the distinguishing features of the UCITS from the AIFs is that the UCITS raise funds from the public, while the AIFs raise capital privately.⁹² Therefore, access to the AIFs is restricted to professional investors.⁹³

Despite AIFMD's sweeping and seemingly over-inclusive regulation, the AIFMD explicitly excludes holding companies, institutions for occupational retirement provision which are already covered by the Directive on the Activities and Supervision of Institutions for Occupational Retirement Provision, supranational institutions,⁹⁴ national central banks, national, regional and local governments, bodies or institutions managing funds which support social security and pension systems, employee participation schemes or employee savings schemes, and securitization special purpose entities.⁹⁵

Although searching for a *per genus et differentiam* definition⁹⁶ of hedge funds seems to be a futile endeavor, addressing the problem of regulatory arbitrage by hedge funds through definitions requires the definitions to be sufficiently inclusive and adequately exclusive.

⁸⁹ Recital 3 of the Directive 2011/61/EU states that many AIFM's strategies are prone to risks in relation to investors, other market participants and markets. Therefore, to provide comprehensive arrangement for supervision, the establishment of a framework for addressing those risks by taking into account the diverse range of AIFMs' strategies and techniques is necessary. To provide such all-encompassing framework, recital 3 of the Directive emphasizes that the "Directive should apply to AIFMs managing all types of funds that are not covered by Directive 2009/65/EC of the European Parliament and of the Council of 13 July 2009 on the coordination of laws, regulations and administrative provisions relating to the undertakings for collective investment in transferable securities (UCITS) (4), irrespective of the legal or contractual manner in which the AIFMs are entrusted with this responsibility. AIFMs should not be entitled to manage UCITS within the meaning of Directive 2009/65/EC on the basis of an authorisation under this Directive." See Recital 3 of the Directive 2011/61/EU.

⁹⁰ Duncan, Curtin and Crosignani, *Alternative Regulation: The Directive on Alternative Investment Fund Managers*, pp. 335-336.

⁹¹ Mollers, Harrer and Kruger, *The AIFM Directive and its Regulation of Hedge Funds and Private Equity*, p. 91.

⁹² Duncan, Curtin and Crosignani, *Alternative Regulation: The Directive on Alternative Investment Fund Managers*, pp. 335-336.

⁹³ Unlike the pre-crisis regulatory framework, in the new regulations, there is no differential regulatory treatment of funds based on their marketing to different categories of investors. See Mollers, Harrer and Kruger, *The AIFM Directive and its Regulation of Hedge Funds and Private Equity*, pp. 90-91.

⁹⁴ Such as "the European Central Bank, the European Investment Bank, the European Investment Fund, the European Development Finance Institutions and bilateral development banks, the World Bank, the International Monetary Fund, and other supranational institutions and similar international organisations, in the event that such institutions or organisations manage AIFs and in so far as those AIFs act in the public interest".

⁹⁵ Article 2(3) of the Directive 2011/61/EU

⁹⁶ This is an Aristotelian pattern of definitions that provides definitions by determining their genus to which that term belongs and then provides the difference that gives the species and locates the term within that genus. The most famous example is humans are rational animals.

However, it seems that the AIFMD's attempt to mitigate the risks of regulatory arbitrage compromised the adequacy of exclusiveness of the definition; meaning that not willing to expose its provisions to the risk of regulatory arbitrage, it opted for broad and over-inclusive definitions. Not surprisingly, even before its implementation, criticisms were raised from the industry and commentators about the overbroad definition of an AIF in the Directive. For example, there is a considerable uncertainty whether certain legal entities and structures will fall within the scope of the Directive. Such concerns are particularly pronounced about products such as covered bonds, acquisition vehicles, managed accounts, and index-linked or performance notes.⁹⁷

Based on the proposition that financial regulation should identify and target the real market failures, that is to say mainly the externalities stemming from systemic risk, and devise regulations accordingly, a second criticism which can be raised against the sweeping definitions of the AIFMD is that it includes an array of heterogeneous funds with extremely heterogeneous investment strategy and regulates them as if they are identical investment funds. Indeed, one of the main ongoing concerns throughout the regulatory process of the AIFMD was that the regulators' one-size-fits-all approach⁹⁸ may not suit different types and sizes of AIFs and their managers. Moreover, it may fail to differentiate and draw a distinct line between different risks stemming from different types of funds and their managers.⁹⁹ Although the European Parliament believed that the Directive should cover all small funds, in the meantime, it advocated a differential approach to regulation of the industry based on the types of funds, rather than sweeping one-size-fits-all uniform regulatory approach.¹⁰⁰ Despite the fact that some of the provisions of the AIFMD attempts to differentiate between large hedge funds and smaller ones, or to draw a line between hedge funds and private equity funds and particularly venture capital firms, these provisions generally fail to differentiate between different types of hedge funds based on their strategies.¹⁰¹

⁹⁷ Athanassiou, *The AIFM Directive: An Overview of the Final Rules*, p. 242.

⁹⁸ Such a one-size-fits-all approach is similar to the approach followed by the Australian Commonwealth Corporations Act 2001 in which a single licensing regime for financial products is in place which includes, among other alternative investment products, hedge funds. See Dardanelli, *Direct Or Indirect Regulation of Hedge Funds: A European Dilemma*, pp. 475-476.

⁹⁹ Ferran, *After the Crisis: The Regulation of Hedge Funds and Private Equity in the EU*, p. 398.

¹⁰⁰ See *Ibid.*

¹⁰¹ As discusses earlier, for some hedge funds proprietary information is more central than for others. The value of such information for hedge funds depends on what strategies they specialize in. Some hedge funds are not willing to

For example, there are certain issues such as disclosure requirements which are more relevant for hedge funds and less relevant for private equity funds. To be more specific, maturity transformation which can potentially be relevant to the hedge fund industry is not so with regard to private equity.¹⁰² Such an assumption implies that liquidity requirements for hedge funds should be different from those of private equity funds.¹⁰³ Moreover, the leverage concerns about hedge funds and private equity funds are different. Hedge fund leverage occurs at the fund level both directly and indirectly through off-balance sheet exposures (e.g., investment in derivatives), while private equity's leverage often occurs at the portfolio company level.¹⁰⁴ It follows that in regulating hedge funds, adequate attention should be paid to the heterogeneity of hedge funds and the need for differentiation in regulating them.

It seems that the AIFMD's attempt to uniformly regulate financial institutions and capture all contingencies overlooks important differences between financial institutions, strategies and instruments which require differential regulatory treatment. In other words, it seems that the AIFMD's strategy against regulatory arbitrage and potential circumvention of its provisions went too far. Hence, the Directive's endeavor to strike the right balance between one-size-fits-all regulation and prevention of regulatory arbitrage was not successful. Most hedge fund managers also believe that such a one-size-fits-all regulatory approach of the AIFMD is highly inappropriate and for some hedge funds the AIFMD's regulations "simply do not make sense."¹⁰⁵

With regard to systemic stability issues, the differentiation is of special significance. Regulators should devise benchmarks to differentiate and separate systemically important hedge funds from the funds that do not pose systemic threats to the financial system. For example, in the U.S., the

disclose information even at the expense of more investments or receiving better credit terms. *See* Cole, Feldberg and Lynch, *Hedge Funds, Credit Risk Transfer and Financial Stability*, pp. 11-12.

¹⁰² Payne, *Private Equity and its Regulation in Europe*, p. 584.

¹⁰³ Fortunately enough, as it will be reviewed in the liquidity requirements of AIFs, the AIFMD differentiates hedge funds from private equity funds and especially venture capital fund by a 5 year redemption restriction criteria.

¹⁰⁴ To differentiate further between private equity and hedge funds it is noteworthy to highlight that hedge funds trade in almost all financial instruments, assets and commodities, while private equity funds often invest in equities. In addition, the risk of counterparty is less in private equity compared to hedge funds. It is also argued that hedge funds' trading strategies are highly correlated while the heterogeneity of assets in private equity implies that it is unlikely that the fire sale externalities might occur due to strategy correlations. The only systemic risk related issue that can occur in private equity funds rises from the input of bank debt into the portfolio company, however, the AIFMD does not seem to be addressing such an issue. *See Ibid.*

Nevertheless, except under very limited circumstances, the AIFMD almost invariably treats these institutions as if they are identical in every aspect.

¹⁰⁵ Persson, *The EU's AIFM Directive: Likely Impact and Best Way Forward*.

Dodd-Frank Act contains rules for identifying and regulating potential systemic risk from private funds (including hedge funds) by assigning the responsibility of designating firms as Systemically Important Nonbank Financial Companies (SINBFCs) to the Financial Stability Oversight Council (FSOC). The Dodd-Frank Act grants the authority to the FSOC to determine whether a non-bank financial company (which among other things, include hedge funds) shall be supervised by the Federal Reserve and be subject to prudential standards. If the FSOC determines that the “material financial distress at the U.S. nonbank financial company, or the nature, scope, size, scale, concentration, interconnectedness, or mix of the activities of the U.S. nonbank financial company, could pose a threat to the financial stability of the United States”, it will subject the company to the prudential supervision of the Federal Reserve.¹⁰⁶ Once a company is designated as a SINBFC, it will be subject to the prudential regulation by the Federal Reserve. Furthermore, the FSOC has the discretion to recommend that the Fed strengthen the prudential standards on a particular SINBFC.¹⁰⁷

In the EU, however, although the AIFMD introduces some lower benchmarks to exclude smaller AIFMs from its regulatory requirements, compared to the Dodd-Frank Act, the criteria for designating individual hedge funds as systemically important AIFs are bluntly absent in the AIFMD. This provides additional evidence that regulating hedge funds because of their systemic risk was not a priority in the EU.

4.3. Size of hedge funds (Exemptions from definitions)

One of the criteria that the AIFMD attempts to differentiate between hedge funds from a regulatory perspective is hedge funds’ size. Such a differential regulation is necessary due to the fact that smaller hedge funds are unlikely to pose systemic risk to the financial system. Moreover, imposing the same requirements for small and large hedge funds can stifle the growth of start-up hedge funds. In addition, due to the lack of organizational and logistic facilities for compliance with the regulatory requirements in smaller hedge funds, they cannot afford organizational requirements such as establishing compliance department or hiring a compliance officer. Finally, compliance costs demonstrate considerable economies of scale, giving larger

¹⁰⁶ 12 U.S.C. § 5323 (a)(1)

¹⁰⁷ Lloyd, Clancy and Kumar, *Hedge Funds and Systemic Risk*, pp. 86-89.

hedge funds a competitive advantage compared to smaller ones. It follows that imposing uniform regulatory requirements for different types of hedge funds and private equity funds will significantly limit entry into the industry.¹⁰⁸

Therefore, the AIFMD exempts hedge funds under certain size thresholds from the scope of its regulatory ambit based on the size of AUM of the funds. These exemptions are as follows:

1. The AIFMs managing funds with total AUM not more than €100 million,¹⁰⁹ regardless of the use of leverage.
2. The AIFMs managing portfolio of AIFs whose total AUM is not more than €500 million. This exemption holds if their portfolios consist of AIFs that are unleveraged and have no redemption rights exercisable for a period of 5 years following the date of the initial investment in each AIF.¹¹⁰

From the above requirements, a *de minimis* exception for fund managers follows. Hedge fund managers with more than €100 million in AUM employing leverage, and managers with more than €500 million regardless of the use of leverage will be subject to heightened regulatory scrutiny of the AIFMD.¹¹¹ Hedge funds between the threshold of €100 million and €500 million will be subject to the AIFMD if they employ leverage or they have redemption rights for less than 5 years.¹¹²

The approach of the AIFMD in regulating hedge funds based on their size is criticized on the grounds that AIFMD subjects hedge funds to its regulations based on their size rather than the

¹⁰⁸ Not only can it stifle the growth of new hedge funds, in the long run, such a protection can decrease the efficiency of the incumbents.

¹⁰⁹ Article 3 (2)(a) of the Directive 2011/61/EU

¹¹⁰ Article 3 (2)(b) of the Directive 2011/61/EU. One of the main differences that the AIFMD attempts to make between hedge funds and private equity funds is demonstrated in the way this exemption is formulated. Since private equity firms and particularly venture capital funds often have longer investment horizons and based on such a fact they apply longer lock-up periods, the AIFMD exempts the venture capital funds managing up to €500 on the condition that they are not leveraged.

¹¹¹ One of the differences between the U.S. Private Fund Act and the AIFMD is that the latter addresses a category of small funds employing significant amounts of leverage. See McDonald, *Containing Systemic Risk: New Developments in Trans-Atlantic Hedge Fund Regulation*, pp. 260-262.

¹¹² With regard to the private equity firms, since “the leverage financing of the fund itself and not the financing of the target company is relevant”, the €500 million threshold will apply, as if they themselves are unleveraged. See Mollers, Harrer and Kruger, *The AIFM Directive and its Regulation of Hedge Funds and Private Equity*, pp. 90-91.

risks they potentially pose to the financial system.¹¹³ In addition, it is argued that a regulatory approach based on the size is vulnerable to circumvention because every AIFM can establish several smaller funds which are below the regulatory thresholds.¹¹⁴

The inappropriate calculation of the AUM can potentially result in the circumvention of many of the provisions and requirements of the AIFMD. One of the problems identified in the level 2 impact assessment¹¹⁵ raises concerns about the calculation of AUM. Since the thresholds defined in the AIFMD to subject the funds to regulation is based on the calculation of the AUM, the concept and the methods of calculation of the AUM makes a perfect material for lawyers to define and calculate it in a way to circumvent the application of the Directive to their funds. Indeed, as the level 2 impact assessment raises the point, without further specification of the method for calculating the total value of the AUM, such calculation can be done differently for different AIFMs.¹¹⁶

In a recent development the Commission Delegated Regulation (EU) No 231/2013 of 19 December 2012, supplementing Directive 2011/61/EU of the European Parliament and of the Council with regard to exemptions, general operating conditions, depositaries, leverage, transparency and supervision (hereinafter, the Regulation (EU) No 231/2013), was published on 22 March 2013 in the Official Journal of the European Union and was applied from 22 July 2013. This Regulation states that to qualify for the exemptions under Article 3(2) of the Directive, an AIFM should identify all AIFs under its management (regardless of being an internal or an external manager for the AIF) in accordance with Article 5 of the AIFMD.

¹¹³ Nevertheless, the above mentioned thresholds are criticized for being too low to constitute a credible attempt to limit the application of the Directive only to systemically important AIFs. It is argued that setting such low thresholds for regulating managers essentially means that the Directive attempts to regulate managers without any meaningful relevance for the stability of the financial system. Therefore, such a regulatory approach is criticized for being in breach of the EU's 'better regulation' principles such as proportionality and subsidiarity. See Persson, *The EU's AIFM Directive: Likely Impact and Best Way Forward*,

¹¹⁴ Athanassiou, *The AIFM Directive: An Overview of the Final Rules*, p. 242. See also Hanneke Wegman, "EU Alternative Fund Regulation Proposal: Pros and Cons," *European Company Law* 6, no. 4 (2009), 150-151.

¹¹⁵ "Before the European Commission proposes a new initiative, it evaluates the potential economic, social and environmental consequences. An impact assessment gives decision-makers evidence regarding the advantages and disadvantages of a policy choice. It explains why action should be taken at EU level and why the proposed response is appropriate. It may also find that no action should be taken at EU level." See http://ec.europa.eu/smart-regulation/impact/index_en.htm

¹¹⁶ European Commission, *Commission Staff Working Document Impact Assessment, Accompanying the Document, Commission Delegated Regulation Supplementing Directive 2011/61/EU of the European Parliament and of the Council with Regards to Exemptions, General Operating Conditions, Depositaries, Leverage, Transparency and Supervision*, pp. 9-10.

Needless to say, such different and potentially divergent calculations can result in regulatory arbitrage.

Moreover, the AIFM should identify the portfolio of assets of the AIFs under its management and determine the corresponding value of AUM, including all assets acquired through the use of leverage. It should further aggregate the determined values of AUM for all AIFs under its management and compare the resulting total value of AUM to the €100 and €500 million thresholds.¹¹⁷ In calculating the AUM according to Article 1 of the Regulation (EU) No 231/2013, the UCITS for which the AIFM acts as a management company will not be included in the calculation. However, the AIFs managed by the AIFM for which the AIFM has delegated functions should be included in the calculation. Nevertheless, the portfolios of the AIFs that the AIFM is managing under delegation should be excluded from the calculation.¹¹⁸

To calculate the total value of AUM, each derivative position should be converted into its equivalent position in the underlying assets of that derivative. The absolute value of the equivalent position should be used for the calculation of the total value of AUM.¹¹⁹ However, where an AIF invests in other AIFs which are externally managed by the same AIFM, that investment can be excluded from the calculation of the AIFM's AUM.¹²⁰ In the same vein, if one compartment of an AIF invests in another compartment within the same AIF, that investment too can be excluded from the calculation of the AIFM's AUM.¹²¹ The total value of AUM should be calculated at least annually by using the latest available asset values.¹²²

The AIFM should ensure that the total value of AUM is being monitored on an ongoing basis. Such ongoing monitoring should reflect an updated overview of the AUM and should include observation of subscription and redemption activities, capital draw downs, capital distributions, and the value of assets invested in for each AIF. The Regulation (EU) No 231/2013 further requires that the proximity of the total value of AUM to the threshold of Article 3(2) of the AIFMD, and the anticipated subscription and redemption activities should be taken into account in assessing the need for more frequent calculations of the total value of AUM.¹²³

¹¹⁷ Article 2(1), Regulation (EU) No 231/2013

¹¹⁸ Article 2(2), Regulation (EU) No 231/2013

¹¹⁹ Article 2(3), Regulation (EU) No 231/2013

¹²⁰ Article 2(4), Regulation (EU) No 231/2013

¹²¹ Article 2(5), Regulation (EU) No 231/2013

¹²² Article 2(6), Regulation (EU) No 231/2013

¹²³ Article 3, Regulation (EU) No 231/2013. If the total value of AUM of an AIFM exceeds the relevant thresholds of the AIFMD, and the AIFM considers it a temporary breach of the threshold, the AIFMD should without delay notify the competent authority, the notification should include supporting information to justify the AIFM's

The above-mentioned exemptions do not mean that the exempted funds are completely free from authorization and subsequent regulations. The Directive mandates the Member States to ensure, *inter alia*, that the exempted AIFMs at least are subject to registration with the competent authorities of the host Member State, provide information on the investment strategies of the AIFs at the time of registration, regularly provide information on the main instrument in which they are trading and on the principal exposures and important concentrations of the AIFs to enable the authorities to effectively monitor systemic risk.¹²⁴ In addition, small exempted funds can opt-in to the AIFMD and thereby avail themselves of the access to other Member States' professional investors by making use of the passport mechanisms offered to the authorized funds under the AIFMD.

4.4. Addressing information problems and transparency requirements

The most important implication of hedge fund opaqueness for the financial instability is that it increases uncertainty, particularly about credit risks in the financial markets. High levels of uncertainty can easily be translated into the concerns about counterparty credit risks in the interconnected financial markets.¹²⁵ In times of market stress, in turn, increased counterparty risks and the uncertainty about the safety and soundness of the financial institutions give rise to runs on financial institutions especially in interbank repo markets.¹²⁶ Therefore, there is a link between the lack of transparency and counterparty risk. Put differently, opaqueness in financial markets can easily manifest itself in heightened counterparty risk and give rise to the run on the financial institutions which may result in systemic externalities. In contrast, transparency in markets can enhance financial stability. For example it is argued that setting standards for transparency and accounting of off-balance sheet financing and replacing opaque OTC

assessment of the temporary nature. (Article 4(3), Regulation (EU) No 231/2013) If the total value of AUM exceeds the threshold, and the AIFM considers such a situation of permanent nature, the AIFM should without delay notify the competent authority and should seek authorization within 30 days. (Article 4(2), Regulation (EU) No 231/2013) However, if the situation is likely to persist for more than three months, it should not be considered of temporary nature. (Article 4(4), Regulation (EU) No 231/2013)

¹²⁴ Article 3(3) of the Directive 2011/61/EU

¹²⁵ Acharya, Wachtel and Walter, *International Alignment of Financial Sector Regulation*, p. 367.

¹²⁶ See Gorton, *Slapped by the Invisible Hand: The Panic of 2007*.

derivatives markets can reduce counterparty risk and contribute to the systemic stability of the financial system.¹²⁷

There exist certain regulatory mechanisms which can be deployed to enhance transparency in financial markets. The most popular regulatory mechanisms to achieve such a goal are registration and information disclosure requirements. Information disclosure can be implemented at two levels: it can either be based on summary statistics of aggregate exposures or on detailed disclosures (position level disclosure).¹²⁸ However, the key concerns about disclosure are about the nature of disclosure, its effectiveness, and whether the market discipline alone can provide optimal amount of information to the markets.¹²⁹ While public disclosure (to markets) can harness market discipline, the private disclosure (to regulators) provides regulators with the information to measure the stability of the financial institution.¹³⁰ Therefore, disclosure requirements are one of the key aspects of the macro-prudential regulation to guard against the systemic instability in the financial markets.¹³¹

With respect to private disclosure to regulators, the effectiveness of detailed disclosure is questioned. Given that the build-up of leverage and systemic risk can occur extremely fast while disclosure is often done by time lags, it is not clear how useful and effective this information can be for regulators to address the build-up of systemic risk in time.¹³²

The AIFMD also employs the widely used disclosure mechanism to enhance transparency in the AIF industry and imposes certain disclosure requirements on AIFMs. These requirements include disclosure to investors, reporting obligations to competent authorities, transfer and retention of personal data,¹³³ disclosure of information to third countries,¹³⁴ and the exchange of

¹²⁷ Acharya, Wachtel and Walter, *International Alignment of Financial Sector Regulation*, p. 375.

¹²⁸ Danielsson, Taylor and Zigrand, *Highwaymen or Heroes: Should Hedge Funds be Regulated? A Survey*, pp. 535-537.

¹²⁹ *Ibid.* For a thorough discussion of information problems and externalities involved in transparency requirements, see the first chapter of this dissertation.

¹³⁰ *Ibid.*

¹³¹ It is argued that the disclosure of summary statistics of aggregate exposures such as VaR is not meaningful in estimating the losses in exceptional circumstances because it only focuses on the losses in normal times. While systemic risk assessments are about the exceptional circumstances. See *Ibid.*

¹³² *Ibid.*

¹³³ Article 51 of the Directive 2011/61/EU

¹³⁴ Article 52 of the Directive 2011/61/EU

information relating to the potential systemic consequences of AIFM activity.¹³⁵ Compared to the U.S. regulatory measures, the EU disclosure requirements are concerned with the two-pronged objective of addressing investor protection and systemic risk concerns. In contrast, the U.S. disclosure requirements are more focused on addressing systemic risk than the investor protection.

4.4.1. Reports to competent authorities

At the time of registration, the Member States should ensure that the AIFMs provide information on the investment strategies of the AIFs under their management to the competent authorities of their home Member State.¹³⁶ In addition, as part of the identification requirement in time of registration, the AIFMs should communicate the total value of AUM to the competent authorities.¹³⁷ Providing information on investment strategies at the time of registration, AIFMs should provide the offering document or the relevant extract from the offering document or a general description of the investment strategy for each AIF. This extract should contain the main categories of assets in which the AIF may invest, any industrial, geographic or other market sectors or specific asset classes on which the investment strategies focus and a description of AIF's leverage policy.¹³⁸ The information which is disclosed for registration purposes should be updated annually. However, to exercise their powers more effectively, the relevant competent authorities of Member States can require more frequent disclosure of information by the AIFMs according to Article 3 of the AIFMD.¹³⁹

In addition to the disclosure requirement at the time of registration, the AIFMs should regularly provide information about the main instruments in which they trade and on the principal exposures and most important concentrations of the AIFs under their management to the

¹³⁵ Article 53 of the Directive 2011/61/EU

¹³⁶ Article 3(3)(c) of the Directive 2011/61/EU

¹³⁷ Article 5(1), Regulation (EU) No 231/2013

¹³⁸ Article 5(2), Regulation (EU) No 231/2013

¹³⁹ Article 5(5), Regulation (EU) No 231/2013

competent authorities of their home Member State to enable them to effectively monitor systemic risk.¹⁴⁰

In order to comply with the above requirements, an AIFM should provide the following information to the competent authorities:

1. Information about the main instruments in which it trades including details about AIF's financial instruments and other assets, investment strategies, and its geographical and sectoral investment focus;
2. Information about the markets of which it is a member or where it actively trades;
3. And information about the diversification of the AIF's portfolio.¹⁴¹

This information should be provided as soon as possible and not later than one month after the end of the period stated in paragraph 3 of article 110 of the Regulation (EU) No 231/2013 requiring semi-annual, quarterly and annual reporting obligations. If the AIF is a fund of hedge funds, this period can be extended by the AIFM to 15 days.¹⁴²

For each of the EU funds that the fund managers manage and market in the EU, the managers should annually report no later than 6 months following the end of the financial year to the competent authorities of the home Member State of the AIFM or the home Member State of the AIF.¹⁴³ These annual reports should also be provided to the investors upon their request.

The annual reports which should be audited¹⁴⁴ should contain the following items:

1. a balance sheet;
2. an income and expenditure account for the financial year;
3. a report on the activities of the financial year;

¹⁴⁰ Article 3(3)(d) of the Directive 2011/61/EU. *See also* Article 24(1) of the Directive 2011/61/EU, stating that the AIFM should regularly report on the instruments in which it trades and on the principal markets of which it is a member or where it actively trades on behalf of the AIFs under its management, and on the principal exposures and most important concentrations of each of the AIFs under its management to the competent authorities of its home Member State.

¹⁴¹ Article 110(1), Regulation (EU) No 231/2013

¹⁴² Article 110(1)(b), Regulation (EU) No 231/2013

¹⁴³ Article 22(1) of the Directive 2011/61/EU

¹⁴⁴ Article 22(3) of the Directive 2011/61/EU

4. any material changes in the information which should be disclosed to the investors during the financial year covered by the report;
5. the total amount of remuneration of the financial year split into fixed and variable remuneration paid by the AIFM to its staff;
6. number of beneficiaries and the carried interests paid by the AIF; and
7. The aggregate amount of remuneration including the details about senior management and members of staff of the AIFM's compensation whose actions have a material impact on the risk profile of the AIF.¹⁴⁵

Article 24(2) of the AIFMD requires specific regular reporting requirements for an AIFM which manages the EU AIFs and the AIFs it markets in the EU. Such AIFMs should report the following information to the competent authorities of their home Member State.

1. The percentage of the AIF's assets subject to special arrangements¹⁴⁶ due to their illiquid nature,¹⁴⁷ and the new arrangements for managing the liquidity of the AIF;¹⁴⁸
2. The current risk profile of the AIF and the risk management systems employed by the AIFM for managing an array of risks, such as market risk, liquidity risk, counterparty risk, and other risks including operational risk.¹⁴⁹ The information regarding the current risk profile of the of the AIF should include the market risk profile of the AIF's investments including the expected return and volatility of the AIF's investments in normal market conditions, and the liquidity profile of AIF's investments, including the liquidity profile of the AIF's assets, redemption terms and the terms of financing of the AIF.¹⁵⁰

¹⁴⁵ Article 22(2) of the Directive 2011/61/EU

¹⁴⁶ Special arrangement is defined in Article 1(5) of Regulation (EU) No 231/2013 as "an arrangement that arises as a direct consequence of the illiquid nature of the assets of an AIF which impacts the specific redemption rights of investors in a type of units or shares of the AIF and which is a bespoke or separate arrangement from the general redemption rights of investors."

¹⁴⁷ Article 24(2)(a) of the Directive 2011/61/EU, such information should also be periodically disclosed to the investors: *see* Article 23(4)(a)

¹⁴⁸ Article 24(2)(b) of the Directive 2011/61/EU

¹⁴⁹ Article 24(2)(c) of the Directive 2011/61/EU

¹⁵⁰ Article 110(2)(d), Regulation (EU) No 231/2013

3. Information about the main categories of assets in which the AIF invests,¹⁵¹ including its long and short positions' corresponding market value, the turnover and performance during the reporting period;¹⁵² and
4. The results of the periodic stress tests conducted under normal and exceptional circumstances.¹⁵³

The AIFMD requires differential methods of disclosure of the above information.

1. The AIFMs managing portfolios of AIFs whose total AUM exceed the threshold of either €100 million or €500 million, but do not exceed €1 billion for each of the EU AIFs they manage and for each AIFs they market in the EU should report on a *semi-annual basis*.
2. The AIFMs managing portfolios of AIFs whose total AUM exceed the €1 billion threshold, for each of the EU AIFs they manage and for each of the AIFs they market in the EU, should report on a *quarterly basis*.
3. AIFMs managing portfolios of AIFs whose total AUM exceed the threshold of either €100 million or €500 million, but do not exceed €1 billion for each of the EU AIFs they manage and for each AIFs they market in the EU, for each AIF whose total AUM, including any assets acquired through the use of leverage, exceed €500 million, in respect of that AIF, should report on a *quarterly basis*.
4. And the AIFMs, with regard to the unleveraged AIF under their management which invest in non-listed companies to acquire control, should report on an *annual basis*.¹⁵⁴

Competent authorities of the Member State of the AIFM can require more frequent reporting if they deem it appropriate and necessary for the exercise of their functions.¹⁵⁵ In addition to the above disclosure requirements, AIFMs managing one or more AIFs which employ leverage on a substantial basis should provide information about their leverage as required under Article 24(4) of Directive.¹⁵⁶

¹⁵¹ Article 24(2)(d) of the Directive 2011/61/EU

¹⁵² Article 110(2)(e), Regulation (EU) No 231/2013

¹⁵³ Article 24(2)(e) of the Directive 2011/61/EU & Article 110(2)(e), Regulation (EU) No 231/2013

¹⁵⁴ Article 110(3), Regulation (EU) No 231/2013

¹⁵⁵ Article 110(4), Regulation (EU) No 231/2013

¹⁵⁶ Article 110(5), Regulation (EU) No 231/2013

Information to be provided regularly and in accordance with Article 3(3)(d) of the AIFMD should be provided in accordance with a pro-forma reporting template which is set out in the Annex IV of the supplementing regulation.¹⁵⁷ In addition, this information should be shared with the EU competent authorities, ESMA and the European Systemic Risk Board (ESRB) if it is necessary for the fulfillment of their duties.¹⁵⁸

4.4.2. Disclosure to investors

According to the AIFMD, the AIFMs should disclose the following information to the investors before they invest in the AIF.

1. A description of the investment strategies and investment objectives of the AIF. If the AIF is a fund of funds, it should disclose information related to location or the jurisdiction where the master AIF and the underlying funds are established. Information about the types of assets in which the AIF may invest, the techniques that the AIF may employ and all associated risks, along with all applicable investment restrictions. Information about the circumstances under which an AIF may use leverage, sources of that leverage, and the associated risks and any restrictions on the use of leverage should be disclosed. In addition, information about any collateral or asset reuse arrangement (rehypothecation), the maximum level of leverage that the AIFM is entitled to employ on behalf of the AIF should be provided to the investors.
2. information about the procedures by which the AIF changes its investment strategies or policies or both;
3. information about the main legal implications of the contractual relationships;
4. the identity of the AIFM, the AIF's depositary, auditor and all its service providers, and a description of their duties and the investors' rights;
5. information related to the AIFM compliance with the requirements of the AIFMD relating to the coverage of potential professional liability risks;
6. information related to any delegation of the management function, and safe-keeping function delegated by the depositary, the identification of the delegate and potential conflicts of interest arising from such delegations;

¹⁵⁷ Article 5(3), Regulation (EU) No 231/2013

¹⁵⁸ Article 5(4), Regulation (EU) No 231/2013

7. information regarding the valuation procedure and pricing methodology of the AIF;
8. information about the liquidity risk management of the AIF including redemption rights under normal and exceptional circumstances;
9. information about all fees, charges, expenses which are directly or indirectly borne by the investors;
10. information about the arrangements established to ensure fair treatment of the investors when an investor obtains preferential treatment or the right to obtain preferential treatment, a description of the preferential treatment and the type of investors obtaining such treatment and their legal and economic links with the AIF or AIFM;
11. the latest annual report;
12. the procedures for the issuance and sale of units or shares;
13. the latest net asset value (NAV) of the AIF or the latest market price of the units or shares of the AIF;
14. the historical performance of the AIF;
15. information about the identity of the prime brokers, the management of the conflicts of interest between AIF and the depositary's right to transfer and reuse the AIF's assets, and information about any transfer of liability to the prime broker;
16. Information regarding how and when the periodic information disclosure (Article 23(4) of the AIFMD) to investor and regular information disclosure of the leveraged funds (Article 23(5) of the AIFMD) will be disclosed.¹⁵⁹

In addition to the above disclosure requirements to the investors, any contractual agreement between the AIFM and the depositary regarding the discharge of liability of the depositary should be disclosed to investors. Moreover, any further changes to the agreement between the AIFM and the depositary should be disclosed to the investors by the AIFM without delay.¹⁶⁰

The AIFMD also imposes periodic disclosure requirements to the investors on the AIFMs managing EU AIFs and marketing funds in the EU. These disclosure requirements include:

1. Information regarding the percentage of the AIF's assets subject to special arrangements due to their illiquid nature,

¹⁵⁹ Article 23(1) of the Directive 2011/61/EU

¹⁶⁰ Article 23(2) of the Directive 2011/61/EU

2. Information regarding new arrangements for managing the AIF's liquidity,
3. Information regarding the AIF's current risk profile and the risk management systems employed by the AIFM to manage those risks.¹⁶¹

AIFMs managing EU AIFs or AIFMs marketing AIFs in the EU that employ leverage should, on a regular basis, disclose the AIF's total amount of leverage¹⁶² and any changes to the maximum level of leverage employed by the AIFM on behalf of the AIF as well as the reuse of collateral (rehypothecation) or any guarantee granted under the leveraging agreement¹⁶³ to the investors for each AIF under their management.

Perhaps the most significant difference between the U.S. and the EU hedge fund regulation regarding disclosure requirements is the EU's emphasis on disclosure to investors. While such requirements in the U.S. is almost absent. This can be explained by the general investor protection objectives that the EU pursues in the AIFM to boost the investor confidence in the AIF industry. However, these requirements are highly likely to compromise the proprietary information of hedge funds and discourage them from investing in the acquisition of private information.

4.4.3. Disclosure of information to third countries

On a case-by-case basis, the competent authorities of a Member State can transfer data and the analysis of those data to a third country¹⁶⁴ if the conditions laid down in Article 25 or 26 of Directive 95/46/EC are met,¹⁶⁵ and if the competent authority of the Member State deems the

¹⁶¹ Article 23(4) of the Directive 2011/61/EU

¹⁶² Article 23(5)(b) of the Directive 2011/61/EU

¹⁶³ Article 23(5)(a) of the Directive 2011/61/EU

¹⁶⁴ In the AIFMD, the third country refers to non-EU countries. For example, the AIFMs having their registered office in a third country are called non-EU AIFMs.

¹⁶⁵ According to Article 25 of Directive 95/46/EC, the transfer of personal data to a third country may take place only if the third country in question ensures an adequate level of protection. [Article 25(1) of Directive 95/46/EC] Otherwise, Member States should take measures necessary to prevent any transfer of those data to the third country in question. [Article 25(2) of Directive 95/46/EC] Article 26 of the Directive 95/46/EC articulates derogations from the rules laid down in article 26 of the Directive 95/46/EC. According to article 26 of this Directive, a transfer or a set of transfer of personal data to a third country which does not ensure an adequate level of protection may take place provided that: [Article 26(1) of the Directive 95/46/EC]

- a. The data subject has given his unambiguous consent to the proposed transfer; or
- b. the transfer is necessary for the performance of a contract or the implementation of precontractual measures; or
- c. the transfer is necessary for the conclusion or performance of a contract; or

transfer necessary for the purpose of the Directive. However, the third country is not authorized to transfer the data to another third country without the express written authorization of the competent authority of the Member State.¹⁶⁶ The competent authorities receiving such information should only disclose such information to supervisory authorities of a third country if they have obtained express agreement of the authorities which transmitted the information and if the information is disclosed for the purposes for which the competent authority gave its permission.¹⁶⁷

4.4.4. Transfer and retention of personal data

For the transfer of personal data between competent authorities, the Directive 95/46/EC on the protection of individuals with regard to the processing of personal data and on the free movement of such data is applied. The Directive further requires that in transferring personal data by ESMA to the competent authorities of a Member State or of a third country, ESMA is subject to Regulation (EC) No 45/2001 on the protection of individuals with regard to the processing of personal data by the Community institutions and bodies and on the free movement of such data.¹⁶⁸ These data should be retained for a maximum period of 5 years.¹⁶⁹

-
- d. “the transfer is necessary or legally required on important public interest grounds, or for the establishment, exercise or defence of legal claims”; or
 - e. “the transfer is necessary in order to protect the vital interests of the data subject”; or
 - f. the transfer is made from a register which is intended to provide information to the public and which is open to consultation either by the public in general or by any person who can demonstrate legitimate interest. [Article 26(1) of the Directive 95/46/EC]

In addition to the above exemptions, a Member State may authorize a transfer or a set of transfers of personal data to a third country not ensuring an adequate level of protection “where the controller adduces adequate safeguards with respect to the protection of the privacy and fundamental rights and freedoms of individuals and as regards the exercise of the corresponding rights; such safeguards may in particular result from appropriate contractual clauses.” *See* Article 26(2) of the Directive 95/46/EC

¹⁶⁶ Article 52(1) of the Directive 2011/61/EU. It seems that the competent authority of the Member State in this article includes both home and host Member States.

¹⁶⁷ Article 52(2) of the Directive 2011/61/EU

¹⁶⁸ Article 51(1) of the Directive 2011/61/EU

¹⁶⁹ Article 51(2) of the Directive 2011/61/EU

4.4.5. Exchange of information relating to potential systemic consequences of the activities of AIFMs

Since addressing systemic risk issues cannot be achieved on the level of individual regulatory regime, the AIFMD requires exchange of information relating to the potential systemic consequences of AIFM activities between regulators.¹⁷⁰ It requires the competent authorities of Member States who are responsible for the authorization and/or supervision of AIFMs to communicate information to the competent authorities of the Member States if that information is relevant for monitoring and addressing the potential implications of the individual or collective activities of AIFMs for the stability of the systemically relevant financial institutions and the orderly functioning of markets in which AIFMs are active. On top of the above requirement, ESMA and the European Systemic Risk Board (ESRB) should be informed. In turn, it should forward such information to the competent authorities of the Member States.¹⁷¹ Subject to the conditions laid down in Article 35 of Regulation (EU) No 1095/2010, the aggregated information with respect to the activities of AIFMs should be communicated by the competent authorities of the AIFM to ESMA and the ESRB.¹⁷² Despite the extensive transparency requirements imposed on AIFMs, these requirements are criticized because they are not aligned with the reality of the AIFM business. Furthermore, it is not clear to what extent the information provided by the AIFMs under the Directive will benefit supervisors and investors.¹⁷³

The remaining question is about ESMA's power with respect to the national authorities in the authorization of AIFMs after the passage of the five year transition period, particularly for those funds based in third countries.¹⁷⁴ Since reporting requirements imposed very limited compliance costs on hedge funds and small and mid-sized enterprises' (SMEs), it is suggested that such requirements did not significantly change SME's existing business practices.¹⁷⁵

¹⁷⁰ Article 53 of the Directive 2011/61/EU

¹⁷¹ Article 53(1) of the Directive 2011/61/EU

¹⁷² Article 53(2) of the Directive 2011/61/EU. The modalities and the frequency of information to be exchanged will be specified by the implementing acts which shall be adopted in accordance with the examination procedure referred to in Article 59(2). *See* Article 53(3) of the Directive 2011/61/EU

¹⁷³ Athanassiou, *The AIFM Directive: An Overview of the Final Rules*, pp. 241-242.

¹⁷⁴ Buckley and Howarth, *Internal Market: Regulating the so-Called 'Vultures of Capitalism'*, pp. 139-140.

¹⁷⁵ *Ibid.*

4.5. Capital Requirements

As conditions for authorization of the AIFMs, the Directive requires maintaining a minimum amount of initial capital and own funds (if the AIFM is an external manager), professional indemnity insurance or additional funds to cover professional negligence liability. The Directive requires AIFMs to invest own funds in liquid assets which are readily convertible into cash and prohibits them from investing them in speculative positions.¹⁷⁶

AIFMs internally managing AIFs should be required by the Member States to have an initial capital of at least €300.000.¹⁷⁷ If AIFMs are appointed as external managers of AIFs, they should at least have an initial capital of €125.000.¹⁷⁸ In addition to the initial own funds, the Directive requires additional own funds adjusted to the value of the portfolio of the funds under management. Namely, if the value of the portfolios of the AIFs managed by the AIFMs exceeds €250 million, the AIFM is required to provide an additional amount of its own funds equal to 0.02% of the amount of assets managed in excess of €150 million. However, the total of the initial capital and the additional amount must not exceed €10 million.¹⁷⁹

The AIFMD also requires the AIFMs to maintain additional own funds appropriate to cover potential liability risks arising from professional negligence. They are also required to hold a professional indemnity insurance against potential liabilities arising from professional negligence which is appropriate to the risks covered.¹⁸⁰ The requirements to hold additional own funds and professional indemnity insurance aim at reducing the risks to investors due to the failure of the AIF because of the professional negligence of the AIFM. Compared to Markets in Financial Instruments Directive (MiFID) and Capital Requirements Directive (CRD), the regulatory capital requirements under the AIFMD are lighter. Unlike the MiFID and CRD, the AIFMD does not require the AIFMs to undertake internal capital adequacy assessment process (ICAAP) to make adjustments to take account of the credit and market risks.¹⁸¹

¹⁷⁶ Article 9. of the Directive 2011/61/EU

¹⁷⁷ Article 9 (1) of the Directive 2011/61/EU

¹⁷⁸ Article 9 (2) of the Directive 2011/61/EU. Another aspect of direct regulation of hedge funds is evident in stricter capital requirements for internally managed funds which is €300.000. See Dardanelli, *Direct or Indirect Regulation of Hedge Funds: A European Dilemma*, p. 477.

¹⁷⁹ Article 9 (3) of the Directive 2011/61/EU

¹⁸⁰ Article 9 (7) of the Directive 2011/61/EU

¹⁸¹ Duncan, Curtin and Crosignani, *Alternative Regulation: The Directive on Alternative Investment Fund Managers*, p. 355.

It is expected that the provisions involving the capital requirements will impact the cost of capital for hedge funds.¹⁸² If an AIFM is authorized to manage UCITS, the requirements for initial capital and own funds will not apply; instead, the UCITS requirements will apply. As far as the capital requirements are concerned, an AIFM is subject to either the AIFMD or to the MiFID together with the CRD.¹⁸³

With regard to capital requirements there were disagreements between regulators and industry association. Industry associations argued that AIFMD capital requirements will make raising capital and starting new funds more difficult.¹⁸⁴ In addition, there were concerns that such requirements would put the industry at a competitive disadvantage compared to its multinational competitors.¹⁸⁵

Furthermore, the Commission Staff Working Document Impact Assessment suggests that the proper definitions regarding capital requirements are important to avoid regulatory arbitrage. It also suggests that potential inconsistencies in the application of the capital requirements can encourage AIFM to relocate in Member States having lower requirements leading to the race-to-the-bottom.¹⁸⁶ In contrast to the regulation of hedge funds at the EU level, the capital requirements for hedge funds in the U.S. Dodd-Frank Act are absent. The lack of such requirements for U.S. hedge funds is another example that the U.S. avoids getting into the direct regulation of hedge funds.

4.6. Limits for leveraged funds

Information on leverage is essential for regulators to “identify and monitor systemic risk, risks of disorderly markets or risks to the long-term growth of the economy”.¹⁸⁷ Inadequate disclosure of

¹⁸² Dardanelli, *Direct or Indirect Regulation of Hedge Funds: A European Dilemma*, p. 477.

¹⁸³ Duncan, Curtin and Crosignani, *Alternative Regulation: The Directive on Alternative Investment Fund Managers*, pp. 354-355.

¹⁸⁴ Such concerns were also raised with respect to transparency requirements.

¹⁸⁵ Buckley and Howarth, *Internal Market: Regulating the so-Called ‘Vultures of Capitalism’*, pp. 138-139.

¹⁸⁶ European Commission, *Commission Staff Working Document Impact Assessment, Accompanying the Document, Commission Delegated Regulation Supplementing Directive 2011/61/EU of the European Parliament and of the Council with Regards to Exemptions, General Operating Conditions, Depositories, Leverage, Transparency and Supervision*, pp. 10-11.

¹⁸⁷ *Ibid.* See also Article 25 Directive 2011/61/EU

leverage can inhibit the macro-prudential supervision of the potential risks posed by AIFs.¹⁸⁸ Not only can leverage amplify the impact of risk taking for investors, but also it can increase the impact of the activities of the leveraged funds on markets which can ultimately contribute to the financial instability.¹⁸⁹ It is further argued that the regulatory treatment of leverage under the AIFMD is important for several reasons such as “investor protection, macro-prudential risk control and market efficiency and integrity”.¹⁹⁰ Therefore, imposing reporting requirements on hedge funds’ leverage is essential to monitor systemic risk. Indeed, one of the most significant attempts to regulate potential systemic risk of hedge funds in the EU is the introduction of the leverage requirements by the AIFMD.¹⁹¹

The AIFMD offers a very broad definition of leverage. Leverage is defined in the AIFMD as “any method by which the AIFM increases the exposure of an AIF it manages whether through borrowing of cash or securities, or leverage embedded in derivative positions or by any other means”.¹⁹² Depending on the types of securities traded by hedge funds, the creditworthiness of hedge funds and the exchanges on which the securities are traded, there are several ways of obtaining leverage which can mainly be fallen under two main categories of direct or indirect leverage. Direct leverage is achieved through borrowing either from individual investors or financial institutions such as using repurchase agreements. Indirect leverage involves the use of off-balance sheet financing, such as using derivative instruments. The definition offered by the AIFMD clearly attempts to capture both types of on and off-balance sheet leverage.¹⁹³

The AIFMD requires the AIFMs to set maximum level of leverage which they may employ on behalf of each AIF they manage.¹⁹⁴ Setting those leverage limits, the AIFMs should take into

¹⁸⁸ *Ibid.*

¹⁸⁹ *Ibid.*

¹⁹⁰ *Ibid.*

¹⁹¹ Payne, *Private Equity and its Regulation in Europe*, pp. 579-580.

¹⁹² Article 4(1)(v) of the Directive 2011/61/EU

¹⁹³ Duncan, Curtin and Crosignani, *Alternative Regulation: The Directive on Alternative Investment Fund Managers*, p. 357.

¹⁹⁴ Article 15 (4) of the Directive 2011/61/EU. According to this article, the AIFMs should set limits on the extent of the right to reuse collateral (rehypothecation) or “the guarantee that could be granted under the leveraging agreement.” This provision is a ‘lighter version’ of the original restrictions on the leverage proposed by the Commission in its April 2009 proposal which required limits to be set on the level of leverage that hedge fund managers can employ. Dardanelli, *Direct or Indirect Regulation of Hedge Funds: A European Dilemma*, pp. 477-478.

These features, accompanied by others make the final Directive less problematic than originally perceived. See Athanassiou, *The AIFM Directive: An Overview of the Final Rules*, p. 242.

account, inter alia, the type of the AIF, the investment strategies of the AIF, the sources of leverage of the AIF, any other interconnectedness or relevant relationship with other systemically important financial institutions, the need to limit the exposure to any single counterparty, the extent to which the leverage is collateralized, the asset-liability ratio, and the scale, nature and extent of the activity of the AIFM on the markets concerned.¹⁹⁵ The AIFMs should be able to demonstrate that the leverage limits they set are reasonable and are always complied with.¹⁹⁶ The AIFM should also disclose the use of leverage by each AIF under its management on a regular basis.¹⁹⁷ Furthermore, prior to the investors' investment in the fund, AIFMs should disclose to the investors the circumstances in which leverage may be used by the fund, any restrictions on the use of leverage, the types, sources and the maximum level of leverage permitted, and any material change to these circumstances.¹⁹⁸

In addition to the leverage limits set by the AIFMD, the Member States and ESMA can impose leverage limits or set other restrictions on the management of the AIF to ensure the stability and integrity of the financial system.¹⁹⁹ ESMA has the power to determine whether the leverage employed by fund managers poses a substantial risk to the stability and integrity of the financial system. Upon making such a judgment, ESMA can advise the AIFM's home Member State regulator to take remedial measures, including leverage limits.²⁰⁰

When hedge fund managers employ "leverage on a substantial basis", additional disclosure requirements will be triggered.²⁰¹ The AIFMD requires AIFMs managing one or more AIFs employing leverage "on a substantial basis"²⁰² to disclose information including the overall level of leverage employed by each fund managed by the AIFM, and detailed components of leverage arising from borrowing of cash or securities and leverage embedded in financial derivatives.²⁰³

¹⁹⁵ Article 15(4) of the Directive 2011/61/EU

¹⁹⁶ Article 25(3) of the Directive 2011/61/EU

¹⁹⁷ Article 23(5) of the Directive 2011/61/EU

¹⁹⁸ Article 23(1)(a) of the Directive 2011/61/EU

¹⁹⁹ Article 25(3) and (7) of the Directive 2011/61/EU

²⁰⁰ Articles 25(6) and 25(7) of the Directive 2011/61/EU

²⁰¹ Dardanelli, *Direct or Indirect Regulation of Hedge Funds: A European Dilemma*, pp. 477-478.

²⁰² See Payne, *Private Equity and its Regulation in Europe*, pp. 579-580.

²⁰³ Art. 24(4) of the Directive 2011/61/EU states that "An AIFM managing AIFs employing leverage on a substantial basis shall make available information about the overall level of leverage employed by each AIF it manages, a break-down between leverage arising from borrowing of cash or securities and leverage embedded in

However, the calculation of leverage is not straightforward and problems related to calculation of leverage are identified in the level 2 impact assessment. The effective and uniform application of the additional reporting requirements depends on the specifications with regard to leverage employed on a substantial basis.²⁰⁴ As the Commission Staff Working Document suggests even a high level definition of leverage cannot ensure the harmonized calculation of leverage by AIFMs. The AIFs are extremely heterogeneous and they invest in almost all kinds of asset classes such as equities, bonds, real estates, and commodities often involving extensive use of leverage. They may also utilize different methods to obtain leverage such as borrowing or the use of derivatives. Due to such diversity in obtaining leverage, AIFMs often employ a multitude of methods to calculate leverage in their AIFs.²⁰⁵ Therefore, even though defining leverage in the AIFMD may lead to narrowing of the diversity in methods of calculating leverage, such a definition still permits broad and different approaches with very heterogeneous results.²⁰⁶ Hence, in the absence of additional measures for specifying the calculation of leverage, the level 1 directive can hardly address the risks arising from AIFs' leverage. One of the most serious problems with the level of specification of the AIFMD concerned the incomparability of the reports about the amount of leverage. This incomparability makes it difficult to assess the risk profiles of AIFs.²⁰⁷

The Regulation (EU) No 231/2013 lays down specific provisions about the calculation of leverage. According to these provisions, the leverage of an AIF should be expressed as the “ratio between the exposure of an AIF and its net asset value (NAV).”²⁰⁸ This regulation introduces the gross method²⁰⁹ and commitment method²¹⁰ of calculating exposure of an AIF into the regulation of the AIF industry.

financial derivatives and the extent to which the AIF's assets have been reused under leveraging arrangements to the competent authorities of its home Member State.”

²⁰⁴ European Commission, *Commission Staff Working Document Impact Assessment, Accompanying the Document, Commission Delegated Regulation Supplementing Directive 2011/61/EU of the European Parliament and of the Council with Regards to Exemptions, General Operating Conditions, Depositories, Leverage, Transparency and Supervision*, pp. 12-13.

²⁰⁵ *Ibid.*

²⁰⁶ *Ibid.*

²⁰⁷ *Ibid.*

²⁰⁸ Article 6(1), Regulation (EU) No 231/2013

²⁰⁹ This method is set out in Article 7, Regulation (EU) No 231/2013

²¹⁰ Article 6(2), Regulation (EU) No 231/2013. This method is set out in article 8, Regulation (EU) No 231/2013). It seems that such methods for calculating leverage are of provisional nature and the supplementing regulations require

Gross method for calculating exposures is “the sum of the absolute values of all positions”.²¹¹ To calculate the exposure of an AIF according to the gross method, an AIFM should:

1. exclude the value of cash and cash equivalents;
2. convert derivatives into their equivalent positions in the underlying assets;
3. exclude cash borrowings that remain in cash or cash equivalents;
4. include the exposure resulting from the reinvestment of cash borrowings;
5. Include positions within repurchase or reverse repurchase agreements and securities lending and borrowing.²¹²

The exposure of an AIF calculated according to the commitment method should be “the sum of the absolute values of all positions ... subject to the criteria provided for in paragraphs 2 to 9” of Article 8 of the Regulation (EU) No 231/2013.²¹³ To calculate the exposure of an AIF in accordance with the commitment method, the AIFM should:

1. convert the positions involving derivatives into the equivalent position in their underlying assets;²¹⁴
2. apply netting²¹⁵ and hedging arrangement;²¹⁶

a review by the Commission to be carried out before July 21, 2015 to decide whether these two methods are sufficient and appropriate for all types of AIFs, or additional and optional methods for calculating leverage should be developed. *See* Article 6(2), Regulation (EU) No 231/2013

²¹¹ Article 7, Regulation (EU) No 231/2013, the absolute values of all positions will be valued in accordance with Article 19 of Directive 2011/61/EU.

²¹² Article 7, Regulation (EU) No 231/2013

²¹³ Article 8(1), Regulation (EU) No 231/2013

²¹⁴ Article 8(2)(a), Regulation (EU) No 231/2013, Conversion methodologies are set out in Article 10 and paragraphs (4) to (9) and (14) of Annex II.

²¹⁵ Netting arrangements are defined in Article 8(3)(a), Regulation (EU) No 231/2013 as “combinations of trades on derivative instruments or security positions which refer to the same underlying asset, irrespective - in the case of derivative instruments - of the maturity date of the derivative instrument and where those trades on derivative instruments or security positions are concluded with the sole aim of eliminating the risks linked to positions taken through the other derivative instruments or security positions”.

An AIFM should net position in any of the following cases:

a. "between derivative instruments, provided they refer to the same underlying asset, even if the maturity date of the derivative instruments is different"; [Article 8(8)(a), Regulation (EU) No 231/2013]

b. "between a derivative instrument whose underlying asset is a transferable security, money market instrument or units in a collective investment undertaking as referred to in points 1 to 3 of Section C of Annex I to Directive 2004/39/EC, and that same corresponding underlying asset." [Article 8(8)(b), Regulation (EU) No 231/2013] [Articles 9, 10., 11 contain relevant materials]

²¹⁶ Article 8(2)(b), Regulation (EU) No 231/2013. Hedging arrangements are defined in Article 8(3)(b), Regulation (EU) No 231/2013, "combinations of trades on derivative instruments or security positions which do not necessarily refer to the same underlying asset and where those trades on derivative instruments or security positions are concluded with the sole aim of offsetting risks linked to positions taken through the other derivative instruments or

3. calculate the exposure which is created through reinvestment of borrowings, if such reinvestment increases the exposure of the AIF;²¹⁷ and
4. Include “other arrangements in accordance with paragraphs (3) and (10) to (13) of Annex I.”²¹⁸

If hedging arrangements comply with all of the following conditions, they should be taken into account as hedging arrangements in the calculation of exposure of an AIF.

1. If the positions involved in the hedging arrangements do not aim at generating a return and general and specific risks are offset.
2. If they results in a verifiable reduction of market risk at the level of the AIF.
3. If the general and specific risks linked to derivative instruments are offset.
4. If the hedging arrangements refer to the same asset class; and
5. If they are efficient in stressed market conditions.²¹⁹

The derivative instruments which are used for currency hedging purposes and do not add “any incremental exposure, leverage or other risks” should not be included in the calculation.²²⁰ The exposures embedded in any financial structures or legal entities involving third parties controlled by the AIF should be included in the calculation of the exposure if those structures are set up to directly or indirectly increase the exposure at the AIF level.²²¹ The AIFM should have ‘appropriately documented procedures’ for calculating the exposure of each AIF they manage

security positions.” However, if a derivative instrument has all of the following features, it should not be converted into an equivalent position in the underlying assets:

- a. "it swaps the performance of financial assets held in the AIF’s portfolio for the performance of other reference financial assets"; [Article 8(4)(a), Regulation (EU) No 231/2013]
- b. "it totally offsets the risks of the swapped assets held in the AIF’s portfolio so that the AIF’s performance does not depend on the performance of the swapped assets"; [Article 8(4)(b), Regulation (EU) No 231/2013]
- c. "it includes neither additional optional features, nor leverage clauses nor other additional risks as compared to a direct holding of the reference financial assets." [Article 8(4)(c), Regulation (EU) No 231/2013]

In addition, a derivative instrument should not be converted into an equivalent position in the underlying asset it is meets both of the following conditions:

- a. "the combined holding by the AIF of a derivative instrument relating to a financial asset and cash which is invested in cash equivalent as defined in Article 7(a) is equivalent to holding a long position in the given financial asset"; [Article 8(5)(a), Regulation (EU) No 231/2013]
- b. "the derivative instrument shall not generate any incremental exposure and leverage or risk." [Article 8(5)(b), Regulation (EU) No 231/2013]

²¹⁷ Article 8(2)(c), Regulation (EU) No 231/2013

²¹⁸ Article 8(2)(d), Regulation (EU) No 231/2013

²¹⁹ Article 8(6), Regulation (EU) No 231/2013

²²⁰ Article 8(7), Regulation (EU) No 231/2013

²²¹ Article 6(3), Regulation (EU) No 231/2013

according to gross and commitment methods. Such calculation should be consistently applied over time.²²²

For AIFs whose main investment strategy is to acquire control of non-listed companies or issuers (private equity and especially venture capital firms), the AIFM should not include in the calculation of leverage any exposure that exists at the level of those non-listed companies. However, this provision applies on the condition that the AIF or its manager does not have to bear the potential losses beyond its investment in the respective company.²²³ In addition, the AIFMs should not include the borrowing arrangements which are temporary in nature and are fully covered by contractual capital commitments from investors in the AIF.²²⁴

Studies suggest that the most efficient approach to moderate leverage and mitigate its risks lies in the regulatory reform of the banking sector.²²⁵ Before the enactment of the AIFMD, the International Organization of Securities Commissions (IOSCO) proposed the mandatory registration, regulation and supervision of prime brokers and banks providing leverage to hedge funds to monitor their leverage.²²⁶ In other words, the IOSCO supported indirect regulation of hedge funds to address the risks arising from hedge funds' leverage. Notwithstanding, the AIFMD opted for direct regulation of hedge fund leverage. In contrast, the U.S. Dodd-Frank Act opts for indirect regulation of hedge funds' leverage by restricting the relationships of the banking entities with hedge funds by introducing the Volcker Rule which is discussed in the fifth chapter.

It is suggested that direct regulation of leverage of hedge funds, as adopted by the AIFMD can have at least two negative unintended consequences:

1. Leverage constraints on hedge funds will affect certain types of hedge funds disproportionately. For example, hedge funds specialized in “arbitrage-type investment strategies such as convertible arbitrage, fixed income arbitrage and equity market neutral” will severely be affected. Since limits on the level of leverage can potentially limit the

²²² Article 6(5), Regulation (EU) No 231/2013

²²³ Article 6(3), Regulation (EU) No 231/2013

²²⁴ Article 6(4), Regulation (EU) No 231/2013

²²⁵ Bianchi and Drew, *Hedge Fund Regulation and Systemic Risk*, pp. 22-23.

²²⁶ *Ibid.*

expected return on such strategies, it will have a chilling effect on the funds employing these strategies.²²⁷

2. The impact of direct leverage requirements on financial markets is that the limitations of leverage for arbitrage based hedge funds will lower the market liquidity and will result in less efficient price discovery mechanism. As a result, more price distortions and dislocations will remain intact because less and less capital will be deployed to exploit such inefficiencies. All in all, imposing leverage constraints can make the markets less efficient due to the limits it imposes on the ability of hedge funds to employ arbitrage type strategies.²²⁸

Therefore, it is argued that monitoring leverage is best performed at the prime brokerage level. However, the bright side of leverage requirements of the AIFMD is that it does not engage in the micro-management of the leverage of hedge funds; instead, it only sets general standards, such as caps for leverage and imposes disclosure requirements on their leverage. Indeed, unlike the draft proposal of the AIFMD which attempted to directly regulate hedge fund leverage, it delegates the micro-management of leverage to AIFMs.

With regard to the leverage requirements, the AIFMD does not focus on the interconnectedness of hedge funds with LCFIs (such as their prime brokers who are the main leverage providers of hedge funds) which, considering their knowledge of hedge fund business, are better placed to monitor hedge funds' risks arising from excessive leverage taking.²²⁹

4.7. Risk Management

In financial regulation, regulating risk management can serve at least two objectives: one is to protect investors, and the other is to protect the financial system from the build-up of systemic externalities. In doing so, the Directive requires AIFMs to establish an adequate risk management system for identifying, measuring, managing, and monitoring risks of each AIF under their management.

²²⁷ *Ibid.*

²²⁸ *Ibid.*

²²⁹ As mentioned earlier, on January 29, 2014, the European Commission proposed a final proposal on structural measures improving the resilience of the EU credit institutions which is the equivalent of the U.S. Volcker Rule.

The directive further requires functional and hierarchical separation of risk management and portfolio management functions subject to exceptions for small AIFMs at the Member State level when the separation of these two functions is operationally impracticable.²³⁰ The AIFMs should also conduct stress tests of the risks associated with the investments made by the AIFs under their management, conduct an appropriate, documented and regularly updated due diligence process when investing on behalf of the AIF; and ensure that the risk profile of each AIF they manage corresponds to the size, portfolio structure, and investment strategy and objectives of the AIF as set out in the fund rules and offering documents.

Risk management systems is defined by supplementing regulations as the “systems comprised of relevant elements of the organisational structure of the AIFM, with a central role for a permanent risk management function, policies and procedures related to the management of risk relevant to each AIF’s investment strategy, and arrangements, processes and techniques related to risk measurement and management employed by the AIFM in relation to each AIF it manages.”²³¹

4.7.1. Risk limits

Taking into account all relevant risks, the AIFM should establish and implement quantitative and qualitative risk limits, or both for each AIF under its management.²³² The qualitative and quantitative risk limits for each AIF should at least cover the market risks, credit risks, liquidity risks, counterparty risks, and operational risks.²³³ Setting these risk limits, the AIFM should take into account the assets and strategies of each AIF under its management and the relevant national rules applicable to each AIF. These risk limits should also be aligned with the risk profile of the AIF as it is disclosed to investors and approved by the governing body.²³⁴

The AIFMs should adopt adequate and effective arrangements, processes and techniques to identify, measure, manage and monitor constantly the risks to which the AIFs under their

²³⁰ Article 15 of the Directive 2011/61/EU

²³¹ Article 38, Regulation (EU) No 231/2013

²³² And if the AIFM only sets qualitative limits, it should be able to justify this approach to the competent authority. See Article 44(1), Regulation (EU) No 231/2013

²³³ Article 44(2), Regulation (EU) No 231/2013

²³⁴ Article 44(3), Regulation (EU) No 231/2013

management are exposed, and ensure compliance with the risk limits.²³⁵ To do so, the AIFM should take the following actions for each AIF under its management.

1. It should establish risk measurement arrangements, processes and techniques necessary to ensure that the risks of positions and their contribution to the overall risk profile are accurately measured based on sound and reliable data and that those arrangements, processes and techniques are adequately documented.
2. It should conduct periodic back-tests to review the validity of risk measurement arrangements which include model-based forecast and estimates.
3. It should conduct periodic and appropriate stress-tests and scenario analyses to address risks arising from potential changes in market condition that might adversely affect the AIF.
4. It should also ensure that the current level of risk complies with the risk limits set out for the market risks, credit risks, liquidity risks, counterparty risks, and operational risks.
5. It should establish adequate procedures enabling it to take timely remedial actions in the best interest of investors, in the event of actual or anticipated breaches of the risk limits of the AIF.
6. It should ensure the existence of appropriate liquidity management systems and procedures for each AIF.²³⁶

Such arrangements should be consistent with the AIF's risk profile as disclosed to investors. They should also be proportionate to the nature, scale, and complexity of the business of the AIFM and of each AIF under its management.²³⁷

The AIFM should establish permanent risk management function which should implement effective risk management policies and procedures to identify, measure, manage and monitor continuously all risks related to each AIF's investment strategy to which each AIF is exposed, ensure that the risk profile of the AIF disclosed to investors is consistent with the risk limits set according to Article 44 of Regulation (EU) No 231/2013, monitor compliance with the risk limits of Article 44 and notify the AIFM's governing body and the AIFM's supervisory function

²³⁵ Article 45(1), Regulation (EU) No 231/2013

²³⁶ Article 45(3), Regulation (EU) No 231/2013

²³⁷ Article 45(2), Regulation (EU) No 231/2013

in a timely manner when it considers the AIF's risk profile inconsistent with the risk limits or identifies a material risk and potential for such inconsistency.²³⁸

The permanent risk management function established by the AIFM should also provide the following regular updates to the governing body of the AIFM or its supervisory function.

1. The consistency between and the compliance with the risks limits and the risk profile of the AIF which is disclosed to the investors.
2. The adequacy and effectiveness of the risk management process, particularly indicating whether there will be appropriate remedial measures in the event of any actual or anticipated deficiencies.²³⁹

The frequency of such updates will have to be in accordance with the nature, scale, and complexity of the AIF or AIFM's activities. The permanent risk management function established by the AIFM should also provide regular updates to the senior management "outlining the current level of risks incurred by each managed AIF and any actual or foreseeable breaches of any risk limits" of Article 44 to ensure that prompt and appropriate action can be taken.²⁴⁰ The risk management function should have the necessary authority and access to all relevant information to fulfill the tasks.²⁴¹

The AIFM is also required to establish an adequate and documented risk management policy which identifies all the relevant risks to which the AIFs under its management can be exposed.²⁴² This policy should comprise procedures which are necessary to enable the AIFM to assess for each AIF under its management the exposure of that AIF to market, liquidity and counterparty risks, and its exposure to all other relevant risks which can be material for each AIF under its management.²⁴³

The following elements should be addressed in the risk management policy by the AIFM:

²³⁸ Article 39(1), Regulation (EU) No 231/2013

²³⁹ Article 39(1), Regulation (EU) No 231/2013

²⁴⁰ Article 39(1), Regulation (EU) No 231/2013

²⁴¹ Article 39(2), Regulation (EU) No 231/2013

²⁴² Article 40(1), Regulation (EU) No 231/2013

²⁴³ Article 40(2), Regulation (EU) No 231/2013

- a. The arrangements enabling the AIFM to comply with risk measurement and management provisions of Article 45;
- b. The arrangements enabling the AIFM to assess and monitor liquidity risk of the AIF under normal and exceptional liquidity conditions such as using regular stress tests;
- c. The allocation of risk management responsibilities within the AIFM;
- d. The risk limits and a justification of how these limits are aligned with the risk profile of the AIF disclosed to investors;
- e. “The terms, contents, frequency and addressees of reporting by the permanent risk management function.”²⁴⁴

The risk management policy should also include a description of the safeguards against conflict of interest, particularly, the nature of the potential conflicts of interest, the remedial measures, the reasons justifying why those measures are reasonably expected to result in independent performance of the risk management function, and the mechanisms used by AIFM to ensure the consistent effectiveness of the safeguards.²⁴⁵ The risk management policy should also be appropriate to the nature, scale, and complexity of the business of the AIFM and of the AIF under its management.²⁴⁶

4.7.2. Assessment, monitoring and review of the risk management systems

The AIFMs should assess, monitor, and periodically or at least annually²⁴⁷ review:

1. The adequacy and effectiveness of, and the degree of compliance by the AIFM with the risk management policy, and of the risk measurement and management arrangements, processes and techniques;
2. the adequacy and effectiveness of the measures adopted to address the deficiencies in the performance of the risk management process;
3. the performance of the risk management function;
4. The adequacy and effectiveness of measures adopted to ensure the functional and hierarchical separation of the risk management function.²⁴⁸

²⁴⁴ Article 40(3), Regulation (EU) No 231/2013

²⁴⁵ Article 40(4), Regulation (EU) No 231/2013

²⁴⁶ Article 40(5), Regulation (EU) No 231/2013

²⁴⁷ See Article 41(1)(e), Regulation (EU) No 231/2013

Such risk management systems should be reviewed in case of material changes to the risk management policies and procedures, internal or external events indicating that an additional review is required, material changes to the investment strategy and objectives of an AIF under the management of an AIFM.²⁴⁹ The AIFM should update the risk management systems on the basis of that review.²⁵⁰ Furthermore, any material changes to the risk management policies should be communicated to the competent authorities of the home Member State of the AIFM.²⁵¹

4.7.3. Functional and hierarchical separation of the risk management function

As stated above, the directive requires functional and hierarchical separation of risk management and portfolio management functions subject to exceptions for small AIFMs at the Member State level if the separation of these two functions is operationally impracticable.²⁵² The risk management function will be considered as functionally and hierarchically separated from the operating units, including the portfolio management function, if all of the following conditions are satisfied.

1. Persons engaged in the performance of the risk management function are not engaged in the performance of activities within the operating units, including the portfolio management function. In addition, they should not be supervised by those responsible for the performance of the operating units, including the portfolio management function of the AIFM.
2. Persons engaged in the performance of the risk management function are compensated in accordance with the achievement of the risk management objectives, irrespective of the performance of the operating units, including the portfolio management function;
3. If the remuneration committee has been established, the remuneration of senior officers of the risk management function is directly overseen by the remuneration committee.²⁵³

Such functional and hierarchical separation of the risk management function should be ensured throughout the entire hierarchical structure of the AIFM, up to its governing body.²⁵⁴ Competent

²⁴⁸ Article 41(1), Regulation (EU) No 231/2013

²⁴⁹ Article 41(2), Regulation (EU) No 231/2013

²⁵⁰ Article 41(3), Regulation (EU) No 231/2013

²⁵¹ Article 41(4), Regulation (EU) No 231/2013

²⁵² Article 15 of the Directive 2011/61/EU

²⁵³ Article 42(1), Regulation (EU) No 231/2013

authorities of the home Member State of the AIFM should review the application of the functional and hierarchical separation of the risk management function.²⁵⁵

4.7.4. Safeguards against conflicts of interest

In addition, the AIFMD requires the AIFMs to establish specific safeguards against conflicts of interest to facilitate the independent performance of risk management activities and demonstrate that the risk management process is consistently effective.²⁵⁶

The safeguards against conflict of interest should at least ensure that:

1. The decisions of the risk management function are based on reliable data appropriately controlled by the risk management function.
2. The remuneration of the risk managers reflects the achievement of the objectives linked to risk management function, irrespective of the performance of the sector of the business in which they are engaged.
3. The risk management function is appropriately and independently reviewed to ensure that decisions are made independently.
4. The risk management function is represented in the governing body or the supervisory function at least with the same authority as the portfolio management function.
5. Any conflicting duties are properly segregated.²⁵⁷

Regulation (EU) No 231/2013 also imposes additional requirements and safeguards. These additional requirements should take into account the nature, scale and complexity of the AIFM.

These requirements should ensure:

1. the regular review of the performance of the risk management functions by the internal audit function, or in the absence of the internal audit function, by an external party appointed by the governing body;

²⁵⁴ Article 42(2), Regulation (EU) No 231/2013

²⁵⁵ Article 42(3), Regulation (EU) No 231/2013

²⁵⁶ Article 15(1) of the Directive 2011/61/EU

²⁵⁷ Article 43(1), Regulation (EU) No 231/2013

2. that, if a risk committee is established, it is appropriately resourced and its non-independent members do not exert undue influence over the performance of the risk management function.²⁵⁸

The governing body of the AIFM and the supervisory function (if it exists) should establish safeguards against conflict of interests, regularly review their effectiveness, and take timely remedial action to address the deficiencies.²⁵⁹

4.8. Liquidity Management

In addition to capital requirements, the AIFMD also opts for regulating hedge fund liquidity.²⁶⁰ The Directive requires that the AIFMs, for each fund under their management which is not an unleveraged closed-ended AIF, establish an appropriate liquidity management system and adopt procedures enabling them to monitor the liquidity risks of the AIF, and ensure the compliance of liquidity profile of the investments of the AIF with its underlying obligations.²⁶¹ AIFMs should regularly conduct stress tests, under normal and exceptional liquidity conditions, enabling them to assess and monitor the liquidity risks of the AIF.²⁶² The AIFMs should also ensure that the investment strategies, liquidity profiles and redemption policies of the AIFs under their management are consistent.²⁶³

The investment strategy of each AIF under the management of an AIFM is considered to be aligned with the liquidity profile, and redemption policy, when investors can redeem their investments consistent with fair treatment of all investors in the AIF and in accordance with the AIF's redemption policy and its obligations.²⁶⁴ The AIFM should also take into account the impact that redemptions may have on the underlying prices or spreads of the individual assets of

²⁵⁸ Article 43(2), Regulation (EU) No 231/2013

²⁵⁹ Article 43(3), Regulation (EU) No 231/2013

²⁶⁰ The importance of the liquidity in financial markets and its potential impact on financial stability is discussed in chapter 2 of this dissertation.

²⁶¹ Article 16(1) of the Directive 2011/61/EU

²⁶² Article 16(1) of the Directive 2011/61/EU

²⁶³ Article 16(2) of the AIFMD. The AIFMD also requires the Commission to adopt by means of delegated acts and measures specifying the liquidity management systems and procedure, and the alignment of the investment strategy, liquidity profile and redemption policies. *See* Article 16(3) of the Directive 2011/61/EU.

²⁶⁴ Article 49(1), Regulation (EU) No 231/2013

the AIF in assessing the alignment of the investment strategy, liquidity profile and redemption policy.²⁶⁵

Article 46 of the Regulation (EU) No 231/2013 requires AIFMs to make sure that they are capable of demonstrating to the competent authorities of their home Member State that an appropriate liquidity management system and effective procedures are in place which take account of the investment strategy, the liquidity profile, and the redemption policy of each AIF.²⁶⁶ Such liquidity management system and procedures should ensure that:

1. The level of liquidity in the AIF is appropriate to the underlying obligations of the AIFM. The appropriateness is gauged based on the assessment of the relative liquidity of the AIF's assets in the market. In determining the level of liquidity maintained, the AIFM should also consider the time needed to liquidate, the price at which the assets can be liquidated and their sensitivity to market risks.
2. The AIFM monitors the liquidity profile of the AIF's portfolio of assets, taking into account the marginal contribution of individual assets which may have a material impact on liquidity, and the AIF's material liabilities and commitments in relation to its underlying obligations. For such purposes, the AIFM should take account of the AIF's profile of the investor base, including the type of investors, the relative size of investments and the redemption terms of their investments.
3. Where the AIF invests in other collective investment undertakings such as the UCITS, the AIFM should monitor the liquidity management approach of the managers of those collective investment undertakings. Such monitoring can be conducted through, inter alia, periodic reviews to monitor changes to the redemption provisions of the underlying collective investment undertakings in which the AIF invests. However, such an obligation does not apply if those collective investment undertakings are actively traded in regulated markets.
4. The AIFM implements and maintains appropriate liquidity measurement arrangements and procedures for assessing the quantitative and qualitative risks of positions and investments having a material impact on the liquidity profile of the portfolio of the AIF's

²⁶⁵ Article 49(2), Regulation (EU) No 231/2013

²⁶⁶ Article 46, Regulation (EU) No 231/2013

assets to enable their effects on the overall liquidity profile to be appropriately measured. The procedures employed should enable the AIFM to have appropriate knowledge of the liquidity of the assets in which the AIF invests.

5. The AIFM establishes the arrangements, including special arrangements, deemed to be necessary for managing the liquidity risk of each AIF it manages. The AIFM should identify the circumstances under which such arrangements may be used in both normal and exceptional circumstances. In doing so, it should take into consideration the fair treatment of all investors of the AIF in relation to each AIF under its management. Such arrangements should be used only if appropriate disclosures have been made to the investors.²⁶⁷ AIFMs managing a leveraged closed-ended AIF are exempted from this provision.²⁶⁸

Regulation (EU) No 231/2013 also requires the AIFMs to document the liquidity management policies and procedures, review them at least annually, and update them upon any changes or new arrangements.²⁶⁹ In addition, the AIFMs are required to include ‘appropriate escalation measures’ in their liquidity management system and procedures to address anticipated or actual liquidity shortages or other distressed situations of the AIF.²⁷⁰

Furthermore, Regulation (EU) No 231/2013 also imposes limits on the liquidity management and stress tests. It requires AIFMs, considering the nature, scale, and complexity of each AIF under their management, to maintain adequate limits for the liquidity or illiquidity of the AIF consistent with its underlying obligations and redemption policy and in accordance with quantitative and qualitative risk limits. The AIFMs should monitor the compliance with those limits and if those limits are exceeded or are likely to be exceeded, they should determine the necessary course of action. In determining the course of action, the AIFMs should consider the AIF’s liquidity management policies and procedures, the appropriateness of the liquidity profile of its assets and the effects of unusual levels of redemption requests.²⁷¹

²⁶⁷ Article 47(1), Regulation (EU) No 231/2013

²⁶⁸ Article 47(4), Regulation (EU) No 231/2013

²⁶⁹ Article 47(2), Regulation (EU) No 231/2013

²⁷⁰ Article 47(3), Regulation (EU) No 231/2013

²⁷¹ Article 48(1), Regulation (EU) No 231/2013

To assess the liquidity risk of each AIF under their management, the AIFMs should regularly conduct stress tests, under normal and exceptional liquidity conditions. These stress tests should be conducted on the basis of reliable and up-to-date information in quantitative or qualitative terms. If necessary, the stress tests should simulate a shortage of liquidity of assets in the AIF and atypical redemption requests, cover the market risks and any resulting impact on margin calls, collateral requirements or credit lines, and account for valuation sensitivities under stressed conditions. The frequency of stress tests should be appropriate to the nature of the AIF, and should take into account “the investment strategy, liquidity profile, type of investor and redemption policy of the AIF”. These stress tests should be conducted at least once a year.²⁷² AIFMs are further required to act in the best interest of the investors in relation to the outcome of any stress tests.²⁷³

4.9. Investment in securitization positions

Article 17 of the AIFMD addresses potential conflicts of interest that may arise in the securitization process²⁷⁴ and in investing in securitization positions.²⁷⁵ This article requires the Commission to adopt measures to ensure the cross-sectoral consistency and remove the misalignment between the interests of the firms repackaging the loans into tradable securities,²⁷⁶ originators, and the AIFMs investing in those securities or other financial instruments on behalf of AIFs. These measures shall include the requirements that should be met by the originator, the sponsor²⁷⁷ or the original lender, to allow the AIFMs to invest in securities or other financial instruments of this type issued after January 1, 2011 on behalf of AIFs.

²⁷² Article 48(2), Regulation (EU) No 231/2013

²⁷³ Article 48(3), Regulation (EU) No 231/2013

²⁷⁴ Securitization means a transaction or scheme, whereby the credit risk of an exposure or pool of exposures is tranching and the payments in the transaction or scheme are dependent on the performance of the exposure or pool of exposures, and the subordination of tranches determines the distribution of losses during the ongoing life of the transaction or scheme. *See* Article 4(36) of Directive 2006/48/EC

²⁷⁵ Accordingly, a securitization position means an exposure to a securitization. *See* Article 4(40) of Directive 2006/48/EC

²⁷⁶ From the wording of the article 17 which only refers to ‘repackaging of loans into tradable securities’, it is not clear whether the requirements of Article 17 is only limited to the securitization of loans or it is applicable to the securitization of other claims and receivables. *See* Duncan, Curtin and Crosignani, *Alternative Regulation: The Directive on Alternative Investment Fund Managers*, p. 358.

²⁷⁷ A Sponsor is “a credit institution other than an originator credit institution that establishes and manages an asset-backed commercial paper programme or other securitisation scheme that purchases exposures from third party entities”. *See* Article 4(42) of Directive 2006/48/EC

These measures should also include the requirements ensuring that the originator, the sponsor or the original lender retains a net economic interest of not less than 5%. This requirement, which is also known as ‘skin in the game’ requirement, is introduced to align the interests of the originators, sponsors, and the original lenders with the investors in the securitized positions (AIFs). These measures should also include the qualitative requirements that should be met by the AIFMs investing in these types of securities or other financial instruments on behalf the AIFs.²⁷⁸ Therefore, under the AIFMD, the assumption of an exposure to the credit risks of a securitization position by the AIFMs is contingent upon the explicit disclosure by the originator, sponsor or the original lender to the AIFMs that it (originator, sponsor, or original lender) continuously retains a material net economic interest not less than 5%.²⁷⁹ The net economic interest should be measured at the origination and it should at all times be maintained. This net economic interest should not be subject to credit risk mitigation, any short position, or any hedging arrangement and should not be sold.²⁸⁰ For off-balance sheet items, the net economic interest should be determined by the notional value for such items,²⁸¹ and for any given securitization, there should be multiple applications of the retention requirements.²⁸² Hedge funds involving in the securitization process should comply with all the above requirements.

In addition, article 52 of the Regulation (EU) No 231/2013 imposes qualitative requirements concerning sponsors and originators, and requires that the AIFMs assuming exposure to the credit risk of a securitization on behalf of AIFs, to ensure that the sponsors or originators:

1. grant credit based on sound and well-defined criteria;
2. operate effective systems for managing the ongoing administration and monitoring of their credit risks;
3. adequately diversify their credit portfolios based on their target markets and credit strategies;
4. Have a written policy on credit risk which includes their risk tolerance limits and provisioning policy. This written policy should also contain a description of methods of measuring, monitoring and controlling that risk.

²⁷⁸ Article 17 of the Directive 2011/61/EU

²⁷⁹ Article 51(1), Regulation (EU) No 231/2013

²⁸⁰ Article 51(1)(d), Regulation (EU) No 231/2013

²⁸¹ Article 51(1)(d), Regulation (EU) No 231/2013

²⁸² Article 51(1), Regulation (EU) No 231/2013

5. provide readily available access to “all relevant data on the credit quality and performance of the individual underlying exposures, cash flows and collateral supporting a securitisation exposure” and information necessary for conducting comprehensive stress tests, and on the cash flows and collateral values supporting the underlying exposures;
6. provide readily available access to all relevant data necessary for the AIFM to comply with the qualitative requirements concerning AIFMs exposed to securitizations laid down in Article 53;
7. Disclose the level of their retained net economic interest and any matters which can undermine the maintenance of the minimum required net economic interest.²⁸³

In addition to the qualitative requirements on originators and sponsors, the AIFMD also imposes qualitative requirements on the AIFMs exposed to securitizations. Before assuming exposure to the credit risks of securitization on behalf of the AIF, AIFMs should demonstrate to the competent authorities that they have comprehensive understanding of securitization positions. They should also be able to demonstrate that they have implemented formal policies and procedures appropriate to the risk profile of the relevant AIF’s investment in securitized positions for analyzing and recording the following items:

1. information disclosed by the originators or sponsors with regard to maintaining the required net economic interest;
2. the risks of every securitization position;
3. the risks of the exposures underlying the securitization position;
4. the originators’ and sponsors’ reputation and loss experience in earlier securitizations in relevant exposures underlying the securitization position;
5. the originators’ and sponsors’ disclosures about their due diligence on the securitized exposures and on the quality of the collateral supporting those positions.
6. the methodologies and concepts used for the valuation of collateral supporting the securitized positions and the originators’ and sponsors’ policies to ensure the independence of the valuer (appraiser);

²⁸³ Article 52, Regulation (EU) No 231/2013

7. All structural features of the securitization materially impacting the performance of the institution's securitization position "such as the contractual waterfall and waterfall related triggers, credit enhancements, liquidity enhancements, market value triggers, and deal-specific definitions of default."²⁸⁴

After an AIFM, on behalf of an AIF under its management, assumes exposure to a material value of the credit risk of a securitization, it should regularly perform stress tests. These stress tests should be commensurate with the nature, scale, and complexity of the risks of the securitization positions.²⁸⁵

The AIFM should establish formal monitoring procedures proportionate to the risk profile of the AIFs under its management with regard to the credit risk of a securitization position to monitor on an ongoing basis and in a timely manner the performance information on the exposures underlying the securitization positions.²⁸⁶ These information should include "the exposure type, the percentage of loans more than 30, 60 and 90 days past due, default rates, prepayment rates, loans in foreclosure, collateral type and occupancy, frequency distribution of credit scores or other measures of credit worthiness across underlying exposures, industry and geographical diversification and frequency distribution of loan to value ratios with bandwidths that facilitate adequate sensitivity analysis".²⁸⁷ If the underlying exposures are also securitization positions, AIFMs should have the above-mentioned information not only on the underlying securitization tranches, but also on the characteristics and performance of the pools underlying those securitization tranches.²⁸⁸

To appropriately manage the risks and liquidity, an AIFM assuming exposure to the credit risk of a securitization on behalf of the AIF is required to identify, measure, monitor, manage, control, and report the risks arising from mismatches between the assets and liabilities of the AIF, concentration risk or investment risks arising from these instruments. The AIFM should further ensure that the risk profile of securitization positions "corresponds to the size, overall portfolio structure, investment strategies and objectives" of the AIF in accordance with the AIF's rules or

²⁸⁴ Article 53(1), Regulation (EU) No 231/2013

²⁸⁵ Article 53(2), Regulation (EU) No 231/2013

²⁸⁶ Article 53(2), Regulation (EU) No 231/2013

²⁸⁷ Article 53(2), Regulation (EU) No 231/2013

²⁸⁸ Article 53(2), Regulation (EU) No 231/2013

instruments of incorporation, prospectus and offering documents.²⁸⁹ AIFMs should also ensure the existence of an adequate degree of internal reporting to the senior management fully informing them of any material exposures to securitizations and of the fact that the risks arising from such exposures are adequately managed.²⁹⁰

If the retained interest does not meet the requirements of the AIFMD and its supplementing regulations, the AIFMs are required to take corrective actions in the best interest of the investors in the AIF.²⁹¹ Such corrective action should be taken where the retained interest becomes less than 5% at a given time after the assumption of the exposure and if such a breach of that threshold is not due to the natural payment mechanism of the transaction.²⁹²

4.10. Remuneration

Related to the risk management incentive is the remuneration of hedge fund managers. Prior to the recent financial crisis, remuneration in alternative investment funds was merely a matter of negotiation and contractual agreement between funds' managers and investors in the funds. However, after the passage of the AIFMD, hedge fund remuneration policy in Europe ceased to be left to mere contractual arrangements between managers and investors and became subject to the mandatory rules of the AIFMD.

There were two major driving forces behind such a shift. First, the perception that hedge fund managers' remuneration practices potentially plays a role in their risk taking behavior,²⁹³ and may increase the likelihood of their potential contribution to the systemic risk and financial instability. For example, it is argued that the alignment of interests in hedge funds is biased to the upside, namely, while the gains are distributed between managers and investors, the risk of losses is born by the investors. The possibility of sharing the benefits and avoiding the losses may attenuate hedge funds managers' appetite for more risk taking by utilizing more and more

²⁸⁹ Article 53(3), Regulation (EU) No 231/2013

²⁹⁰ Article 53(4), Regulation (EU) No 231/2013

²⁹¹ Article 54(1), Regulation (EU) No 231/2013

²⁹² Article 54(2), Regulation (EU) No 231/2013

²⁹³ Orié Shelef, "Incentive Thresholds, Risk-Taking, and Performance. Evidence from Hedge Funds," (2013).

leverage. In this setting, since they are protected by the form of corporation or LLC, they will lack sufficient incentives to minimize the risks of loss.²⁹⁴

The second important factor was the complexity of remuneration practices of hedge funds and private equity funds which raised investor protection concerns.²⁹⁵ There are several factors coming into play in determining AIFM's remuneration such as management fees, performance or incentive fees, claw-back arrangements, hurdle rates on which the realization of performance fees depend, high water marks, and fee equalization mechanisms.²⁹⁶

Although those concerns at first blush seem legitimate, economic theory and evidence from the hedge fund industry do not support such systemic instability and investor protection arguments for regulating remuneration practices of hedge funds. In the hedge fund industry, there already exist mechanisms which can, at least to some extent, control risk taking behavior of hedge fund managers due to the remuneration or fee structure of the fund. Indeed, hedge fund governance mechanism reduces agency costs and aligns the otherwise divergent interests of their managers and investors. Therefore, hedge fund remuneration structure should be analyzed along with its governance mechanism, legal form, and organizational structure. It is generally accepted that this alignment of interest in the organizational form of hedge funds can protect the investors and rein in the managers' incentives to take on extreme risks.

Furthermore, the legal form of hedge funds is usually in the form of limited liability partnership which is often comprised of general and limited partners. The adviser/manager of the hedge fund

²⁹⁴ In addition, it seems that the main concern of the AIFMD in devising remuneration regulation is investor protection concerns. However, both systemic risk and investor protection concerns for regulating managers' remuneration policies are criticized and do not seem to be plausible grounds for regulation of hedge funds. See the second chapter of this dissertation.

²⁹⁵ Concerns about remuneration policies and practices of hedge fund managers are mostly unfounded, due to the sophistication of the hedge fund investors, creditors and counterparties. However, some critics argue that market discipline imposed on hedge funds by prime brokers is essentially about protecting their own (prime brokers) interests and covering their own exposures and they might ignore the systemic implications of their transactions. See Aikman, *When Prime Brokers Fail: The Unheeded Risk to Hedge Funds, Banks, and the Financial Industry*, pp. 95-96.

It is also suggested that the market discipline as mechanism of corporate governance is biased towards the strategies involving greater risk taking, See Hellwig, *Systemic Risk in the Financial Sector: An Analysis of the Subprime-Mortgage Financial Crisis*, p. 163.

²⁹⁶ Duncan, Curtin and Crosignani, *Alternative Regulation: The Directive on Alternative Investment Fund Managers*, p. 355.

On the other hand, remuneration practices vary across different AIFMs. For example, hedge funds tend to pay the principals in cash at the end of the year, whereas private equity funds pay out the carried interest upon the liquidation of the fund referred to as "harvest". See *Ibid*.

is often the general partner. In partnership law, the general partner is liable not only to the amount of the investment but also beyond that he has a personal liability for the debts of the partnership in case of bankruptcy. This provides managers of hedge funds with sufficient incentive not to take excessive risk on behalf of the partnership.²⁹⁷

The most important element of such a mechanism is the managers' co-investment in hedge funds. Generally, hedge fund managers tend to invest substantial sums in their funds; meaning that many hedge fund managers are general partners within the partnership structure of hedge funds which exposes them to extreme losses.²⁹⁸ Such a managerial co-investment in the hedge fund provides another layer of protection against excessive risks in hedge fund strategies. For example, Ackermann et al. find correlations between the organizational feature of hedge funds and their superior performance. In their view incentive fees play a significant role. They find that "an increase in the incentive fee from zero to the median value of 20 percent leads to an average increase in the Sharpe ratio of 66 percent." In addition, they find that higher incentive fees does not increase managers' propensity to take on more risks.

Further studies show that although higher incentive fees increase the risks of funds' investment strategy, this risk taking is greatly reduced if the manager invests her own investment in the fund (at least 30%).²⁹⁹ All in all, it is argued that the market discipline is effective in limiting hedge funds' leverage and managing their exposure due to the fact that to invest in a hedge fund, the institutional investors demand greater transparency. Furthermore, investment by managers in their own funds mitigates the principal-agent problem.³⁰⁰ Overall, it is suggested that hedge fund

²⁹⁷ This unlimited liability can be circumvented by structuring the general partner of a hedge fund as a limited liability company.

²⁹⁸ Carl Ackermann, Richard McEnally and David Ravenscraft, "The Performance of Hedge Funds: Risk, Return and Incentives," *The Journal of Finance* 54, no. 3 (1999), p. 870.

²⁹⁹ Roy Kouwenberg and William T. Ziemba, "Incentives and Risk Taking in Hedge Funds," *Journal of Banking & Finance* 31, no. 11 (2007), 3291-3310.

³⁰⁰ King and Maier, *Hedge Funds and Financial Stability: Regulating Prime Brokers Will Mitigate Systemic Risks*, p. 284.

Although these incentive schemes can substantially reduce the agency costs and align the investors' and managers' interests, they might have some adverse effects as well. For example, Lhabitant suggests that personal wealth commitment can result in unintended consequences. He also suggests that the hedge fund managers tend to take more risks in the beginning of their job in a hedge fund and a successful fund manager at the end of her career will be more prudent and will refrain from taking risks even though the prospect for taking risk may be rewarding. See Lhabitant, *Handbook of Hedge Funds*, p. 33.

governance structure contributes to disciplining hedge fund managers and encouraging them to generate higher risk adjusted returns for investors.³⁰¹

Despite the findings of most of the studies confirming that the market discipline is effective for hedge fund remuneration practices suggesting there is no need for further regulation, the AIFMD opts for regulating hedge funds' remuneration policies. Article 13 of the AIFMD compels the Member States to require the AIFMs to establish remuneration policies for the categories of staff whose professional activities have a material impact on the risk profiles of the AIFMs or of the AIFs under their management such as “senior management, risk takers, control functions, and any employees receiving total remuneration that takes them into the same remuneration bracket as senior management and risk takers”. Such remuneration policies and practices should be consistent with effective risk management and should not encourage risk taking inconsistent with risk profiles and instrument of incorporation of the AIFs under their management.

ESMA is required to issue guidelines about sound remuneration policies and practices. Those guidelines should comply with the Annex II of the AIFMD and should take into account the principles of sound remuneration policies set out in Recommendation 2009/384/EC, the size of the AIFMs and the size of the AIFs under their management, “their internal organisation and the nature, the scope and the complexity of their activities.”³⁰²

In contrast to the AIFMD, the Dodd-Frank Act is again silent about the remuneration of the hedge fund managers. This is perhaps because the imposition of such requirements can result in unintended consequences, such as discouraging the growth of the hedge fund industry and forcing best hedge fund managers to exit the U.S. financial markets. On the other hand, the remuneration restrictions are proved to be very prone to legal engineering that manipulates the compensation structure to evade such restrictions.

One of the major criticisms of regulation of remuneration practices is that it is a misallocation of the limited regulatory resources. As with every limited resource, at the time of its allocation, special attention should be paid to its opportunity costs. The best allocation of the regulatory resources requires making tradeoffs. Therefore, selection of the object of regulation is a very

³⁰¹ Shadab, *Hedge Fund Governance*.

³⁰² Article 13 of the Directive 2011/61/EU

critical decision.³⁰³ At the time during which the regulators have difficulty funding and staffing their organizations to address systemic concerns, allocating the regulatory resources to remuneration policies of hedge funds to protect professional investors who are able to protect themselves seems to be a misallocation of such limited resources.

The scarcity of such limited resources is especially highlighted after the extensive post-financial crisis regulatory reforms. The benefits from the use of these limited regulatory resources should be weighed against the forgone opportunities. Instead of putting regulatory efforts which are funded by the taxpayers for the uses which benefit the society at large, limiting hedge fund investors to accredited and professional investors and putting the regulatory resources to be used for the protection of those investors is a cross-subsidization of professional investors, who can supposedly fend for themselves, by the ordinary taxpayers.

4.11. Valuation

The AIFMs should ensure that the assets of the AIFs be valued properly and independently in accordance with the appropriate and consistent procedures established by the AIFMs.³⁰⁴ Such valuation procedure should ensure that the assets are valued at least once a year. The investors should be informed of the valuations and calculations.³⁰⁵ It is the responsibility of the AIFM to ensure that the valuation is performed by an external appraiser or valuer independent of the AIF, the AIFM and any other persons with close links to the AIF or the AIFM. If the AIFM itself otherwise performs the valuation function, such a task should be functionally independent from the portfolio management. Furthermore, the remuneration policy and other measures should ensure the mitigation of the conflicts of interest and undue influence upon the employees. The depositary of the AIFs should not be appointed as external appraiser of the AIF.³⁰⁶ And the external appraiser should not delegate the valuation function to a third party.³⁰⁷ The directive also requires that the valuation should be performed impartially with due skill, care and

³⁰³ Paredes, Troy A. (SEC Commissioner), *Remarks at the 43rd Annual Rocky Mountain Securities Conference*, May 6, 2011).

³⁰⁴ Article 19(1) of the Directive 2011/61/EU

³⁰⁵ Article 19(3) of the Directive 2011/61/EU

³⁰⁶ Article 19(4) of the Directive 2011/61/EU

³⁰⁷ Article 19(6) of the Directive 2011/61/EU

diligence.³⁰⁸ Despite the appointment of an external appraiser, the AIFM will be liable to its AIF and its investors for the proper valuation of the AIF's assets.³⁰⁹

5. The AIFMD and indirect regulation of hedge funds

5.1. Hedge fund depositaries and prime brokers

Most of the provisions of the AIFMD regarding the depositary address investor protection concerns, which are beyond the scope of this dissertation. Regardless of the fact that most of the regulatory measures can serve several objectives such as investor protection and addressing systemic risk, there are certain provisions in the AIFMD which specifically attempt to address potential systemic risk emanating from hedge funds. These provisions are the focus of this section.

The concept of depositary is not defined in the AIFMD. However, it refers to an institution holding the assets of an AIF in custody or for safe-keeping purposes, in contrast to an institution holding the assets pursuant to a security arrangement.³¹⁰ Therefore, hedge fund's depositaries act as custodians of their assets.

There are potential conflict of interests in the relationship between a depositary and a hedge fund due to the fact that the financial institutions providing custody and depositary services for hedge funds can also be their prime brokers providing them with prime finance services. As mentioned in the second chapter, Prime brokerage is defined as “a system developed by full-service firms to facilitate the clearance and settlement of securities trades for substantial retail and institutional investors who are active market participants.”³¹¹ Prime finance services include prime brokerage, securities loan, financing (through repurchase agreement) and derivatives trading. Besides these services, prime brokers also offer execution brokerage services, including services related to trade execution, transition management, commission sharing arrangements, direct market access

³⁰⁸ Article 19(8) of the Directive 2011/61/EU

³⁰⁹ Article 19(10) of the Directive 2011/61/EU

³¹⁰ Duncan, Curtin and Crosignani, *Alternative Regulation: The Directive on Alternative Investment Fund Managers*, pp. 360-361.

³¹¹ United States Securities and Exchange Commission, Division of Market Regulation, RE: Prime Broker Committee Request, January 25, 1994a.

(DMA), and research.³¹² Providing such diverse services for hedge funds, prime brokers may become hedge funds' counterparties.

Another potential for conflict of interest may arise from the rehypothecation of the hedge funds' assets posted as collateral to prime brokers. Although this function clearly falls beyond the scope of depositary/custody functions as defined by the AIFMD, most institutions providing custody services are embedded in LCFIs such as universal banks providing prime brokerage services. Such comingling of different financial services offered by universal banks is the source of potential conflicts of interest.

To regulate this situation,³¹³ the AIFMD imposes direct regulations both on hedge fund managers and their depositaries. The AIFMD mandates AIFMs to ensure that for each AIF under their management, a single depositary is appointed.³¹⁴ It also imposes certain criteria on the institutions that can perform depositary functions.³¹⁵ To avoid conflict of interests between the AIFM and/or the AIF and/or its investors, and the depositary, the AIFMD mandates that an AIFM itself should not act as a depositary.³¹⁶ In addition, the AIFMD prohibits the prime brokers acting as counterparty to an AIF from performing the depositary functions for that AIF unless the performance of its depositary functions is functionally and hierarchically separated from its tasks as a prime broker. As an additional condition for a prime broker to take on the depositary functions, the AIFMD requires the proper identification, management, monitoring and disclosure of such potential conflict of interests to the investors of the AIF.³¹⁶

³¹² Aikman, *When Prime Brokers Fail: The Unheeded Risk to Hedge Funds, Banks, and the Financial Industry*, p. 31.

³¹³ Article 21(1) of the Directive 2011/61/EU

³¹⁴ These institutions should be credit institutions having their registered office in the EU, the investment firms having their registered office in the EU which are subject to capital adequacy requirements, other EU institutions which are subject to prudential regulation and ongoing supervision which are determined by Member States to be eligible to be a depositary. For non-EU AIFs, the depositary can be a credit institution or any other entity provided that the depositary is subject to the effective prudential regulation including capital requirements and supervision which has the same effect as the Union law and are effectively enforced. *See* Articles 21(3) and 21(6)(b) of the Directive 2011/61/EU.

The AIFMD also imposes certain requirements for the location of depositaries of the AIFs. It requires the depositary of the EU AIFs be established in the home Member State of the AIF. However, for non-EU AIFs, the depositary can be established in a third country where the AIF is established or in the home Member State of the AIFM managing the AIF or in the Member State of reference of such AIFM. *See* Article 21(5) of the Directive 2011/61/EU

³¹⁵ Article 21(4)(a) of the Directive 2011/61/EU

³¹⁶ Article 21(4)(b) of the Directive 2011/61/EU

Recital 43 of the AIFMD recognizing the fact that many hedge funds make use of prime brokers, emphasizes that no prime broker should be appointed as a depositary unless it functionally and hierarchically separates the performance of its depositary functions from its prime brokerage services and potential conflicts of interest are properly identified, managed and disclosed to the investors of the AIF. This separation is essential due to the fact that the prime brokers act as counterparties to AIFs and cannot simultaneously act in the best interest of the AIF as is required for a depositary.³¹⁷

The AIFMD also imposes certain requirements for the location of depositaries of AIFs. It requires the depositary of the EU AIFs be established in the home Member State of the AIF.³¹⁸ However, for non-EU AIFs, the depositary can be established in a third country where the AIF is established or in the home Member State of the AIFM managing the AIF or in the Member State of reference of such AIFM.³¹⁹

5.1.1. Monitoring and reporting by depositaries

Upon the appointment of a prime broker, the AIFM should ensure that there exists an agreement, from the date of the appointment of the prime broker, according to which the prime broker should make available to the depositary, no later than the close of the next business day to which it relates,³²⁰ a statement which contains the following information:

1. the total value of assets held by the prime broker for the AIF;³²¹
2. the value of other assets³²² held as collateral by the prime broker related to the secured transactions entered into under a prime brokerage agreement;³²³
3. the value of the AIF's rehypothecated assets by the prime broker;³²⁴
4. "the values of the items listed in paragraph 3 at the close of each business day";³²⁵

³¹⁷ Recital 43 of the Directive 2011/61/EU

³¹⁸ Article 21(5) of the Directive 2011/61/EU

³¹⁹ Article 21(5)(b) of the Directive 2011/61/EU

³²⁰ Article 91(2), Regulation (EU) No 231/2013

³²¹ Article 91(3)(a), Regulation (EU) No 231/2013

³²² As referred to in point (b) of Article 21(8) of Directive 2011/61/EU

³²³ Article 91(3)(b), Regulation (EU) No 231/2013

³²⁴ Article 91(3)(c), Regulation (EU) No 231/2013

³²⁵ Article 91(1)(a), Regulation (EU) No 231/2013, *See* Article 91(3), Regulation (EU) No 231/2013

5. a list of all the institutions at which the prime broker holds AIF's cash in an account opened in the name of the AIF or its manager;³²⁶
6. The details of any other matter to ensure that the depositary of the AIF has up-to-date and accurate information about the value of assets the safekeeping of which is delegated.³²⁷

As part of its oversight duties, the depositary should ensure that the sale, issue, repurchase, redemption, and cancellation of units or shares of the AIF are carried out in accordance with the applicable national law and the AIF's rules and instruments of incorporation.³²⁸ It should also ensure the proper calculation of the values of the units or shares of the AIF,³²⁹ carrying out the instructions of the AIFM, unless they are in conflict with the applicable national law or the AIF rules or instruments of incorporation.³³⁰ It should further ensure that all considerations related to transactions of the AIF are remitted to the AIF within the usual time limits.³³¹

In order to devise the oversight procedures which are appropriate to the AIF and its assets, the depositary should assess the risks associated with the nature, scale and complexity of the AIF's strategy and the AIFM's organization at the time of its appointment as a depositary. These procedures should be regularly updated.³³² As part of its oversight duties, a depositary should also perform ex-post controls and verifications of processes and procedures which are part of the responsibility of the AIFM, the AIF or an appointed third party. The depositary should set up appropriate verification and reconciliation procedures and frequently review them. The AIFM should ensure that all instructions related to the assets and operations of the AIF are sent to the depositary to enable the depositary to perform its own verification of reconciliation procedure.³³³

The depositary should establish a comprehensive escalation procedure to address contingencies in which potential irregularities detected in the course of its oversight functions. The details of such irregularities should be made available to the competent authorities of the AIFM upon their

³²⁶ Article 91(3)(d), Regulation (EU) No 231/2013

³²⁷ Article 91(1)(b), Regulation (EU) No 231/2013

³²⁸ Recital 21(9)(a) of the Directive 2011/61/EU

³²⁹ Recital 21(9)(b) of the Directive 2011/61/EU

³³⁰ Recital 21(9)(c) of the Directive 2011/61/EU

³³¹ Recital 21(9)(d) of the Directive 2011/61/EU

³³² Article 92(1), Regulation (EU) No 231/2013

³³³ Article 92(2), Regulation (EU) No 231/2013

request.³³⁴ An AIFM should provide the depositary, upon the commencement of its duties and on an ongoing basis, with all relevant information which is necessary to comply with the depositary's obligation including information to be provided to the depositary by third parties.³³⁵ The AIFM should also ensure the depositary's access to the books and its performance of on-site visits on premises of the AIFM and of those of any service provider appointed by the AIF or the AIFM, or to review reports and statements of "recognized external certifications by qualified independent auditors" or other experts to ensure the adequacy and relevance of the existing procedures.³³⁶

5.1.2. Indirect regulation of hedge funds through their depositaries

Perhaps one of the most significant requirements that the Directive imposes on depositaries in terms of monitoring systemic risk is disclosure requirements. The depositaries should disclose all information which they obtain performing their duties towards hedge funds to their competent authorities on their request which may be necessary for the competent authorities of the AIF or the AIFM. If the competent authorities regulating the AIFs or AIFMs are different from those regulating the depositary, the competent authorities of the depositary should share the information with the competent authorities of the AIFs and AIFMs without delay.³³⁷ In addition, one of the conditions that should be met for a depositary established in a third country is that the depositary should at all times be subject to effective prudential regulation including minimum capital requirements, and supervision having the same effect as the Union law which is effectively enforced.³³⁸

³³⁴ Article 92(3), Regulation (EU) No 231/2013

³³⁵ Article 92(4), Regulation (EU) No 231/2013

³³⁶ Article 92(4), Regulation (EU) No 231/2013

³³⁷ Article 21(16) of the Directive 2011/61/EU

³³⁸ Article 21(6)(b) of the Directive 2011/61/EU. To assess the effectiveness of the prudential regulation and supervision applicable to depositary in a third country to see if it has the same effect as Union law, the following criteria should be taken into account:

1. Whether the depositary is subject to authorization and ongoing supervision by public competent authorities with adequate resources enabling them to fulfill their tasks.
2. The law of the third country should establish criteria for authorizations of depositaries, the capital requirements applicable to the depositary [This depends on the fact that whether the depositary has the same nature of a Union investment firm or a credit institution], the operating conditions applicable to depositary in the third country, the requirements regarding the performance of the specific duties as AIF

Regulation (EU) No 231/2013 imposes certain requirements and mandatory rules on the contract between the AIFM or the AIF and the depositary by which a depositary is appointed. It requires the contract appointing the depositary (which should be a written contract)³³⁹ and any subsequent amendment thereto³⁴⁰ to include, among other things, the following items:

1. a description of services to be provided by the depositary and the procedures to be adopted for each type of asset in which the AIF may invest and which shall be entrusted to the depositary;³⁴¹
2. a description of the method of safe-keeping, custody duties, and oversight functions to be performed by the depositary;³⁴²
3. a statement that any delegation of the depositary's custody functions will not affect the depositary's liability unless the liabilities are discharged;³⁴³
4. the applicable confidentiality obligations; (however, such confidentiality obligations should not impair the competent authority's access to the relevant information.)³⁴⁴
5. the procedures by which the depositary will transmit to the AIFM or the AIF all relevant information needed to perform its duties to allow the AIFM and the AIF to have a timely and accurate overview of the accounts of the AIF;³⁴⁵
6. the procedures by which the AIFM or the AIF transmits to the depositary all relevant information or ensures the depositary's access to all information necessary to fulfill its duties;³⁴⁶
7. the information on whether the depositary may reuse the assets it has been entrusted with and the conditions attached to any such reuse;³⁴⁷

depositary established in the law of the third country, have the same effect as the laws applicable to access the business of credit institutions or investment firms within the Union.

3. The law of the third country should apply sufficiently dissuasive enforcement actions in the event of a breach of the said criteria by the depositary. *See* Article 84, Regulation (EU) No 231/2013

³³⁹ Article 83(3), Regulation (EU) No 231/2013

³⁴⁰ Article 83(2), Regulation (EU) No 231/2013

³⁴¹ Article 83(1)(a), Regulation (EU) No 231/2013

³⁴² Article 83(1)(b), Regulation (EU) No 231/2013

³⁴³ Article 83(1)(c), Regulation (EU) No 231/2013

³⁴⁴ Article 83(1)(e), Regulation (EU) No 231/2013

³⁴⁵ Article 83(1)(f), Regulation (EU) No 231/2013

³⁴⁶ Article 83(1)(g), Regulation (EU) No 231/2013

³⁴⁷ Article 83(1)(h), Regulation (EU) No 231/2013

8. all necessary information needed to be exchanged between the AIFM or the AIF and the depositary related to the sale, subscription, redemption, issue, cancellation, and repurchase of units or shares of the AIF;³⁴⁸
9. all necessary information needed to be exchanged between the AIFM or the AIF and the depositary related to the performance of the depositary's oversight and control functions;³⁴⁹
10. If the parties to the contract plan to appoint third parties to carry out parts of their duties, a commitment to regularly provide information on the criteria for the selection of the third parties and procedure for monitoring the activities carried out by the selected third parties.³⁵⁰
11. details about the depositary's escalation procedures;³⁵¹
12. a commitment by the depositary to notify the AIFM when it becomes aware that the segregation of assets is not sufficient to protect the AIFM from insolvency of the third party to whom the safe-keeping functions are delegated;³⁵²
13. The procedures enabling the depositary to investigate the conduct of the AIFM or AIF and to assess the quality of information transmitted to the depositary.³⁵³

5.1.3. Delegation of depositary functions

Recital 43 of the AIFMD allows the delegation of the custody tasks to one or more prime brokers or other third parties. The prime brokers should be allowed to provide prime brokerage services to the AIF besides their delegated custody tasks. However, "those prime brokerage services should not form part of the delegation arrangement."³⁵⁴

The third party to whom the depositary/safekeeping functions are delegated should segregate the assets of the depositary's clients from its own assets and from the assets of the depositary in such a way that they can at any time be clearly identified as belonging to clients of a particular

³⁴⁸ Article 83(1)(j), Regulation (EU) No 231/2013

³⁴⁹ Article 83(1)(k), Regulation (EU) No 231/2013

³⁵⁰ Article 83(1)(l), Regulation (EU) No 231/2013

³⁵¹ Article 83(1)(o), Regulation (EU) No 231/2013

³⁵² Article 83(1)(p), Regulation (EU) No 231/2013

³⁵³ Article 83(1)(q), Regulation (EU) No 231/2013

³⁵⁴ Recital 43 of the Directive 2011/61/EU

depository.³⁵⁵ In doing so, the third party should regularly reconcile its internal accounts and records with those of the third parties to whom it has delegated safe-keeping functions.³⁵⁶

If the depository has delegated its custody functions to a third party, the monitoring of the third party's compliance with its segregation obligations should ensure that the financial instruments which belong to its third party clients are protected from any insolvency of that third party.³⁵⁷ Such obligations are equally applicable to the third party who decides to delegate safe keeping functions to another third party.³⁵⁸

The depository is prohibited from carrying out activities with regard to the AIF or the AIFM acting on behalf of the AIF that may result in the conflict of interest between the AIF, the investors in the AIF, the AIFM, and itself, unless the performance of the depository functions are functionally and hierarchically separated from its other conflicting tasks and other potential conflicts of interests are properly identified, managed, monitored and disclosed to the investors of the AIF.³⁵⁹

The depository will be liable to the AIF or to the investors of the AIF, for the loss by the depository or the third party to which the depository functions have been delegated.³⁶⁰ However, the depository shall not be liable if it can prove that such losses has arisen as a result of an external event "beyond its reasonable control, the consequences of which would have been unavoidable despite all reasonable efforts to the contrary."³⁶¹ Needless to say, the depository shall be liable for the losses to the AIF or to its investors if such losses result from the depository's negligent or intentional failure to properly fulfill its obligations.³⁶²

It seems that most of the regulatory requirements of the AIFMD and its supplementing regulations are laid down to serve investor protection concerns. However, there are some rules particularly those addressing the hedge fund-depository relationships which can be seen as being devised to address systemic risk stemming from the interconnectedness of hedge funds and

³⁵⁵ Article 21(11)(d)(iii) of the Directive 2011/61/EU

³⁵⁶ Article 99(1)(c), Regulation (EU) No 231/2013

³⁵⁷ Article 99(2), Regulation (EU) No 231/2013

³⁵⁸ Article 99(3), Regulation (EU) No 231/2013

³⁵⁹ Article 21(10) of the Directive 2011/61/EU

³⁶⁰ Article 21(12) of the Directive 2011/61/EU

³⁶¹ Article 21(12) of the Directive 2011/61/EU

³⁶² Article 21(12) of the Directive 2011/61/EU

prime brokers. Unlike the U.S. Dodd-Frank Act and specifically the Volcker Rule, the AIFMD does not prohibit the investment of banks and prime brokers in hedge funds beyond certain thresholds. On the contrary, it mostly focuses on the issues of conflicts of interest between depositary, AIFM or AIF, and the prime brokers; especially where the prime brokers simultaneously perform depositary functions which can hardly guard against the systemic risk emanating from hedge funds.

Given that hedge fund regulation in Europe is mostly nurtured by the investor protection concerns, regardless of the merits of such concerns, such an approach can provide safeguards against potential vulnerabilities of the investors. Nonetheless, it should again be emphasized that since hedge fund investors are mostly sophisticated investors (accredited, professional or institutional investors), the merits of such an approach in regulating hedge funds are questioned. Indeed, offering regulatory protections for the investors which can protect themselves or the investors equipped with the means of protecting themselves is a misallocation of regulatory resources which could have been used in more appropriate and efficient manner.

5.2. Passport mechanism and regulatory arbitrage

The AIFMD provides that any authorized EU AIFM may market units or shares of an EU AIF to professional investors in any Member State.³⁶³ To gain access to the EU community investors, any AIF managed outside of the EU should comply with the provisions of the Directive.³⁶⁴ In this case, the foreign fund should ensure that there are arrangements for coordinating the flow of information between the regulatory authority of the fund's home country and the competent authorities in the Member State.³⁶⁵

Passport mechanism offered by the AIFMD to hedge funds, pursues two main goals; one is explicitly mentioned in the AIFMD and it is its contribution to the creation of a single EU-wide market, and the second and implicit goal is its effect on regulatory arbitrage by hedge funds.

³⁶³ Article 32(1) of the Directive 2011/61/EU

³⁶⁴ Article 39(1) of the Directive 2011/61/EU

³⁶⁵ Article 39(2) of the Directive 2011/61/EU. *See also* McDonald, *Containing Systemic Risk: New Developments in Trans-Atlantic Hedge Fund Regulation*, pp. 260-262.

Lessons of the past in the EU securities regulation shows that the efforts focusing on the detailed directives could promote little progress in harmonization. On the contrary, such efforts oftentimes lead to counterproductive results. Instead of detailed and exhaustive harmonization of regulatory requirements, the commission has long shifted its focus from harmonization of detailed regulatory requirements to the minimum harmonization of essential mandatory requirements backed by a system of mutual recognition.³⁶⁶ In securities regulation, the minimum harmonization through mutual recognition towards creation of a single market relied mostly on the passport mechanism.³⁶⁷ Therefore, the passport mechanism is an essential element in the furtherance of creation of the single market program of the Commission.

The preamble to the Investment Services Directive (93/22/EEC) states that the goal which is pursued by passport mechanism is to introduce “harmonization necessary and sufficient to secure the mutual recognition of authorization and of prudential supervision systems, making possible the grant of a single authorization valid throughout the Community and the application of the principle of home Member State supervision.” Although such a mechanism is not an innovation and was already in place for mutual funds, the AIFMD introduced such a mechanism for hedge funds and private equity funds in the EU. By introducing the passport mechanism, hedge fund managers authorized in the home Member State can get a regulatory passport which authorizes them to operate all across Europe.³⁶⁸

The second goal that the passport mechanism implicitly pursues is to discourage regulatory arbitrage by hedge funds. Regulatory arbitrage is a constant threat to hedge fund regulation which can potentially abort the attempts to achieve its intended goals. There are several strategies for addressing hedge fund regulatory arbitrage. One of these strategies is providing incentive-compatible mechanisms for hedge funds to discourage them from engaging in such avoidance strategies. An arbitrage-proof, market-based, and incentive-compatible regulatory design is the one which sets the marginal benefits of regulation equal to its marginal costs

³⁶⁶ Jeanne-Mey Sun and Jacques Pelkmans, "Regulatory Competition in the Single Market," *Journal of Common Market Studies* 33, no. 1 (03, 1995), 67-89.

³⁶⁷ Kelemen, *Eurolegalism: The Transformation of Law and Regulation in the European Union*, pp. 105-106.

³⁶⁸ *Ibid.* However, in order to be effective, the passport mechanism should be subject to minimum requirements. The past experience of the EU with regard to the passport mechanism demonstrates that the individual Member States can stifle the purposes of the passport mechanisms by imposing additional detailed regulatory requirements and carving out exceptions above and beyond the EU rules that can render the application of passport ineffective. See Eilís Ferran, *Building an EU Securities Market* (New York: Cambridge University Press, 2004), p. 5.

providing an equilibrium from which hedge funds have no incentive to deviate. One of the market mechanisms that the EU regulators offer to address the potential hedge fund regulatory arbitrage is to offer regulatory benefits for hedge funds to encourage them not to shift their business to offshore jurisdictions by increasing the attractiveness of having an onshore presence in the EU.³⁶⁹

Therefore, in addition to addressing definitional problems and regulating hedge fund managers rather than hedge funds themselves, the most prominent step taken by EU regulators to address regulatory arbitrage concerns is introducing passport mechanism. Such a mechanism not only can discourage regulatory arbitrage within the EU, but also it can discourage relocation of hedge funds to offshore jurisdictions by putting market limits on regulatory arbitrage.³⁷⁰ EU regulators, aware of the fact that the only imposition of responsibilities and duties on hedge funds will result in the hedge fund relocation from Europe to more accommodative jurisdictions, offer benefits for the funds authorized in the EU. The introduction of the European Passport system is one of those advantages trying to make such a balance.

Conclusion

Hedge fund regulation in the EU is more concerned about investor protection as a prerequisite for building a European single market for AIF industry than systemic risk. Therefore, it is not surprising that most of the articles in the AIFMD are directly or indirectly dedicated to the furtherance of the investor protection objectives as a means to achieving single market objectives rather than addressing systemic risk. However, this chapter argued that investor protection concerns of the EU regulators are mostly unfounded, because the investor base of the AIFs consists of professional investors who have the proper means to protect themselves. Therefore,

³⁶⁹ Buckley and Howarth, *Internal Market: Regulating the so-Called 'Vultures of Capitalism'*, pp. 129-130.

³⁷⁰ See Houston, Lin and Ma, *Regulatory Arbitrage and International Bank Flows*, pp. 1847-1848.

Since, the AIFMD is mostly aligned with its American counterpart; it is argued that it is unlikely to be onerous to the existing business practices. See Stephen Brown, Anthony Lynch and Antti Petajisto, "Hedge Funds, Mutual Funds, and ETFs," in *Regulating Wall Street: The Dodd-Frank Act and the New Architecture of Global Finance*, ed. Viral V. Acharya and others, Vol. 608 (Hoboken, New Jersey: John Wiley & Sons, Inc., 2010), 351-366.

Some commentators further suggest that with the introduction of the passport regime, it may be less expensive after the passage of the AIFMD for the U.S. hedge funds to solicit investors from the Member States than it is for the Union countries. See McDonald, *Containing Systemic Risk: New Developments in Trans-Atlantic Hedge Fund Regulation*, pp. 260-262.

the AIFMD's focus on investor protection in hedge fund regulation can be seen as a misallocation of regulatory resources.

Except in exceptional cases such as rules on depositaries, the directive is more inclined to regulate hedge funds directly. The direct regulation of hedge funds is consistent with the aim of building a single market for AIFs and investor protection issues; however, it is inconsistent with the aim of regulating potential systemic risk of hedge funds.

In addition to the criticisms directed at the direct regulation of hedge funds by EU regulators, the AIFMD is criticized in several other aspects. First, with respect to the definitions and scope, the AIFMD's attempt to provide an arbitrage proof-definition is criticized due to providing an over-inclusive definition of AIFs. In addition, it internally fails to differentiate between different types of hedge funds. Moreover, regulating hedge funds by size, despite having its own merits in terms of not overburdening the small and mid-sized hedge funds, is criticized because it fails to acknowledge that one of the most important real concerns about hedge funds originates from their potential herd behavior.

Second, with regard to disclosure requirement, the effectiveness of disclosure to competent authorities and investors is questioned. Such disclosure requirements are likely to undermine the optimal level of confidentiality of investment strategies of hedge funds. Although certain levels of disclosure to competent authorities are necessary for monitoring systemic risk, disclosure to investors would have been better left to the contractual agreements between the funds or their managers and the investors.

Third, imposition of capital, leverage, risk management, liquidity management requirements, and restrictions on investment in securitization position can raise the cost of doing business for hedge funds in the EU. Since the requirements of other major jurisdictions are not as strict as the ones imposed in the EU, the likelihood of regulatory arbitrage increases. Furthermore, the imposition of such requirements on hedge funds can deprive financial markets from the benefits of hedge funds in terms of their contribution to diversification and liquidity in financial markets, and their contribution to market resiliency, market efficiency, and their efficiency enhancing impact on the price discovery mechanism. In addition, hedge funds' contrarian position taking, their potential

role in mitigating the effects of sudden shocks to the financial system, smoothing the market volatility, and reducing the magnitude of asset price bubbles might be compromised.

Nevertheless, the EU regulators provide countervailing benefits to offset the costs of regulation. These mechanisms include passport mechanism and enhanced investor protection. However, it is essentially an empirical question whether the benefits of hedge fund regulation in the EU will outweigh its costs.

Another benefit that the regulators can offer to hedge funds is greater retailization of hedge funds. Given the heightened level of investor protection offered by the AIFMD to investors in hedge funds, the Member States can relax the requirements for retail investors to invest in hedge funds. Providing such lower levels of standards for investing in hedge funds can attract more hedge funds to the European markets. Such a development has already been ongoing in the U.S. With increasing regulation of hedge funds in the U.S. after the Dodd-Frank Act, the Jumpstart Our Business Startups Act (the JOBS Act) was enacted according to which hedge funds can solicit the general public. However, they should make sure that only accredited investors invest in their funds. In addition, there are jurisdictions such as Australia which do not impose restrictions on the retail investments in hedge funds.³⁷¹ It seems that with the level of protection that the AIFMD and its supplementing regulations offer to the investors, the restrictions on raising capital from retail investors could at least be relaxed.

³⁷¹ Danielson and Zigrand, *Regulating Hedge Funds*, p. 31.

CONCLUSION

1. Hedge funds and market failure

This dissertation started with an assessment of the arguments for and against hedge fund regulation. In so doing, it adopted a standard law and economics framework within which the government intervention is only justified if there exists a market failure. The dissertation briefly discussed the concept of market failure and identified its three major sources; namely, incomplete information, imperfect competition, and externalities, including systemic externalities. The brief and general discussion of the market failure was followed by a discussion of potential market failures in the hedge fund industry and its overall activities within and across markets. In all three sources of market failure, problems which could result in market failure within the hedge fund industry and its relationship with the mainstream financial institutions were identified.

In terms of the market failures associated with the information problems, the lack of transparency in the hedge fund industry was highlighted. As a general attribute of financial markets, the socially optimal level of information is not provided in the absence of mandatory disclosure. Multiple factors contribute to such socially suboptimal provision of information in financial markets in general and in the hedge fund industry in particular.

First, it is well understood that in a model of voluntary disclosure by firms in financial markets, externalities arise when the values of the firms are correlated. This leads to circumstances under which the costly disclosure by one firm can be used in valuation of other firms creating a free-rider problem. Needless to say, in the presence of free-riders there will not be adequate incentives to provide information to the markets. Secondly, it is also shown that most financial products and services are considered credence goods. This feature of financial products aggravates the information problem in financial transactions. Finally, financial transactions are intertemporal and there is a need for maintaining trust in the financial system in order to attract, concentrate, and channel dispersed investors' savings into economically productive activities through time. Thus, in the absence of mandatory disclosure, the transparency and trust deficit in financial markets can pave the way for government intervention. Therefore, similar to the financial markets at large, in the hedge fund industry minimum disclosure requirements are

needed for the well functioning of the markets. The disclosure of aggregate information is also essential for the assessment of the potential systemic impact of the hedge fund industry.

The regulatory dilemma, however, is that the imposition of sweeping information disclosure on hedge funds undermines their benefits - such as providing diversification, liquidity, facilitation of price discovery mechanism, and their contrarian position taking - to financial markets. Such benefits not only rest upon hedge funds' ability to generate proprietary information, but also on the legal protections offered to such information in terms of its confidentiality. As it is illustrated in the chapters dealing with the regulation of hedge funds in the U.S. and the EU, proprietary information is treated differently from non-proprietary information.

With respect to competition problems, it is argued that the imperfect competition is often a result of economies of scale and network effects, or certain types of government licensing requirements which create monopolies. The primary concern with the economies of scale and network effects as related to the subject matter of the thesis does not concern hedge funds themselves, but it is mainly related to the prime finance industry. There is a considerable evidence of economies of scale in the banking industry. Moreover, the prime finance industry is very likely to project the features of platforms in which the relationship between hedge funds and their prime brokers creates a two-sided market. This two-sided market reinforces the effects of network economies in the prime finance industry and makes this market vulnerable to be taken over by monopolies. In this relationship, these network economies would essentially create a *de facto* barrier to entry into the prime brokerage business and render the markets in which prime brokers operate monopolistic or oligopolistic.

In addition, the thesis argues that the unlevel playing field for different financial institutions engaging in almost identical financial transactions can encourage regulatory arbitrage. In the current financial regulatory patchwork, heavily regulated financial institutions have to compete with lightly regulated ones. In the absence of the mechanisms to offset the regulatory costs of heavily regulated firms, it is highly likely that such a regulatory setting would encourage regulatory arbitrage by heavily regulated firms.

2. Contribution of hedge funds to financial instability

Short of the discussion about the externalities of hedge funds, one of the most controversial issues in the regulation of hedge funds is their potential contribution to financial instability. The second chapter seeks to understand whether hedge funds contribute to financial instability or not. Since key to the notion of financial instability is the concept of systemic risk, potential systemic risk stemming from the hedge fund industry was studied in light of four main determinants: hedge funds' size, leverage, interconnectedness, and their herding behavior.

With respect to the size of the hedge fund industry, the legal and regulatory restrictions limit the size of the investor base of hedge funds, the amount of investment in hedge funds, and thereby the potential risks they can pose to the financial system due to their size. The thesis argues that despite the rapid growth in the hedge fund industry, compared to other mainstream financial institutions, its mere size is far from being systemically important. In other words, it is highly unlikely that a hedge fund can be viewed as a Systemically Important Financial Company (SIFI) because of its size. Indeed, the data suggest that the assets under management (AUM) of the global hedge fund industry are a tiny fraction of those of the U.S. banks and the global mutual fund industry.

With regard to leverage, although hedge funds can potentially take unlimited leverage, it does not necessarily follow that they are highly levered in fact. To investigate the effective level of leverage in the hedge fund industry, a brief overview of the data and empirical studies on hedge fund leverage was conducted. As the available data suggest, hedge fund leverage compared with that of the banking system is significantly lower than what anecdotal evidence suggests. Therefore, it is very unlikely for hedge funds to become systemically important because of their level of leverage. The lower levels of leverage employed by hedge funds could partly be explained by the market discipline imposed by their investors, counterparties, and creditors, and the internal incentive mechanisms embedded in the hedge fund industry.

With respect to the interconnectedness of the hedge fund industry with the LCFIs, three main relationships of hedge funds with the LCFIs offering prime brokerage services are highlighted. The LCFIs can be hedge funds' prime brokers, their trading counterparties, and the owners or managers of hedge funds. These three main roles are not mutually exclusive, and any single

LCFI can simultaneously undertake all three tasks. In addition to providing prime brokerage services to hedge funds, LCFIs are also trading counterparties to hedge funds in the trade across full range of financial instruments. They participate in the primary and secondary markets for securities underwritten by LCFIs which means that hedge funds and LCFIs are often exposed to similar risks arising from similar underlying financial instruments. Last but not least, LCFIs can also be the owners or managers of hedge funds.

The data on the direct exposure of the banking industry to hedge funds, however, suggest that this exposure was low before the global financial crisis. This exposure remained modest compared to the exposure of banking sector to the listed financial intermediaries after the financial crisis. However, even with low levels of exposure, legitimate concerns remain. For example, although it is expected that the hedge fund investors shoulder the losses in hedge funds, sometimes due to reputational risks and perverse incentives, prime brokers tend to bail out the sponsored hedge funds with their own (but government-subsidized) funds. The thesis concludes that despite the limited direct exposure of LCFIs to the hedge fund industry, these exposures can give rise to cross-subsidization of hedge funds by depository institutions (banks). Since such cross-subsidizations can potentially put the taxpayers' money at risk, they warrant government scrutiny.

In addition, the interconnectedness of hedge funds with prime brokers can amplify the risk of hedge fund herding behavior in case a large prime broker is in distress. The failure of a prime broker can have severe consequences for hedge funds, particularly those hedge funds having substantial (rehypothecated) collateral in the failing prime broker. Such a collapse can force hedge funds to liquidate their positions. If substantial hedge funds' positions experience forced liquidations, it might result in market price dislocations. To better address this risk which might have systemic implications, it is suggested that regulators should focus on the counterparty risk management practices of the financial institutions offering prime brokerage services to hedge funds, with a particular focus on the adequacy of collateral and the suitability of margin requirements.

Regarding hedge funds' herding behavior, although theoretical studies suggest that the possibility of herding behavior in the hedge fund industry is remote, the empirical evidence on herding among hedge fund managers suggests otherwise. Therefore, in the presence of herding

among hedge funds, in addition to the individual hedge funds' potential contribution to the financial instability, the leverage and the liquidity impact of the entire industry should be taken into account for the purposes of the assessment of systemic risk.

In a nutshell, the dissertation argues that despite their benefits, hedge funds can potentially pose risks to financial systems and contribute to financial instability. Although their role in financial instability is highly contested, hedge funds' size and leverage, their interconnectedness with LCFIs and the likelihood of hedge funds' herding are among the features that can undermine financial stability. The data on hedge funds' size and leverage shows that these features are far from being systemically important. Nevertheless, empirical evidence on hedge funds' interconnectedness and herding is mixed and these two factors remain to be a major concern for regulators.

3. Hedge fund regulation: Direct v. indirect regulation

Based on the finding that the interconnectedness and herding in the hedge fund industry are the main sources of systemic risk, in studying the regulatory strategies to address the potential systemic implications of hedge funds for financial markets, the dissertation focuses on one particular aspect of hedge fund regulation: direct vs. indirect regulation. Having made such a distinction, the arguments for and against the direct and indirect regulation of hedge funds were analyzed. Due to the implications of the choice of regulatory strategies and instruments for mitigating systemic risk, the dissertation argues that the indirect regulation of hedge funds through their counterparties and creditors, while being less costly, can better address regulatory arbitrage by hedge funds and their potential contribution to systemic risk. This policy recommendation is further supported by the economic and organizational structure of hedge funds and their particular features in terms of the number and composition of their counterparties and creditors.

The dissertation further argues that the choice between direct and indirect regulation of hedge funds should be based on the relative effectiveness of the direct and indirect regulation in addressing hedge funds' contribution to systemic risk at the lowest cost. The proxies for measuring the effectiveness of indirect regulation in mitigating potential systemic risk of hedge

funds such as reduced leverage, improved transparency, counterparty risk management, and funding liquidity suggest that indirect regulation could have a significant impact. In fact, the effectiveness of indirect regulation is potentially so high that this regulatory approach could be sufficient to cope with the systemic risk generated by hedge funds. On the contrary, direct regulation is unlikely to address hedge funds' contribution to systemic risk without compromising their benefits to financial markets. In addition, the greatest obstacle to the success of direct regulation of hedge funds remains to be the regulatory arbitrage by hedge funds.

In sum, the third chapter of the thesis argues for the indirect regulation of hedge funds. In this model of regulation, in addition to the government regulatory agencies, 'surrogate regulators' such as investors, counterparties and creditors, rating agencies, and hedge fund professional associations can play a role and reinforce the market discipline on hedge funds. In this perspective, the introduction of the Volcker Rule in the Dodd-Frank Act as an indirect measure for regulating hedge funds is considered a positive move towards addressing potential contribution of hedge funds to financial instability.

There are, however, arguments against the indirect regulation of hedge funds. These arguments suggest that even if the indirect regulation of hedge funds were effective, it would be far from sufficient to cope with systemic risk. Most critiques of the indirect regulation are based on its potential shortcomings. However, the thesis argues that the mere presence of problems with indirect regulation does not necessarily imply that direct regulation is the right choice. Indeed, the counterarguments for the effectiveness of the indirect regulation of hedge funds imply that there is a need for direct regulation of hedge funds' counterparties (not hedge funds themselves) in order to enhance the market discipline. Needless to say, such direct regulation of counterparties, particularly including prime brokers, is the essence of the model of indirect regulation being advocated by this thesis.

4. Hedge fund regulation in the U.S.

The first three chapters of the book discussed the potential market failures and particularly the systemic risk stemming from hedge funds, as well as the regulatory strategies to address those problems. The fourth, fifth, and sixth chapters of the book further studied the U.S. and EU

regulatory approaches to the hedge fund industry's systemic implications. The fourth chapter studied the U.S. direct regulatory measure to address potential contribution of hedge funds to financial instability. The fifth chapter discussed the indirect measures to deal with the systemic risk of hedge funds in the U.S. The sixth chapter dealt with the regulation of potential systemic risk of hedge funds in the EU.

To address the potential contribution of hedge funds to financial instability, the Dodd-Frank Act uses a mix of direct and indirect regulatory measures. The fourth chapter studied hedge fund regulation prior to the Dodd-Frank Act, and the direct regulatory measures devised to address the contribution of hedge funds to financial instability. Direct regulation of hedge funds applies in at least two cases. First, the Dodd-Frank Act imposes direct regulatory requirements on hedge fund entities regarding their transparency and information disclosure policies. Secondly, the direct regulation can be triggered if hedge funds are designated as SINBFCs by the FSOC. The indirect regulation of hedge funds, on the other hand, is mainly accomplished by the introduction of the Volcker Rule. The study of the indirect regulation of hedge funds in the U.S. including the Volcker Rule as the most significant indirect measure to mitigate potential contribution of hedge funds to systemic risk is deferred to chapter five.

In both direct and indirect measures, the Dodd-Frank Act has a laddered regulatory approach. The benchmark for regulating hedge funds either directly or indirectly is mainly their size. For example, under the disclosure requirements, certain hedge funds are exempt from registration and disclosure based on their mere size. By the same token, hedge funds are required to register and disclose information differently from one another depending on their size. Again, in the Volcker Rule as well, the introduction of certain exceptions such as the *de minimis* exception is a type of laddered regulatory strategy in order not to stifle the small start-up hedge funds.

The main criterion for designation of hedge funds as SINBFCs is again their size. Except under certain exceptional circumstances, hedge funds with less than \$50 billion in consolidated assets would not be designated as SINBFCs. This criterion is so insurmountable for individual hedge funds that the number of advisers exceeding the \$50 billion threshold and becoming subject to stringent direct regulation by the Federal Reserve will remain extremely limited. That is why seminal empirical studies suggest that the hedge fund industry is not dramatically affected by the

new regulatory measures.¹ Therefore, aside from the registration and disclosure requirements in the Dodd-Frank Act, hedge funds are highly unlikely to fall under the purview of the direct regulation of the regulatory agencies and they will mainly be regulated indirectly.

The Dodd-Frank Act, however, remains highly controversial regarding the ability to accomplish its goals. This is also true about the regulation of hedge funds and whether the Act can adequately deal with the potential contribution of hedge funds to systemic risk. For example, there is a downside to such a laddered regulatory approach in hedge fund regulation which is based on the size of individual hedge funds. Commentators argue that the Dodd-Frank Act is unlikely to address the risks arising from the herd behavior of a large number of hedge funds. In addition, since the Act has opted for the firm-by-firm designation of hedge funds as SINBFCs, it is unlikely that it can address the herd behavior by small and mid-sized hedge funds. Nonetheless, to mitigate such risks, the Dodd-Frank Act grants discretionary powers to regulators such as the SEC and CFTC to address industry-wide liquidity issues. In addition, herding behavior can also be viewed as one of the determinants according to which regulatory agencies can designate hedge funds as SINBFCs. In contrast, the upside of such a regulatory strategy is that it will induce hedge funds to reduce their size to avoid being designated as SINBFC and avoid heavier and more costly regulation. This strategy is a sound regulatory strategy because it discourages firms from getting closer to the apex of the financial system by getting too big or too interconnected to fail.

The next concern is about the regulatory arbitrage. Namely, the regulation of hedge funds in the U.S. might give rise to an exodus of hedge funds to regulatory safe heavens or other jurisdictions with lightly regulated markets. Commentators view the potential regulatory arbitrage as a phenomenon which can render toothless most of the regulatory measures of the Dodd-Frank Act aimed at mitigating systemic risk. However, given the more interventionist approach taken in the second largest hedge fund market worldwide (the EU), regulatory arbitrage will have a very limited impact on the regulation of the systemic implications of hedge funds.

In addition, there are other considerations with respect to hedge fund regulation which should be taken into account. The most important of these considerations is the costs and unintended

¹ Kaal, *Hedge Fund Manager Registration under the Dodd-Frank Act*, 243-318.

consequences of such regulations. Specifically, it should be assessed whether the restrictions on hedge funds' leverage and liquidity may adversely affect their benefits to financial markets.

Regarding disclosure requirements, the timing in reporting matters and it is not clear whether regulators can move as quickly as markets do, or quickly enough to have an impact in limiting the impact of systemic risk. Given the inherent sluggishness of regulation and legal processes, it is highly unlikely that regulators can use disclosed information by hedge funds to mitigate concerns about systemic risk and financial instability.

5. The indirect regulation of hedge funds in the U.S.

The fifth chapter reviewed the indirect regulatory measures for addressing the contribution of hedge funds to systemic risk. The Volcker Rule as an indirect measure for regulating hedge funds through regulating banking entities is the most prominent of these measures. The fifth chapter also discussed some miscellaneous indirect regulatory measures in the Dodd-Frank Act. In this part, special attention was paid to the provisions of the Dodd-Frank Act that address the concerns arising from the interconnectedness and herding behavior of hedge funds. In this regard, the leverage and portfolio liquidity requirements were surveyed. Then, the margins for trades in derivatives and collateral requirements aimed at preventing hedge fund herding were briefly discussed. Finally, the potential self-regulatory measures for addressing hedge funds' liquidity and leverage requirements were examined.

The Volcker Rule pursues three major objectives, i.e., addressing problems arising from hedge fund interconnectedness with LCFIs, preventing cross-subsidization of hedge funds by banks, and regulation of conflicts of interest in the relationship between banks, their customers, and hedge funds. Those goals, along with imposing the least costs to the market efficiency and competitiveness of the U.S. financial institutions, provide benchmarks against which the success or failure of the Volcker Rule should be evaluated.

This book concludes that the Volcker Rule was only partially successful in achieving its objectives. There are several reasons for this partial failure. The first reason concerns the political compromises made in the process of legislation which resulted in extensive exceptions. In many aspects these exceptions can render the Volcker Rule ineffective. Underlying reasoning

for such a claim lies in the difficulty in distinguishing permitted activities from prohibited activities. Since distinguishing these two types of activities relies on a ‘subjective, case-by-case evaluation’, it makes the appropriate enforcement of the Volcker Rule too costly and burdensome.

The second concern involves regulatory arbitrage. It is important not to permit the prohibited activities to occur throughout the entire banking entity and not just within its certain units. Moreover, some activities may move to lightly regulated shadow banking sector because of the increased regulatory costs to banks. That is why the Volcker Rule is criticized for being a financial Maginot line with potential unintended consequences. It is argued that as a result of the Volcker Rule most of the proprietary trading activities have moved to the hedge fund industry which is subject to lighter regulation, while the banking industry itself continues to be exposed to the risks of proprietary trading through its interconnections with hedge funds.² Absent certain levels of international coordination, regulatory arbitrage would bring the Volcker Rule to its knees.

However, the criticisms of the Volcker Rule based on the claim that the Volcker Rule can reduce the liquidity and diversification of financial markets and institutions, thereby increasing systemic risk are shown to be unfounded. Furthermore, theoretical and empirical evidence suggests that the alleged economies of scale and scope in mixing banking activities with proprietary and hedge fund-related activities overlook the banking entities’ access to implicit and explicit government guarantees. Therefore, the claim that the Volcker Rule would impede the realization of economies of scale and scope in the banking industry is not founded on sound theoretical and empirical evidence.

Regarding cross-subsidization concerns, it seems that the Volcker Rule and its exceptions struck a reasonable balance between preventing such opportunistic behavior while not stifling the investment of banks in start-up hedge and private equity funds. With regard to the management of conflict of interest, the thesis concludes that the extensive exceptions in the Volcker Rule though marginally mitigate the conflicts of interest, fall short of providing a conflict-of-interest-proof environment for all stakeholders notably the banking entity, its customers, and hedge funds.

² Whitehead, *The Volcker Rule and Evolving Financial Markets*, 39-73.

In addition, other regulatory measures that can help mitigate hedge funds' potential contribution to systemic risk were discussed in chapter five. These include regulations addressing problems of hedge funds' interconnectedness with LCFIs, such as adequacy of margin rates in derivative transactions, collateral requirements, hedge funds' potential runs on prime brokers, and regulations addressing the concerns originating from the liquidity and leverage of hedge funds.

6. The AIFMD and the regulation of hedge funds in the EU

The thesis argues that the European hedge fund regulation is more concerned about investor protection as a prerequisite for building a European single market for the AIF industry than systemic risk. Therefore, it is not surprising that most of the provisions of the AIFMD are directly or indirectly dedicated to the furtherance of the investor protection objectives as a means to achieving single market objectives, rather than addressing systemic risk. The book suggests that the investor protection concerns of the EU regulators are mostly unfounded, because the investor base of the AIFs consists of professional investors having adequate means to protect themselves. Therefore, the AIFMD's focus on investor protection in hedge fund regulation can be seen as a misallocation of regulatory resources.

Save for exceptional cases such as rules on depositaries, the directive is generally inclined to regulate hedge funds directly. The direct regulation of hedge funds is consistent with the aim of building a single market for the AIFs and investor protection issues; however, it is inconsistent with the aim of regulating the potential contribution of hedge funds to systemic risk.

In addition to the criticisms directed at the direct regulation of hedge funds by the EU regulators, the AIFMD is criticized in several other aspects. First, with respect to the definitions and scope, the AIFMD's attempt to provide an arbitrage proof-definition is criticized due to providing an over-inclusive definition of AIFs. It also fails to differentiate internally between different types of hedge funds. Moreover, regulating hedge funds by size, despite having its own merits in terms of not overburdening the small and mid-sized hedge funds, is criticized because it fails to acknowledge that one of the most important real concerns originates from potential herd behavior in the hedge fund industry.

Secondly, with regard to disclosure requirements, the effectiveness of disclosure to competent authorities and investors is questioned. Such disclosure requirements are likely to undermine the optimal level of confidentiality of the investment strategies of hedge funds. Although certain level of disclosure to competent authorities might be necessary for monitoring systemic risk, the disclosure to investors would have been better left to the contractual agreements between the funds or their managers and the investors.

Finally, regarding capital, leverage, risk management, liquidity management requirements, and restrictions on investment in securitization positions, imposing these requirements can raise the cost of doing business for hedge funds in the EU. Since the requirements of other major jurisdictions are not as demanding as those of the EU, the increased regulatory costs are likely to give rise to regulatory arbitrage. Furthermore, imposition of such requirements on hedge funds can reduce their benefits to financial markets in terms of providing diversification and liquidity, and their contribution to market resiliency, market efficiency, and their role in making the price discovery mechanism more efficient. In addition, hedge funds' contrarian position taking, their potential role in mitigating the effects of sudden shocks to the financial system, smoothing the market volatilities, and reducing the magnitude of asset price bubbles might be compromised.

To offset the costs of regulation, the EU regulators provide countervailing benefits. These benefits include passport mechanism and enhanced investor protection. However, it is essentially an empirical issue to ascertain by what margin the benefits of the EU hedge fund regulation to hedge funds would outweigh its costs. Another countervailing benefit that the EU regulators can offer to hedge funds is to allow greater availability of hedge funds to retail investors in the EU. Given the heightened level of investor protection offered in the AIFMD to hedge fund investors, the Member States can relax the requirements for retail investors to invest in hedge funds. Providing such lower levels of standards for investing in hedge funds can attract hedge funds to the European markets. Such a development has already been ongoing in the U.S. With increasing regulation of hedge funds in the U.S. after the passage of the Private Fund Act, the Jumpstart Our Business Startups Act (the JOBS Act) was enacted according to which hedge funds can solicit the general public. However, hedge funds should make sure that only accredited investors invest in their funds. It seems that with the level of protection that the AIFMD and its supplementing regulations offer to the investors, the restrictions on raising capital from retail investors should at

least be relaxed to counterbalance the regulatory costs imposed on hedge funds by the recent EU regulations.

SUMMARY

This doctoral dissertation seeks to assess and address the potential contribution of the hedge fund industry to financial instability. In so doing, the dissertation investigates three main questions. What are the contributions of hedge funds to financial instability? What is the optimal regulatory strategy to address the potential contribution of hedge funds to financial instability? And do the new regulations in the U.S. and the EU address the contribution of hedge funds to financial instability while conforming to the efficiency criterion?

To answer the above questions, three aspects of hedge funds and their activities that may potentially give rise to market failure (i.e., information problems, competition problems, and systemic risk) are analyzed. The theories offered in explaining those market failures are compared with the existing empirical evidence. Analyzing the three above sources of market failure, potential problems in the operation of hedge funds were identified.

With respect to systemic risk concerns which are the main focus of the thesis, the dissertation argues that despite their benefits, hedge funds can potentially pose risks to financial systems and contribute to financial instability. Although their contribution to financial instability is highly contested, hedge funds' size and leverage, their interconnectedness with Large Complex Financial Institutions (LCFIs) and the likelihood of herding behavior in the industry are among the features that can undermine financial stability. Nonetheless, the data on the size and leverage of hedge funds suggest that these features are far from being systemically important. In contrast, the empirical evidence on the interconnectedness of hedge funds with LCFIs and their herding behavior is mixed and they remain to be a major concern for regulators.

Based on this finding, in studying the regulatory strategies to address the potential systemic implications of hedge funds for financial markets, the dissertation focuses on one particular aspect of hedge fund regulation: direct vs. indirect regulation. In this respect, a major contribution of the dissertation to the literature consists in the explicit discussion of the relationships between hedge funds and other market participants. Specifically, the thesis locates the domain of indirect regulation in the inter-linkages between the hedge fund industry and the prime brokerage industry. The main aim of the dissertation is to move the existing debate on hedge fund regulation a step forward, namely from "whether" to "how" to regulate hedge funds.

Accordingly, the thesis argues that the indirect regulation is likely to address the contribution of hedge funds to systemic risk without compromising their benefits to financial markets.

The dissertation further conducts a comparative study of the regulatory responses to the potential contribution of hedge funds to financial instability through studying the EU Directive on Alternative Investment Fund Managers (AIFMD) and the hedge fund-related provisions of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, particularly its Title IV, Private Fund Investment Advisers Registration Act, the Volcker Rule embedded in the Title VI, as well as the provisions of the Title I regarding the “Enhanced Supervision and Prudential Standards for Nonbank Financial Companies”.

Notwithstanding the fact that the U.S. and the EU regulatory approaches to hedge funds originated from the same course of events, namely the global financial crisis, the ultimate policy outcomes were divergent regulatory reforms on both sides of the Atlantic. Primarily concerned with creating a single market for Alternative Investment Funds, the EU regulators initiated proposals for hedge fund regulation by giving priority to the EU passport mechanism. Considering investor protection as a means to achieving such an end, the AIFMD was introduced under which the systemic risk concerns were only marginally addressed. In addition, giving priority to investor protection in Europe engendered a more stringent and ‘direct’ regulatory framework for hedge funds. However, the main concern in the U.S. still was to address the systemic risk of hedge funds. Such different regulatory objectives resulted in an ‘indirect’ and relatively light-touch regulation in the U.S. Therefore, in addition to imposing registration and reporting requirement on hedge funds, the Dodd-Frank Act focused on the interconnectedness of hedge funds with LCFIs which is mainly depicted in the provisions of the Volcker Rule.

Although the Dodd-Frank Act remains highly controversial regarding the ability to accomplish its own goals, based on the analytical framework of the dissertation and the study of the hedge fund industry, this thesis suggests that compared to its European counterpart, the regulation of hedge funds in the U.S. can better address the potential contribution of hedge funds to financial instability while not foregoing their perceived benefits to financial markets.

BIBLIOGRAPHY

- Abbe, Emmanuel A., Amir E. Khandani, and Andrew W. Lo. "Privacy-Preserving Methods for Sharing Financial Risk Exposures." *American Economic Review* 102, no. 3 (2012): 65-70.
- Abreu, Dilip & Brunnermeier, Markus K. "Bubbles and Crashes." *Econometrica* 71, no. 1 (2003): 173-204.
- Acharya, Viral V. "A Theory of Systemic Risk and Design of Prudential Bank Regulation." *Journal of Financial Stability* 5, (2009): 224-255.
- Acharya, Viral V., Paul Wachtel, and Ingo Walter. "International Alignment of Financial Sector Regulation." In *Restoring Financial Stability: How to Repair a Failed System*, edited by Acharya, Viral V. and Matthew Richardson, 365-376. Hoboken, New Jersey: John Wiley & Sons, Inc., 2009.
- Acharya, Viral V. and Matthew Richardson. "Implications of the Dodd-Frank Act." *Annual Review of Financial Economics* 4, no. 1 (2012): 1-38.
- Ackermann, Carl, Richard McEnally, and David Ravenscraft. "The Performance of Hedge Funds: Risk, Return and Incentives." *The Journal of Finance* 54, no. 3 (1999): 833-874.
- Admati, Anat R. and Paul Pfleiderer. "Forcing Firms to Talk: Financial Disclosure Regulation and Externalities." *Review of Financial Studies* 13, no. 3 (2000): 479-519.
- Admati, Anat R. and Martin Hellwig. *The Bankers' New Clothes: What's Wrong with Banking and what to do about It*. Princeton, New Jersey: Princeton University Press, 2013.
- Agarwal, Vikas and Narayan Y. Naik. "Hedge Funds." *Foundations and Trends in Finance* now Publishing INC, Hanover, MA, (2005).
- Aghion, Philippe, Yann Algan, Pierre Cahuc, and Andrei Shleifer. "Regulation and Distrust." *The Quarterly Journal of Economics* 125, no. 3 (2010): 1015-1049.
- Aiken, Adam, Christopher Clifford, and Jesse Ellis. "Discretionary Liquidity: Hedge Funds, Side Pockets, and Gates." (2012). http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2185999.
- Aikman, J. S. *When Prime Brokers Fail: The Unheeded Risk to Hedge Funds, Banks, and the Financial Industry*. Hoboken, New Jersey: Bloomberg Press, 2010.
- Aitken, James and Manmohan Singh. *Deleveraging After Lehman--Evidence from Reduced Rehypothecation (EPub)*. Vol. 9 International Monetary Fund, 2009.
- Akerlof, George A. "The Market for "Lemons": Quality Uncertainty and the Market Mechanism." *The Quarterly Journal of Economics* 84, no. 3 (1970): 488-500.

- Alexander, Kern, Rahul Dhumale, and John Eatwell. *Global Governance of Financial Systems: The International Regulation of Systemic Risk*. New York: Oxford University Press, 2006.
- Allen, Franklin and Douglas Gale. "From Cash-in-the-Market Pricing to Financial Fragility." *Journal of the European Economic Association* 3, no. 2-3 (2005): 535-546.
- . "Optimal Financial Crises." *Journal of Finance* 53, no. 4 (1998): 1245-1284.
- Allen, William A. and Geoffrey Wood. "Defining and Achieving Financial Stability." *Journal of Financial Stability* 2, no. 2 (2006): 152-172.
- Alternative Investment Expert Group. *Report of the Alternative Investment Expert Group - Managing, Servicing and Marketing Hedge Funds in Europe* July 4, 2006.
http://ec.europa.eu/internal_market/investment/docs/other_docs/reports/hedgefunds_en.pdf.
- Andersen, Henrik. "Procyclical Implications of Basel II: Can the Cyclicity of Capital Requirements be Contained?" *Journal of Financial Stability* 7, no. 3 (8, 2011): 138-154. [10.1016/j.jfs.2010.05.001](https://doi.org/10.1016/j.jfs.2010.05.001).
- Ang, Andrew, Sergiy Gorovyy, and Gregory B. van Inwegen. "Hedge Fund Leverage." *Journal of Financial Economics* 102, no. 1 (2011): 102-126.
- Anson, Mark J. P. "Private Equity." In *The Handbook of Financial Instruments*, edited by Fabozzi, Frank J., 671-696. Hoboken, New Jersey: John Wiley & Sons, Inc., 2002.
- Aristotle. *Politics*. Translated by Reeve, C. D. C. Indianapolis: Hackett Publishing Company, 1998.
- Arnold, Martin. "Hedge Fund Rules Defended by French MEP." *Financial Times*, May 16, 2010.
<http://www.ft.com/intl/cms/s/0/ff2c38ca-6111-11df-9bf0-00144feab49a.html#axzz2Ss3VFrPH>.
- Arya, Anil, Jonathan Glover, Brian Mittendorf, and Ganapathi Narayanamoorthy. "Unintended Consequences of Regulating Disclosures: The Case of Regulation Fair Disclosure." *Journal of Accounting and Public Policy* 24, no. 3 (0, 2005): 243-252. <http://dx.doi.org/10.1016/j.jaccpubpol.2005.03.004>.
- Athanassiou, Phoebus. "The AIFM Directive: An Overview of the Final Rules." *Journal of International Banking Law and Regulation* 26, no. 5 (2011): 237-242.
- . *Hedge Fund Regulation in the European Union: Current Trends and Future Prospects*. Alphen aan den Rijn (The Netherlands): Kluwer Law International, 2009.
- Austin, John. *The Province of Jurisprudence Determined*. New York: Cambridge University Press, 2001.

- Avery, Christopher and Peter Zemsky. "Multidimensional Uncertainty and Herd Behavior in Financial Markets." *The American Economic Review* 88, no. 4 (Sep., 1998): 724-748.
- Aviram, Amitai. "Allocating Regulatory Resources." *Journal of Corporation Law* 37, no. 4 (Summer 2012, 2012): 739-769.
- . "The Placebo Effect of Law: Law's Role in Manipulating Perceptions." *The George Washington Law Review* 75, no. 1 (2006): 54-104.
- Awrey, Dan. "Regulating Financial Innovation: A More Principles-Based Proposal." *The Brooklyn Journal of Corporate, Financial & Commercial Law* 5, (2011): 273-315.
- Ayres, Ian and John Braithwaite. "Partial-Industry Regulation: A Monopsony Standard for Consumer Protection." *California Law Review* 80, no. 1 (1992a): 13-53.
- . *Responsive Regulation: Transcending the Regulation Debate*. New York: Oxford University Press, 1992b.
- Bagehot, Walter. *Lombard Street*. London: H.S. King, 1873.
- Bainbridge, Stephen. "Mandatory Disclosure: A Behavioral Analysis." *University of Cincinnati Law Review* 68, (2000): 1023-1060.
- Bainbridge, Stephen M. "Dodd-Frank: Quack Federal Corporate Governance Round II." *Minnesota Law Review* 95, (2011): 1779-1821.
- Bank of England. *Financial Stability Report* April 2007.
<http://www.bankofengland.co.uk/publications/Documents/fsr/2007/fsrfull0704.pdf>.
- Banque de France. *Financial Stability Review: Special Issue on Hedge Funds*, 2007.
- Barber, Tony, Nikki Tait, and Martin Arnold. "Paris Pushes EU to Impose Tighter Regulation on Hedge Funds." *Financial Times*, May 6, 2009. <http://www.ft.com/intl/cms/s/0/bab2f890-39d6-11de-b82d-00144feabdc0.html#axzz2VVZwbTKb>.
- Barth, James R., Gerard Caprio Jr., and Ross Levine. *Rethinking Bank Regulation: Till Angels Govern*. New York: Cambridge University Press, 2006.
- Bartlett, Bruce. "How Excessive Government Killed Ancient Rome." *Cato Journal* 14, no. 2 (1994): 287-303.
- "Battle of the Big Beasts: Mutual Suspicions and National Interests Underlie European Rows Over Financial Regulation." *The Economist* (July 23, 2009).
<http://www.economist.com/node/14082324>.

- Baumol, William J. and Wallace E. Oates. *The Theory of Environmental Policy*. 2nd ed. New York: Cambridge University Press, 1988.
- Bebchuk, Lucian A., Alon Brav, and Wei Jiang. "The Long-Term Effects of Hedge Fund Activism." *SSRN Working Paper Series* (2013).
http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2291577.
- Becker, Brandon and Colleen Doherty-Minicozzi. *Hedge Funds in Global Financial Markets*. Washington, D.C.: Wilmer, Cutler & Pickering, 2000.
http://www.wilmerhale.com/uploadedFiles/WilmerHale_Shared_Content/Files/Editorial/Publication/Markets.pdf.
- Bekaert, Geert, Campbell R. Harvey, and Angela Ng. "Market Integration and Contagion." *The Journal of Business* 78, no. 1 (2005): 39-69.
- Bengt Holmström and Jean Tirole. "Private and Public Supply of Liquidity." *Journal of Political Economy* 106, no. 1 (February, 1998): 1-40.
- Berger, Allen N., William C. Hunter, and Stephen G. Timme. "The Efficiency of Financial Institutions: A Review and Preview of Research Past, Present and Future." *Journal of Banking & Finance* 17, no. 2-3 (4, 1993): 221-249
[http://dx.doi.org/10.1016/0378-4266\(93\)90030-H](http://dx.doi.org/10.1016/0378-4266(93)90030-H).
- Bernanke, Ben S. "Hedge Funds and Systemic Risk: *Remarks Delivered at the Federal Reserve Bank of Atlanta's 2006 Financial Markets Conference—Hedge Funds: Creators of Risk*." 2006. <http://www.federalreserve.gov/newsevents/speech/Bernanke20060516a.htm>.
- Bernanke, Ben S. *Hedge Funds and Systemic Risk*. in: *Remarks by Chairman Ben S. Bernanke at the Federal Reserve Bank of Atlanta's 2006 Financial Markets Conference*. Sea Island, Georgia: May 16 2006.
<http://www.federalreserve.gov/newsevents/speech/bernanke20060516a.htm>.
- Bernardo E., Antonio and Ivo Welch. "Liquidity and Financial Market Runs." *The Quarterly Journal of Economics* 119, no. 1 (2004): 135-158.
- Bianchi, Robert J. and Michael E. Drew. "Hedge Fund Regulation and Systemic Risk." *Griffith Law Review* 19, no. 1 (2010): 6-29.
- Black, Julia. "Forms and Paradoxes of Principles-Based Regulation." *Capital Markets Law Journal* 3, no. 4 (2008): 425-457.
- . *Rules and Regulators*. Oxford: Clarendon Press, 1997.
- Blinder, Alan S. and Robert F. Wescott. *Reform of Deposit Insurance: A Report to the FDIC* March 20, 2001. <http://www.fdic.gov/deposit/insurance/initiative/reform.html>.

- Boskovic, Tanja, Caroline Cerruti, and Michel Noel. *Comparing European and U.S. Securities Regulations: MiFID versus Corresponding U.S. Regulations*. Vol. World Bank Working Paper No. 184. Washington D.C.: World Bank Publications, 2010.
- Boyson, Nicole M. "Implicit Incentives and Reputational Herding by Hedge Fund Managers." *Journal of Empirical Finance* 17, no. 3 (2010): 283-299.
- Boyson, Nicole M., Christof W. Stahel, and René M. Stulz. "Hedge Fund Contagion and Liquidity Shocks." *Journal of Finance* 65, no. 5 (10, 2010): 1789-1816. doi:10.1111/j.1540-6261.2010.01594.x.
- Bradley K. Sabel. "General Accountability Office Struggles with Dodd-Frank's Volcker Rule." , <http://blogs.law.harvard.edu/corpgov/2011/08/26/general-accountability-office-struggles-with-dodd-franks-volcker-rule/>.
- Braithwaite, John. *Regulatory Capitalism: How it Works, Ideas for Making it Work Better*. Northampton, MA: Edward Elgar Publishing, Inc., 2008.
- Bratton, William W. and Joseph A. McCahery. "The New Economics of Jurisdictional Competition: Devolutionary Federalism in a Second-Best World." *The Georgetown Law Journal* 86, (1997): 201-278.
- Braund, Susanna and Josiah Osgood. *A Companion to Persius and Juvenal* John Wiley & Sons, 2012.
- Brewer, Elijah III and Julapa Jagtiani. "How Much did Banks Pay to Become Too-Big-to-Fail and to Become Systemically Important?" *Journal of Financial Services Research* 43, no. 1 (2013): 1-35.
- Briffault, Richard. "Our Localism: Part I--the Structure of Local Government Law." *Columbia Law Review* 90, no. 1 (1990): 1-115.
- Brown, Stephen J. and William N. Goetzmann. "Hedge Funds with Style." *Journal of Portfolio Management* 29, no. 2 (2003): 101-112.
- Brown, Stephen, Anthony Lynch, and Antti Petajisto. "Hedge Funds, Mutual Funds, and ETFs." Chap. 12, In *Regulating Wall Street: The Dodd-Frank Act and the New Architecture of Global Finance*, edited by Acharya, Viral V., Thomas F. Cooley, Matthew P. Richardson and Ingo Walter. Vol. 608, 351-366. Hoboken, New Jersey: John Wiley & Sons, Inc., 2010.
- Bruner, Robert F. and Sean D. Carr. *The Panic of 1907: Lessons Learned from the Market's Perfect Storm*. Hoboken, New Jersey: John Wiley & Sons, Inc., 2007.
- Brunnermeier, Markus K. "Deciphering the 2007–2008 Liquidity and Credit Crunch." *Journal of Economic Perspectives* 23, no. 1 (2009a): 77-100.

- . "Financial Crises: Mechanisms, Prevention and Management." In *Macroeconomic Stability and Financial Regulation: Key Issues for the G20*, edited by Dewatripont, Mathias, Xavier Freixas and Richard Portes, 91-103. London: Centre for Economic Policy Research (CEPR), 2009b.
- Brunnermeier, Markus K. and Stefan Nagel. "Hedge Funds and the Technology Bubble." *The Journal of Finance* 59, no. 5 (2004): 2013-2040.
- Brunnermeier, Markus, Andrew Crockett, Charles Goodhart, Avinash D. Persaud, and Hyun Shin. *The Fundamental Principles of Financial Regulation: Geneva Report on the World Economy*. London: ICMB International Center for Monetary and Banking Studies, 2009.
- Brunnermeier, Markus K. and Lasse Heje Pedersen. "Market Liquidity and Funding Liquidity." *The Review of Financial Studies* 22, no. 6 (Jun., 2009): 2201-2238.
- Buchanan, James M. "Cooperation and Conflict in Public-Goods Interaction." *Economic Inquiry* 5, no. 2 (1967): 109-121.
- Buckley, James and David Howarth. "Internal Market: Regulating the so-Called 'Vultures of Capitalism'." *Journal of Common Market Studies* 49, (2011): 123-143.
- Buffet, Warren. *Letter to Berkshire Hathaway Shareholders* February 21, 2003.
<http://www.berkshirehathaway.com/letters/2002pdf.pdf>.
- Carnell, Richard S., Jonathan R. Macey, and Geoffrey P. Miller. *The Law of Banking and Financial Institutions*. 4th ed. New York: Aspen Publishers, 2009.
- Chadha, B. and A. Jansen. "The Hedge Fund Industry: Structure, Size and Performance." In *Hedge Funds and Financial, Dynamics*, edited by Eichengreen, B., D. Mathieson, B. Chadha, A. Jansen, L. Kodres and S. Sharma, 27-41. Washington, DC: International Monetary Fund, 1998.
- Chari, V. V. and Ravi Jagannathan. "Banking Panics, Information, and Rational Expectations Equilibrium." *Journal of Finance* 43, no. 3 (1988): 749-761.
- Chatterjee, R. Rex. "Dictionaries Fail: The Volcker Rule's Reliance on Definitions Renders it Ineffective and a New Solution is Needed to Adequately Regulate Proprietary Trading." *Brigham Young University International Law & Management Review* 8, (2011): 33-62.
- Chevalier, J. and G. Ellison. "Career Concerns of Mutual Fund Managers." *Quarterly Journal of Economics* 114, no. 2 (1999): 389-432.
- Choi, Stephen J. and Andrew T. Guzman. "Portable Reciprocity: Rethinking the International Reach of Securities Regulation." *Southern California Law Review* 71, (1997): 903-951.

- Choi, Stephen J. and A. C. Pritchard. *Securities Regulation: Cases and Analysis*. 2nd ed. New York: Thompson/Foundation Press, 2008.
- Choudhary, M. Ali, Vasco J. Gabriel, and Neil Rickman. "Individual Incentives and Workers' Contracts: Evidence from a Field Experiment." (2012).
- Christopher Cox (Chairman of the U.S. Securities & Exchange Commission). *Testimony Concerning the Regulation of Hedge Funds: Before the U.S. Senate Committee on Banking, Housing and Urban Affairs* July 25, 2006.
<http://www.sec.gov/news/testimony/2006/ts072506cc.htm>.
- Cicero. *The Nature of the Gods*. Translated by P.G. Walsh. Oxford: Oxford University Press, 1997.
- Citi Prime Finance. *Hedge Fund Industry Snapshot 2012*.
http://icg.citi.com/icg/global_markets/prime_finance/docs/hf_monthly_apr12_primefin.pdf.
- Coase, Ronald H. "The Problem of Social Cost." *Journal of Law and Economics* 3, (1960): 1-44.
- Cole, Roger T., Greg Feldberg, and David Lynch. "Hedge Funds, Credit Risk Transfer and Financial Stability." In *Financial Stability Review; Special Issue, Hedge Funds*, edited by Banque de France, 7-17, 2007.
- Commodity Futures Trading Commission and Securities and Exchange Commission. "Reporting by Investment Advisers to Private Funds and Certain Commodity Pool Operators and Commodity Trading Advisors on Form PF." (2011).
- Cooter, R. and T. Ulen. *Law and Economics*. 3rd ed. New York: Addison Wesley Longman, Inc., 2000.
- Corrigan, E. Gerald. *Are Banks Special?*, Federal Reserve Bank of Minneapolis, 1982.
http://www.jura.uni-augsburg.de/en/curriculum/summer_program/materials/material_2010/Corrigan_Are_Banks_Special.pdf.
- . "*Are Banks Special?: A Revisitation*."
http://www.minneapolisfed.org/publications_papers/pub_display.cfm?id=3527.
- Cowen, Tyler. "Law as a Public Good: *The Economics of Anarchy*." *Economics and Philosophy* 8, no. 02 (1992): 249-267.10.1017/S0266267100003060.
- Crockett, Andrew. "The Evolution and Regulation of Hedge Funds." In *Financial Stability Review; Special Issue, Hedge Funds*, edited by Banque de France, 19-28, 2007.
- Daintith, T. "The Techniques of Government." In *The Changing Constitution*, edited by Jowell and Oliver, 209-236. Oxford: Clarendon Press, 1994.

- Daniélson, Jón and Jean-Pierre Zigrand. "Regulating Hedge Funds." In *Financial Stability Review; Special Issue, Hedge Funds*, edited by Banque de France, 29-36, 2007.
- Daniélsson, Jón, Ashley Taylor, and Jean-Pierre Zigrand. "Highwaymen or Heroes: Should Hedge Funds be Regulated? A Survey." *Journal of Financial Stability* 1, no. 4 (2005): 522-543.
- Dardanelli, Giorgio Tosetti. "Direct Or Indirect Regulation of Hedge Funds: A European Dilemma." *European Journal of Risk Regulation* (2011): 463-480.
- Daveis, E. Philip. *Debt, Financial Fragility, and Systemic Risk*. Oxford: Clarendon Press, 1995.
- Davis Polk. *Dodd-Frank Rulemaking Progress Report: Progress as of June 1, 2011* 2011. <http://www.davispolk.com/files/uploads/Dodd-Frank%20documents//Dodd-Frank.ProgressReport.jun11.pdf>.
- Davis Polk Regulatory Tracker. *Dodd-Frank Progress Report: October 2013* 2013.
- De Brouwer, Gordon. *Hedge Funds in Emerging Markets*. Cambridge: Cambridge University Press, 2001.
- Dewatripont, Mathias and Jean Tirole. *The Prudential Regulation of Banks*. Cambridge, Massachusetts: MIT Press, 1994.
- Dijkman, Miquel. "A Framework for Assessing Systemic Risk." *The World Bank Open Knowledge Repository* (2010). <https://openknowledge.worldbank.org/handle/10986/3768>.
- Dougherty, Carter. "Hedge Funds Derailed Deutsche Börse LSE Bid." *The New York Times*, March 8, 2005. http://www.nytimes.com/2005/03/07/business/worldbusiness/07iht-boerse.html?pagewanted=all&_r=0.
- Downs, Anthony. "Up and Down with Ecology: The Issue Attention Cycle." *Public Interest* 28, no. 1 (1972): 38-50.
- Draghi, Mario. "Hedge Funds and Financial Stability." In *Financial Stability Review; Special Issue, Hedge Funds*, 37-43, April 2007.
- Dresdner Kleinwort. "Credit Suisse, Deutsche Bank, UBS – how Important are Hedge Funds for the Investment Banking Industry?" (2007).
- Duffie, Darrell. "The Failure Mechanics of Dealer Banks." *The Journal of Economic Perspectives* 24, no. 1 (Winter, 2010): 51-72.
- Dunbar, Nicholas. *Inventing Money: The Story of Long-Term Capital Management and the Legends Behind It*. Chichester: Wiley, 2000.

- Duncan, Angus, Edmond Curtin, and Marco Crosignani. "Alternative Regulation: The Directive on Alternative Investment Fund Managers." *Capital Markets Law Journal* 6, no. 3 (2011): 326-363.
- Durant, Will. *The Story of Civilization: Our Oriental Heritage*. Vol. 1. New York: Simon & Schuster, 2011a.
- . *The Story of Civilization: The Life of Greece*. Vol. 2. New York: Simon & Schuster, 2011b.
- Dworkin, Ronald. *Taking Rights Seriously*. Cambridge, Massachusetts: Harvard University Press, 1978.
- Easterbrook, Frank H. "Federalism and European Business Law." *International Review of Law and Economics* 14, no. 2 (6, 1994): 125-132. [10.1016/0144-8188\(94\)90012-4](https://doi.org/10.1016/0144-8188(94)90012-4).
- Edwards, Franklin R. "Hedge Funds and the Collapse of Long-Term Capital Management." *Journal of Economic Perspectives* 13, no. 2 (1999): 189-210.
- Eechoud, Wouter Van, Wybe Hamersma, Arnd Sieling, and David Young. "Future Regulation of Hedge Funds—A Systemic Risk Perspective." *Financial Markets, Institutions & Instruments* 19, no. 4 (2010): 269-353.
- Ehrlich, Isaac and Richard A. Posner. "An Economic Analysis of Legal Rulemaking." *The Journal of Legal Studies* 3, no. 1 (1974): 257-286.
- Eichengreen, Barry and Donald Mathieson. "Hedge Funds: What do we really Know?." *International Monetary Fund, Economic Issues* 19, (1999).
- Engelen, Klaus C. "Blinking Left, Driving Right." *International Economy* 19, no. 2 (2005): 56-63.
- Engert, Andreas. "Transnational Hedge Fund Regulation." *European Business Organization Law Review* 11, no. 03 (2010): 329-378.
- European Central Bank. *Recent Advances in Modelling Systemic Risk using Network Analysis*. Frankfurt am Main: January 2010. <http://www.ecb.int/pub/pdf/other/modellingsystemicrisk012010en.pdf>.
- European Commission. *Commission Staff Working Document Impact Assessment, Accompanying the Document, Commission Delegated Regulation Supplementing Directive 2011/61/EU of the European Parliament and of the Council with Regards to Exemptions, General Operating Conditions, Depositories, Leverage, Transparency and Supervision*. Brussels 19.12.2012. http://ec.europa.eu/internal_market/investment/docs/20121219-directive/ia_en.pdf.

- . *Green Paper: Shadow Banking* 2012.
http://ec.europa.eu/internal_market/bank/docs/shadow/green-paper_en.pdf.
- European Parliament. *Report of the European Parliament with Recommendations to the Commission on Hedge Funds and Private Equity (the 'Rasmussen' Report), A6-0338/2008*. 2008a. <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//NONSGML+REPORT+A6-2008-0338+0+DOC+PDF+V0//EN>.
- . *Report of the European Parliament with Recommendations to the Commission on Transparency of Institutional Investors ('Lehne' Report), A6-0296-2008*. 2008b.
<http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//NONSGML+REPORT+A6-2008-0296+0+DOC+PDF+V0//EN>.
- European Repo Council. *Shadow Banking and Repo* 2012.
- Fama, Eugene F. "What's Different about Banks?" *Journal of Monetary Economics* 15, no. 1 (1, 1985): 29-39 [http://dx.doi.org/10.1016/0304-3932\(85\)90051-0](http://dx.doi.org/10.1016/0304-3932(85)90051-0).
- Fehr, Ernst and Simon Gächter. "Cooperation and Punishment in Public Goods Experiments." *The American Economic Review* 90, no. 4 (Sep., 2000): 980-994.
- Ferguson, Niall. *Civilization: The West and the Rest*. New York: Penguin Books, 2011.
- Ferguson, Roger and David Laster. "Hedge Funds and Systemic Risk." In *Financial Stability Review; Special Issue, Hedge Funds*, edited by Banque de France, 2007.
- Ferran, Eilís. "After the Crisis: The Regulation of Hedge Funds and Private Equity in the EU." *European Business Organization Law Review* 12, no. 3 (2011): 379-414.
- . *Building an EU Securities Market*. New York: Cambridge University Press, 2004.
- Financial Services Authority. *Assessing the Possible Sources of Systemic Risk from Hedge Funds: A Report on the Findings of the FSA's Hedge Fund Survey and Hedge Fund as Counterparty Survey*. London 2010. http://www.fsa.gov.uk/pubs/other/hedge_funds.pdf.
- Financial Services Authority (FSA). *Principles-Based Regulation: Focusing on the Outcomes that Matter* April 2007.
- . *The Turner Review: A Regulatory Response to the Global Banking Crisis* March 2009.
http://www.fsa.gov.uk/pubs/other/turner_review.pdf.
- Financial Stability Board. *Progress in the Implementation of the G20 Recommendations for Strengthening Financial Stability: Report of the Financial Stability Board to G20 Finance Ministers and Central Bank Governors* 2011.
http://www.financialstabilityboard.org/publications/r_110415a.pdf.

- Financial Stability Board (FSB). *Shadow Banking: Scoping the Issues, A Background Note of the Financial Stability Board* 12 April 2011.
https://www.financialstabilityboard.org/publications/r_110412a.pdf.
- Financial Stability Oversight Council. *Study & Recommendations on Prohibitions on Proprietary Trading & Certain Relationships with Hedge Funds and Private Equity Funds* January 2011.
<http://www.treasury.gov/initiatives/documents/volcker%20sec%20%20619%20study%20final%201%2018%2011%20rg.pdf>.
- Fischel, Daniel R., Andrew M. Rosenfield, and Robert S. Stillman. "The Regulation of Banks and Bank Holding Companies." *Virginia Law Review* 73, no. 2 (Mar., 1987): 301-338.
- Fishman, Michael J. and Kathleen M. Hagerty. "Mandatory versus Voluntary Disclosure in Markets with Informed and Uninformed Customers." *Journal of Law, Economics, & Organization* 19, no. 1 (2003): 45-63.
- Fleischer, Victor. "Regulatory Arbitrage." *Texas Law Review* 89, no. 2 (2010): 227-289.
- Ford, Cristie L. "Principles-Based Securities Regulation in the Wake of the Global Financial Crisis." *McGill Law Journal* 55, no. 2 (2010): 257-307.
- Fox, Justin. "Goldman: We Run Wall Street." *CNNMoney*, 16 may 2005.
http://money.cnn.com/magazines/fortune/fortune_archive/2005/05/16/8260146/.
- Fox, M. B. "Retaining Mandatory Securities Disclosure: Why Issuer Choice is Not Investor Empowerment." *Virginia Law Review* 85, (1999): 1335.
- Frank, Robert H. *Microeconomics and Behavior*. 7th ed. New York: McGraw-Hill, 2008a.
- . "Positional Externalities Cause Large and Preventable Welfare Losses." *The American Economic Review* 95, no. 2 (2005): 137-141.
- Frank, Robert H. "Should Public Policy Respond to Positional Externalities?" *Journal of Public Economics* 92, no. 8–9 (8, 2008b): 1777-1786
<http://dx.doi.org/10.1016/j.jpubeco.2008.03.001>.
- Franzoni, Francesco and Alberto Plazzi. "Hedge Funds' Liquidity Provision and Trading Activity." (2012). http://www.people.lu.unisi.ch/franzonf/paper_27Nov2012_subm.pdf.
- Freeman, Jody. "Private Parties, Public Functions and the New Administrative Law." *Administrative Law Review* 52, no. 3 (2000): 813-858.
- Freixas, Xavier, Curzio Giannini, Glenn Hoggarth, and Farouk Soussa. "Lender of Last Resort: What have we Learned since Bagehot?" *Journal of Financial Services Research* 18, no. 1 (2000): 63-84.

- Freixas, Xavier and Bruno M. Parigi. "The Lender of Last Resort of the 21st Century." In *The First Global Financial Crisis of the 21st Century: Part I June-December 2008*, edited by Felton, Andrew and Carmen M. Reinhart, 163-167: VoxEU.org Publication, 2009.
- Freixas, Xavier, Bruno M. Parigi, and Jean-Charles Rochet. "Systemic Risk, Interbank Relations, and Liquidity Provision by the Central Bank." *Journal of Money, Credit and Banking* 32, no. 3 (2000): 611-638.
- Freixas, Xavier, Gyöngyi Lóránth, and Alan D. Morrison. "Regulating Financial Conglomerates." *Journal of Financial Intermediation* 16, no. 4 (10, 2007): 479-514 <http://dx.doi.org/10.1016/j.jfi.2007.03.004>.
- Friedman, David D. *Law's Order: What Economics has to do with Law and Why it Matters*. Princeton, New Jersey: Princeton University Press, 2000a.
- Friedman, Milton. "The Methodology of Positive Economics (1953)." In *The Methodology of Positive Economics: Reflections on the Milton Friedman Legacy*, edited by Mäki, Uskali, 3-43. New York: Cambridge University Press, 2009.
- Friedman, Milton and Anna Jacobson Schwartz. *A Monetary History of the United States, 1867-1960*. Princeton: Princeton University Press, 1993.
- Friedman, Thomas L. *The Lexus and the Olive Tree: Understanding Globalization*. New York: Random House INC., 2000b.
- Friedman, Thomas L. and Michael Mandelbaum. *That Used to be Us: How America Fell Behind in the World it Invented and how we can Come Back*. First ed. New York: Farrar, Straus and Giroux, 2011.
- Fung, William and David A. Hsieh. "Hedge Fund Replication Strategies: Implications for Investors and Regulators." In *Financial Stability Review; Special Issue, Hedge Funds*, edited by Banque de France, 2007.
- . "Measuring the Market Impact of Hedge Funds." *Journal of Empirical Finance* 7, no. 1 (2000): 1-36.
- Garten, Helen A. *US Financial Regulation and the Level Playing Field*. New York: Palgrave, 2001.
- Gary, Alison K. "Creating a Future Economic Crisis: Political Failure and the Loopholes of the Volcker Rule." *Oregon Law Review* 90, (2012): 1339-1387.
- Geanakoplos, John. "Solving the Present Crisis and Managing the Leverage Cycle." *Economic Policy Review - Federal Reserve Bank of New York* 16, no. 1 (2010): 101-131.

- Geithner, Timothy. *Hedge Funds and Derivatives and their Implications for the Financial System*. Remarks at the Distinguished Lecture 2006, Sponsored by the Hong Kong Monetary Authority and Hong Kong Association of Banks. Address at the Hong Kong Monetary Authority: Federal Reserve Bank of New York, September 15, 2006. <http://www.ny.frb.org/newsevents/speeches/2006/gei060914.html>.
- Gennaioli, Nicola, Andrei Shleifer, and Robert W. Vishny. "A Model of Shadow Banking." *NBER Working Paper no. 1711* (2011).
- Georgakopoulos, Nicholas L. *Principles and Methods of Law and Economics: Basic Tools for Normative Reasoning*. New York: Cambridge University Press, 2005.
- Geradin, Damien and Joseph A. McCahery. "Regulatory Co-Opetition: Transcending the Regulatory Competition Debate." In *The Politics of Regulation: Institutions and Regulatory Reforms for the Age of Governance*, edited by Jordana, Jacint and David Levi-Faur, 90-123. Northampton, Massachusetts: Edward Elgar Publishing, Inc., 2004.
- Gibson, Willa E. "Are Swap Agreements Securities Or Futures?: The Inadequacies of Applying the Traditional Regulatory Approach to OTC Derivatives Transactions." *Journal of Corporation Law* 24, no. 2 (Winter 1999, 1999): 379-416.
- Goldman Sachs & Co. and Financial Risk Management Ltd. "The Hedge Fund Industry and Absolute Return Funds." *The Journal of Alternative Investments* 1, (1999): 11-27.
- Gompers, Paul and Josh Lerner. "The Venture Capital Revolution." *Journal of Economic Perspectives* 15, no. 2 (2001): 145-168.
- Goodenough, Alexander. "Dodd-Frank: Regulating Systemic Risk in the Offshore Shadow Banking Industry." *George Mason Journal of International Commercial Law* (2011): 137-178.
- Goodhart, Charles. "The Boundary Problem in Financial Regulation." *National Institute Economic Review* 206, no. 1 (2008): 48-55.
- Gorton, Gary B. *Misunderstanding Financial Crises: Why We Don't See Them Coming*. New York: Oxford University Press, 2012.
- Gorton, Gary B. *Slapped by the Invisible Hand: The Panic of 2007*. New York: Oxford University Press, 2010.
- Gorton, Gary B. and Andrew Metrick. "Regulating the Shadow Banking System." *Brookings Papers on Economic Activity* no. 2 (2010): 261-312.
- Gorton, Gary and Andrew Metrick. "Securitized Banking and the Run on Repo." *Journal of Financial Economics* 104, no. 3 (2012): 425-451.

- Grafton, K. Susan. "Private Fund Investment Advisers Registration" *Insights* 24, no. 9 (2010).
- Group of Ten. *Report on Consolidation in the Financial Sector*. Basel, Switzerland: Bank for International Settlements, 2001. <http://www.bis.org/publ/gten05.pdf>.
- Gupta, Anurag and Bing Liang. "Do Hedge Funds Have enough Capital? A Value-at-Risk Approach." *Journal of Financial Economics* 77, no. 1 (2005): 219-253.
- Gwartney, J., R. Stroup, R. Sobe, and D. Macpherson. *Microeconomics: Private and Public Choice*. 11th ed. Thompson/South western, 2006.
- Hart, H. L. A. *The Concept of Law*. 2nd ed. New York: Oxford University Press, 1994.
- Heffernan, Shelagh. *Modern Banking*. Chichester, West Sussex: John Wiley & Sons, Ltd, 2005.
- Helleiner, Eric and Stefano Pagliari. *The End of Self-Regulation? Hedge Funds and Derivatives in Global Financial Governance* 2009. http://www.stefanopagliari.net/helleiner_and_pagliari_--2.pdf.
- Hellwig, Martin F. "Systemic Risk in the Financial Sector: An Analysis of the Subprime-Mortgage Financial Crisis." *De Economist* 157, no. 2 (2009): 129-207.
- Hennessee Group. *Comments of Hennessee Group LLC—for the U.S. Securities and Exchange Commission Roundtable on Hedge Funds* 2003.
- Herring, Richard J. and Robert E. Litan. *Financial Regulation in the Global Economy*. Washington, D.C.: Brookings Institution, 1995.
- Herring, Richard J. and Anthony M. Santomero. "What is Optimal Financial Regulation?" In *The New Financial Architecture: Banking Regulation in the Twenty-First Century.*, edited by Gup, Benton E., 51-84. Westport, Connecticut: Quorum Books, 2000.
- Higgs, Robert. *Crisis and Leviathan: Critical Episodes in the Growth of American Government*. New York: Oxford University Press, 1987.
- Hildebrand, Philipp M. "Hedge Funds and Prime Broker Dealers: Steps towards a "Best Practice Proposal"." In *Financial Stability Review; Special Issue, Hedge Funds*, edited by Banque de France, 2007.
- Hirschman, Albert O. *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations, and States*. Cambridge, Massachusetts: Harvard University Press, 1970.
- Hirsh, Michael. "Bonfire of the Loopholes." *Newsweek* (May 20, 2010). <http://mag.newsweek.com/2010/05/21/bonfire-of-the-loopholes.html>.

- HM Treasury & FSA. *European Commission Consultation on Hedge Funds: Response* January 2009. http://www.hm-treasury.gov.uk/d/hedge_finds_response_100209.pdf.
- Holcombe, Randall G. and Russell S. Sobel. "Public Policy toward Pecuniary Externalities." *Public Finance Review* 29, no. 4 (2001): 304-325.
- Horton, Brent J. "When does a Non-Bank Financial Company Pose a "Systemic Risk"? A Proposal for Clarifying Dodd-Frank." *Journal of Corporation Law* 37, no. 4 (Summer 2012, 2012): 815-848.
- Horwitz, Richard. *Hedge Fund Risk Fundamentals: Solving the Risk Management and Transparency Challenge*. 1st ed. Princeton, NJ: Bloomberg Press, 2004.
- House of Representatives of Australia. *Hedge Funds, Financial Stability and Market Integrity* 1999.
- Houston, Joel F., Chen Lin, and Yue Ma. "Regulatory Arbitrage and International Bank Flows." *The Journal of Finance* 67, no. 5 (2012): 1845-1895.
- Hughes, Joseph P. and Loretta J. Mester. "Who Said Large Banks Don't Experience Scale Economies? Evidence from a Risk-Return-Driven Cost Function." *Journal of Financial Intermediation* (4 July, 2013) <http://dx.doi.org/10.1016/j.jfi.2013.06.004>.
- Hunt, John. "Hedge Fund Regulation: The President's Working Group Committees' Best Practices Reports: Raising the Bar but Missing Risks." *Available at SSRN 1279870* (2008). http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1279870.
- Iannotta, Giuliano. *Investment Banking: A Guide to Underwriting and Advisory Services*. Heidelberg: Springer, 2010.
- Ikeda, Sanford. *Dynamics of the Mixed Economy: Toward a Theory of Interventionism*. New York: Routledge, 2003.
- International Organization of Securities Commissions (IOSCO). *The Regulatory Environment for Hedge Funds, A Survey and Comparison, Final Report* November, 2006.
- ISFL. *Hedge Funds 2008*. London: International Financial Services, July 2008.
- Jensen, Michael C. "Takeovers: Their Causes and Consequences." *Journal of Economic Perspectives* 2, no. 1 (1988): 21-48.
- Johnson, Christian A. "Derivatives and Rehypothecation Failure: It's 3:00 pm, do You Know Where Your Collateral is?" *Arizona Law Review* 30, (1997): 949-1001.
- Johnson, Lyman. "Why Register Hedge Fund Advisers- A Comment." *Washington and Lee Law Review* 70, (2013): 713-724.

- Jones, S. "US Bank Leverage almost Double Hedge Funds." *FT.Com*, 2001.
- Jonna, Paul M. "In Search of Market Discipline: The Case for Indirect Hedge Fund Regulation." *San Diego Law Review* 45, (2008): 989-1036.
- Kaal, Wulf A. "Hedge Fund Manager Registration under the Dodd-Frank Act." *San Diego Law Review* 50, (May-June 2013): 243-318.
- Kaal, Wulf A. "Hedge Fund Regulation via Basel III." *Vanderbilt Journal of Transnational Law* 44, (2011): 389-463.
- Kaal, Wulf Alexander. *Hedge Fund Regulation by Banking Supervision: A Comparative Institutional Analysis* Peter Lang Pub Inc., 2005.
- Kambhu, John, Til Schuermann, and Kevin J. Stiroh. "Hedge Funds, Financial Intermediation, and Systemic Risk." *FRBNY Economic Policy Review* (2007).
- Kashdan, Andrew and Daniel B. Klein. "Assume the Positional: Comment on Robert Frank." *Econ Journal Watch* 3, no. 3 (2006): 412-434.
- Katz, M. & Shapiro, C. "Network Externalities, Competition, and Compatibility." *The American Economic Review* 75, no. 3 (1985): 424-440.
- Kelemen, R. Daniel. *Eurolegalism: The Transformation of Law and Regulation in the European Union*. Cambridge, Massachusetts: Harvard University Press, 2011.
- Kelly, Bryan T., Hanno Lustig, and Stijn Van Nieuwerburgh. "Too-Systemic-to-Fail: What Option Markets Imply about Sector-Wide Government Guarantees." *NBER Working Paper Series*, no. 17149 (2011). <http://www.nber.org/papers/w17149>.
- Kindleberger, Charles P. and Robert Z. Aliber. *Manias, Panics, and Crashes: A History of Financial Crises*. 5th ed. Hoboken, New Jersey: John Wiley & Sons, Inc., 2005.
- King, Michael R. and Philip Maier. "Hedge Funds and Financial Stability: Regulating Prime Brokers Will Mitigate Systemic Risks." *Journal of Financial Stability* 5, no. 3 (2009): 283-297.
- King, Michael R. and Philipp Maier. "Hedge Funds and Financial Stability: The State of the Debate." *Bank of Canada Discussion Paper 2007-9* (2007).
- Knoll, Michael S. "The Ancient Roots of Modern Financial Innovation: The Early History of Regulatory Arbitrage." *Oregon Law Review* 87, no. 1 (2008): 93-116.
- Koehler, James F. "Impact of the Dodd-Frank and Registration Acts of 2010 on Investment Advisers." *Duquesne Business Law Journal* 13, (2011): 29-42.

- Kolb, Robert W. "What is Financial Contagion?" In *Financial Contagion: A Viral Threat to the Wealth of Nations*, edited by Kolb, Robert W., 3-10. Hoboken, New Jersey: John Wiley & Sons, Inc., 2011.
- Kouwenberg, Roy and William T. Ziemba. "Incentives and Risk Taking in Hedge Funds." *Journal of Banking & Finance* 31, no. 11 (2007): 3291-3310.
- Kroszner, Randall S. and Raghuram G. Rajan. "Is the Glass–Steagall Act Justified? A Study of the U.S. Experience with Universal Banking before 1933." *American Economic Review* 84, no. 4 (1994): 810-832.
- Krug, Anita K. "Institutionalization, Investment Adviser Regulation, and the Hedge Fund Problem." *Hastings Law Journal* 63, (2011): 1-51.
- Krugman, Paul. *The Return of Depression Economics and the Crisis of 2008*. New York: W.W. Norton & Company, Inc., 2009.
- Kuran, Timur. *The Long Divergence: How Islamic Law Held Back the Middle East*. Oxfordshire: Princeton University Press, 2011.
- Kuran, Timur. "Why the Middle East is Economically Underdeveloped: Historical Mechanisms of Institutional Stagnation." *The Journal of Economic Perspectives* 18, no. 3 (Summer, 2004): 71-90.
- Kyle, Albert S. and Wei Xiong. "Contagion as a Wealth Effect." *Journal of Finance* 56, no. 4 (2001): 1401-1440.
- La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer. "The Economic Consequences of Legal Origins." *Journal of Economic Literature* 46, no. 2 (2008): 285-332.
- Leuz, C. and P. Wysocki. "Economic Consequences of Financial Reporting and Disclosure Regulation: A Review and Suggestions for Future Research." (2008). <http://mit.edu/wysockip/www/papers/LW2008.pdf>.
- Levine, Ross. "Financial Development and Economic Growth: Views and Agenda." *Journal of Economic Literature* 35, no. 2 (1997): 688-726.
- Lhabitant, François-Serge. *Handbook of Hedge Funds*. West Sussex, England: John Wiley & Sons, Ltd., 2006.
- Lins, Gerald T., Thomas P. Lemke, Kathryn L. Hoenig, and Patricia S. Rube. *Hedge Funds and Other Private Funds: Regulation and Compliance* Thomson Reuters, 2012-2013 ed.
- Lloyd, Dixon, Noreen Clancy, and Krishna B. Kumar. *Hedge Funds and Systemic Risk*. Santa Monica, CA: RAND Corporation, 2012.

- Loewenstein, George. "Because it is there: The Challenge of Mountaineering . . . for Utility Theory." In *Exotic Preferences: Behavioral Economics and Human Motivation*, edited by Loewenstein, George, 5-32. New York: Oxford University Press, 2007.
- Lois Peltz. "MAR Puts Hedge Fund Asset Base at \$205 Billion."
- Loomis, Carol J. "The Jones Nobody Keeps Up With." *Fortune Magazine* 4, (1966).
- Lorenzoni, Guido. "Inefficient Credit Booms." *Review of Economic Studies* 75, no. 3 (2008): 809-833.
- Lucas, Robert E. Jr. "Macroeconomic Priorities." *The American Economic Review* 93, no. 1 (2003): 1-14.
- Macey, Jonathan R. "Regulatory Globalization as a Response to Regulatory Competition." *Emory Law Journal* 52, (2003): 1353-1379.
- . "Special Interest Groups Legislation and the Judicial Function: The Dilemma of Glass-Steagall." *Emory Law Journal* 33, no. 1 (1984): 1-40.
- Machiavelli, Niccolò. *The Prince*. Translated by Marriott, W. K. Chapel Hill, North Carolina: The Project Gutenberg, 1515.
[http://www.perpustakaan.depkeu.go.id/FOLDEREBOOK/The%20Project%20Gutenberg%20EBook%20of%20The%20Prince%20\(Nicolo%20Machiavelli\).pdf](http://www.perpustakaan.depkeu.go.id/FOLDEREBOOK/The%20Project%20Gutenberg%20EBook%20of%20The%20Prince%20(Nicolo%20Machiavelli).pdf).
- Malkiel, Burton G. and Atanu Saha. "Hedge Funds: Risk and Return." *Financial Analysts Journal* 61, no. 6 (2005): 80-88.
- Mallaby, Sebastian. "Hands Off Hedge Funds." *Foreign Affairs* 86, no. 1 (2007): 91-101.
- Mankiw, N. Gregory. *Principles of Microeconomics*. 6th ed. Mason, OH: South-Western, Cengage Learning, 2012.
- Marcus, Alan J. "Deregulation and Bank Financial Policy." *Journal of Banking & Finance* 8, no. 4 (12, 1984): 557-565. 10.1016/S0378-4266(84)80046-1.
- Mathis, Klaus. *Efficiency Instead of Justice?: Searching for the Philosophical Foundations of the Economic Analysis of Law*. Law and Philosophy Library. Translated by Shannon, Deborah. Vol. 84 Springer, 2009.
- Mauldin, John and Jonathan Tepper. *Endgame: The End of Debt Supercycle and how it Changes Everything*. Hoboken, New Jersey: John Wiley & Sons, Inc., 2011.
- McBarnet, D. and C. Whelan. "The Elusive Spirit of the Law: Formalism and the Struggle for Legal Control." *Modern Law Review* 54, no. 6 (1991): 848-873.

- McBarnet, Doreen. "Financial Engineering or Legal Engineering? Legal Work, Legal Integrity and the Banking Crisis," In *The Future of Financial Regulation*, edited by MacNeil, Iain G. and Justin O'Brien, 67-82. Portland, Oregon: Hart Publishing, 2010.
- McDonald, Michael. "Containing Systemic Risk: New Developments in Trans-Atlantic Hedge Fund Regulation." *Loyola of Los Angeles International and Comparative Law Review* 34, (2011): 237-267.
- McGuire, Patrick, Eli Remolona, and Konstantinos Tsatsaronis. "Time Varying Exposures and Leverage in Hedge Funds." *BIS Quarterly Review*, March (2005).
- McGuire, Patrick and Kostas Tsatsaronis. "Estimating Hedge Fund Leverage." *BIS Working Paper* 260, (2008).
- McKie, James W. "Regulation and the Free Market: The Problem of Boundaries." *The Bell Journal of Economics and Management Science* 1, no. 1 (1970): 6-26.
- McVea, Harry. "Hedge Funds and the New Regulatory Agenda." *Legal Studies* 27, no. 4 (2007): 709-739.
- McVea, Harry. "Hedge Fund Regulation, Market Discipline and the Hedge Fund Working Group." *Capital Markets Law Journal* 4, no. 1 (January 01, 2009): 63-84. <http://www.cmlj.com/kmn033>.
- Mehrling, Perry. "Minsky and Modern Finance: The Case of Long Term Capital Management." *The Journal of Portfolio Management* 26, no. 2 (2000): 81-88.
- Merrill Lynch Global Markets Financing & Services. *The Multi-Prime Broker Environment Overcoming the Challenges and Reaping the Benefits*. New York: June 2008. <http://www.ml.com/media/113487.pdf>.
- Miller, Merton. "Financial Innovation: The Last Twenty Years and the Next." *Journal of Financial and Quantitative Analysis* 21, no. 4 (1986): 459-471.
- Milne, Richard. "'Locusts' of Private Equity Help Grohe." *Financial Times*, June 5, 2008. <http://www.ft.com/intl/cms/s/0/7d885ddc-331c-11dd-8a25-0000779fd2ac.html#axzz2VVZwbTKb>.
- Minsky, Hyman P. *Stabilizing an Unstable Economy*. New York: McGraw-Hill, 2008.
- Mishkin, Frederic S. *The Economics of Money Banking and Financial Markets*. 9th ed. Boston: Pearson, Addison-Wesley, 2010.
- Mollers, Thomas MJ, Andreas Harrer, and Thomas C. Kruger. "The AIFM Directive and its Regulation of Hedge Funds and Private Equity." *JL & Com.* 30, (2011): 87-137.

- Morgan, Bronwen and Karen Yeung. *An Introduction to Law and Regulation: Texts and Materials*. New York: Cambridge University Press, 2007.
- Morrison, Alan D. and William Wilhelm Jr. *Investment Banking: Institutions, Politics, and Law*. New York: Oxford University Press, 2007.
- Mustier, Jean-Pierre and Alain Dubois. "Risks and Return of Banking Activities Related to Hedge Funds." *Banque De France, Financial Stability Review; Special Issue, Hedge Funds* (April 2007): 85-94.
- Nakamoto, Michiyo and David Wighton. "Citygroup Chief Stays Bullish on Buy-Outs." *Financial Times*, July 9, 2007.
- Nasiripour, Shahien. "Financial Reform Bill Passes: Banks Keep Derivatives Units, Volcker Rules Softened; House-Senate Conference Passes Financial Reform Bill After Marathon Session." *Huffington Post*, June 25, 2010, sec. Business.
http://www.huffingtonpost.com/2010/06/25/financial-reform-bill-pas_n_625191.html.
- Nelson, Philip. "Information and Consumer Behavior." *Journal of Political Economy* 78, no. 2 (1970): 311-329.
- Nikolaou, Kleopatra. "Liquidity (Risk) Concepts: Definitions and Interactions." *ECB Working Paper Series* 1008, (2009). http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1333568.
- Nouy, Danièle. "Indirect Supervision of Hedge Funds." In *Financial Stability Review; Special Issue, Hedge Funds*, edited by Banque de France, 95-104, 2007.
- Noyer, Christian. "Hedge Funds: What are the Main Issues?" In *Financial Stability Review; Special Issue, Hedge Funds*, edited by Banque de France, 105-111, 2007.
- Oates, Wallace E. "An Essay on Fiscal Federalism." *Journal of Economic Literature* 37, no. 3 (1999): 1120-1149.
- Oesterle, Dale A. "Regulating Hedge Funds." *Entrepreneurial Business Law Journal* 1, (2006): 1.
- Ogus, Anthony. "Comparing Regulatory Systems: Institutions, Processes and Legal Forms in Industrialised Countries." In *Leading Issues in Competition, Regulation and Development*, edited by Cook, Paul, Colin Kirkpatrick, Martin Minogue and David Parker, 146-164. Northampton, Massachusetts: Edward Elgar Publishing, Inc., 2004a.
- . *Regulation: Legal Form and Economic Theory*. Oxford and Portland, Oregon: Hart Publishing, 2004b.
- Ötker-Robe, İnci, Ceyla Pazarbasioglu, Alberto Buffa di Perrero, Silvia Iorgova, Turgut Kışınbay, Vanessa Le Leslé, Fabiana Melo, Jiri Podpiera, Noel Sacasa, and André Santos.

- "Impact of Regulatory Reforms on Large and Complex Financial Institutions." (2010). <http://www.imf.org/external/pubs/ft/spn/2010/spn1016.pdf>.
- Paces, Alessio. "Financial Intermediation in the Securities Markets: Law and Economics of Conduct of Business Regulation." *International Review of Law and Economics* 20, no. 4 (2000): 479-510.
- Paces, Alessio M. and Heremans Dirk. "Regulation of Banking and Financial Markets", In *Forthcoming in 'Regulation and Economics' in Encyclopedia of Law and Economics*, edited by Paces, Alessio, M. & Van den Bergh, R.J. 2nd ed. Cheltenham: Elgar, 2011.
- Papademos, Lucas, D. "Monitoring Hedge Funds: A Financial Stability Perspective." In *Financial Stability Review; Special Issue, Hedge Funds*, edited by Banque de France, 2007.
- Papageorgiou, Nicolas and Florent Salmon. "The Role of Hedge Funds in the Banking Crisis: Victim Or Culprit." In *The Banking Crisis Handbook*, edited by Gregoriou, Greg N., 183-201. Boca Raton, FL: CRC Press, Taylor & Francis Group, 2010.
- Paredes, Troy A. (SEC Commissioner). *Remarks at the 43rd Annual Rocky Mountain Securities Conference* May 6, 2011. <http://www.sec.gov/news/speech/2011/spch050611tap.htm>.
- Partnoy, Frank. "Financial Derivatives and the Costs of Regulatory Arbitrage." *Journal of Corporation Law* 22, no. 2 (1996): 211-256.
- Payne, Jennifer. "Private Equity and its Regulation in Europe." *European Business Organization Law Review* 12, no. 4 (2011): 559-585.
- Perkins, Edwin J. "The Divorce of Commercial and Investment Banking: A History." *Banking Law Journal* 88, no. 6 (1971): 483-528.
- Perloff, Jeffrey M. *Microeconomics: Theory & Applications with Calculus*. Boston, MA: Pearson Education, Inc., 2008.
- Perotti, Enrico C. and Javier Suarez. "Last Bank Standing: What do I Gain if You Fail?" *European Economic Review* 46, no. 9 (2002): 1599-1622.
- Persson, Mats. *The EU's AIFM Directive: Likely Impact and Best Way Forward*. London: Open Europe Report, 2009. <http://www.openeurope.org.uk/Content/documents/pdfs/aifmd.pdf>.
- Philips, Susan M. "The Place of Securitization in the Financial System: Implications for Banking and Monetary Policy." In *A Primer on Securitization*, edited by Kendall, Leon T. and Michael M. Fishman, 129-138. Cambridge, Massachusetts: The MIT press, 2000.
- Pistor, Katharina. "A Legal Theory of Finance." *Journal of Comparative Economics* 41, (2013): 315-330.

- Posner, Richard A. *A Failure of Capitalism: The Crisis of '08 and the Descent into Depression*. Cambridge: Harvard University Press, 2009.
- . *Economic Analysis of Law*. 5th ed. New York: Aspen Law and Business, 1998.
- Pozsar, Zoltan, Tobias Adrian, Adam Ashcraft, and Haley Boesky. *Shadow Banking*. New York 2010. http://www.ny.frb.org/research/staff_reports/sr458.pdf.
- President's Working Group. *Hedge Funds, Leverage, and the Lessons of Long-Term Capital Management* 1999.
- Puri, Manju. "Commercial Banks in Investment Banking Conflict of Interest or Certification Role?" *Journal of Financial Economics* 40, no. 3 (3, 1996): 373-401 [http://dx.doi.org/10.1016/0304-405X\(95\)00855-9](http://dx.doi.org/10.1016/0304-405X(95)00855-9).
- Quaglia, Lucia. "The 'Old' and 'New' Political Economy of Hedge Fund Regulation in the European Union." *West European Politics* 34, no. 4 (2011): 665-682.
- Rajan, Raghuram G. *Fault Lines: How Hidden Fractures Still Threaten the World Economy*. Princeton: Princeton University Press, 2010.
- . "Financial Conditions, Alternative Asset Management and Political Risks: Trying to make Sense of our Times." *Banque De France, Financial Stability Review; Special Issue, Hedge Funds* (April 2007).
- Raz, Joseph. *The Authority of Law: Essays on Law and Morality*. New York: Oxford University Press, 1979.
- Reinhart, Carmen M. and Kenneth S. Rogoff. *This Time is Different: Eight Centuries of Financial Folly*. Princeton: Princeton University Press, 2009.
- Roach Jr., William A. "Hedge Fund Regulation- "What Side of the Hedges are You on?" *The University of Memphis Law Review* 40, (2009-2010): 165-214.
- Romano, Roberta. "Against Financial Regulation Harmonization: A Comment." *Yale Law & Econ Working Paper No. 414*, (2010).
- . "Empowering Investors: A Market Approach to Securities Regulation." *The Yale Law Journal* 107, no. 8 (1998): 2359-2430.
- Romano, Roberta. "The Sarbanes-Oxley Act and the Making of Quack Corporate Governance." *The Yale Law Journal* 114, no. 7 (May, 2005): 1521-1611.
- Roth, Jean-Pierre. "Highly Leveraged Institutions and Financial Stability: A Case for Regulation?" *University of St. Gallen Law School, Law and Economics Research Paper Series Working Paper No. 2008-18*, (2007).

- Rothschild, Jacob. "Europe is Getting it Wrong on Financial Reform." *Financial Times*, April 20, 2010. <http://www.ft.com/cms/s/0/f51bdb9a-4caa-11df-9977-00144feab49a.html#axzz2JvN8jQ2M>.
- Roubini, Nouriel and Stephen Mihm. *Crisis Economics: A Crash Course in the Future of Finance*. New York: The Penguin Press, 2010.
- Ruozzi, Roberto and Pierpaolo Ferrari. *Liquidity Risk Management in Banks: Economic and Regulatory Issues*. New York: Springer, 2013.
- Russell, Scott. "Regulation Fair Disclosure: The Death of the Efficient Capital Market Hypothesis and the Birth of Herd Behavior." *BUL Rev.* 82, (2002): 527.
- Rysman, Marc. "The Economics of Two-Sided Markets." *The Journal of Economic Perspectives* 23, no. 3 (2009): 125-143.
- Salanié, Bernard. *The Microeconomics of Market Failures*. Cambridge, Massachusetts: The MIT Press, 2000.
- Salganik, M. J., P. S. Dodds, and D. J. Watts. "Experimental Study of Inequality and Unpredictability in an Artificial Cultural Market." *Science (New York, N.Y.)* 311, no. 5762 (Feb 10, 2006): 854-856. [10.1126/science.1121066](https://doi.org/10.1126/science.1121066).
- Sants, Hector (Chief Executive, FSA). *Delivering Intensive Supervision and Credible Deterrence*. Speech by Hector Sants, Chief Executive, FSA, The Reuters Newsmakers Event. 12 March 2009. http://www.fsa.gov.uk/library/communication/speeches/2009/0312_hs.shtml.
- Schaefer, Hans-Bernd. "Legal Rule and Standards." In *The Encyclopedia of Public Choice, Volume I*, edited by Rowley, Charles K. and Friedrich Schneider, 347-350. New York: Kluwer Academic Publishers, 2004.
- Schanze, Erich. "Hare and Hedgehog Revisited: The Regulation of Markets that have Escaped Regulated Markets." *Journal of Institutional and Theoretical Economics (JITE)/Zeitschrift Für Die Gesamte Staatswissenschaft* 151, no. 1 (1995): 162-176.
- Scharfstein, David S. and Jeremy C. Stein. "Herd Behavior and Investment." *American Economic Review* 80, no. 3 (1990): 465-489.
- Schinasi, Garry J. "Private Finance and Public Policy." *IMF Working Paper* (2004).
 ———. *Safeguarding Financial Stability: Theory and Practice*. Washington DC: International Monetary Fund, 2006.
- Schmidt, Vivien A. *The Futures of European Capitalism*. New York: Oxford University Press, 2002.

- Schneeweis, Thomas, Vassilios N. Karavas, and Georgi Georgiev. "Alternative Investments in the Institutional Portfolio." *CISDM Working Paper Series* (2002).
<http://www.intercontilimited.com/mfutsarchive/alternativesforinstitutions.pdf>.
- Schooner, Heidi Mandanis. "Private Enforcement of Systemic Risk Regulation." *Creighton Law Review* 43, (2010): 993-1017.
- Schumpeter, Joseph A. *Capitalism, Socialism and Democracy*. London: Routledge, 2003.
- Schwarcz, Steven L. "Distorting Legal Principles." *Journal of Corporation Law* 35, no. 4 (Summer 2010, 2010): 697-727.
- Scott, Colin. "Accountability in the Regulatory State." *Journal of Law and Society* 27, no. 1 (2000): 38-6010.1111/1467-6478.00146.
- Scott, Hal. "Interconnectedness and Contagion." *Available at SSRN* (2012).
http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2178475.
- Seligman, Joel. "The Obsolescence of Wall Street: A Contextual Approach to the Evolving Structure of Federal Securities Regulation." *Michigan Law Review* 93, no. 4 (Feb., 1995): 649-702.
- Shadab, Houman B. "Hedge Fund Governance." *Stanford Journal of Law, Business, & Finance* 19, no. 1 (2013). http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2234482.
- . "The Law and Economics of Hedge Funds: Financial Innovation and Investor Protection." *Berkley Business Law Journal* 6, (2009): 240-297.
- Sharpe, William F. "Asset Allocation: Management Style and Performance Measurement." *Journal of Portfolio Management* 18, no. 2 (Winter92, 1992): 7-19.
- Sheikh Muslih-Uddin Sa'di Shirazi. *The Gulistan of Sa'di*. Translated by Sir Edwin Arnold. New York: Cosimo Classics, reprinted 2007.
- Shelef, Ori. "Incentive Thresholds, Risk-Taking, and Performance. Evidence from Hedge Funds." (2013).
http://faculty.haas.berkeley.edu/orie_shelef/Incentive%20Thresholds%20Risk%20Taking%20and%20Performance.pdf.
- Shiller, Robert J. "Conversation, Information, and Herd Behavior." *The American Economic Review* 85, no. 2 (1995): 181-185.
- Shim, Ilhyock and Goetz von Peter. "Distress Selling and Asset Market Feedback." *Financial Markets, Institutions and Instruments* 16, no. 5 (2007): 243-291.
- Shleifer, Andrei. "Efficient Regulation." *NBER Working Paper* 15651, (2010).

- . "A Theory of Yardstick Competition." *The Rand Journal of Economics* 16, no. 3 (1985): 319-327.
- Shleifer, Andrei and Robert W. Vishny. "Liquidation Values and Debt Capacity: A Market Equilibrium Approach." *Journal of Finance* 47, no. 4 (1992): 1343-1366.
- Skeel, David. "Making Sense of the New Financial Deal." *Liberty University Law Review* 5, (2011): 181-199.
- Smits, Jan M. "Law and Interdisciplinarity: On the Inevitable Normativity of Legal Studies." *Critical Analysis of Law* 1, no. 1 (2014).
- Solomon, Jesse. "Hedge Funds Get Bigger as Returns Get Smaller." *CNNMoney*, January 22, 2014, sec. Investing. <http://money.cnn.com/2014/01/22/investing/hedge-funds/index.html>.
- Stadlmann, M. *Hedge Funds and Absolute Returns*. London, UK: WestAM Management, 2001.
- Regulation of Investment Advisers by the U.S. Securities and Exchange Commission*, (March 2013): . http://www.sec.gov/about/offices/oia/oia_investman/rplaze-042012.pdf.
- Stephen J. Brown, William N. Goetzmann, and Roger G. Ibbotson. "Offshore Hedge Funds: Survival and Performance, 1989–95." *The Journal of Business* 72, no. 1 (January, 1999): 91-117.
- Stevenson, Patrick. "Fund of Hedge Funds: Origins, Role and Future." In *Financial Stability Review; Special Issue, Hedge Funds*, edited by Banque de France, 2007.
- Stigler, George J. "The Economies of Scale." *Journal of Law and Economics* 1, (1958): 54-71.
- Stiglitz, Joseph E. "Government Failure Vs. Market Failure: Principles of Regulation." In *Government and Markets: Toward a New Theory of Regulation*, edited by Balleisen, Edward J. and David A. Moss, 1-28. New York: Cambridge University Press, 2010.
- Stiglitz, Joseph E. and Andrew Weiss. "Credit Rationing in Markets with Imperfect Information." *American Economic Review* 71, no. 3 (1981): 393-410.
- Stiroh, Kevin J. and Adrienne Rumble. "The Dark Side of Diversification: The Case of US Financial Holding Companies." *Journal of Banking & Finance* 30, no. 8 (8, 2006): 2131-2161 <http://dx.doi.org/10.1016/j.jbankfin.2005.04.030>.
- Stout, Lynn A. "Betting the Bank: How Derivatives Trading under Conditions of Uncertainty can Increase Risks and Erode Returns in Financial Markets." *Journal of Corporation Law* 21, no. 1 (Fall95, 1995): 53-68.
- Stowell, David. *An Introduction to Investment Banks, Hedge Funds and Private Equity: The New Paradigm*. Burlington, MA: Elsevier, 2010.

- . *Investment Banks, Hedge Funds, and Private Equity*. 2nd ed. Waltham, MA: Elsevier, 2013.
- Sun, Jeanne-Mey and Jacques Pelkmans. "Regulatory Competition in the Single Market." *Journal of Common Market Studies* 33, no. 1 (03, 1995): 67-89.
- Sunder, Shyam. "Regulatory Competition among Accounting Standards within and Across International Boundaries." *Journal of Accounting and Public Policy* 21, no. 3 (0, 2002): 219-234.10.1016/S0278-4254(02)00050-9.
- Sunstein, Cass R. *After the Rights Revolution: Reconceiving the Regulatory State*. Cambridge (MA): Harvard University Press, 1990.
- Technical Committee of the International Organization of Securities Commissions. *Hedge Funds Oversight: Final Report 2009*. <http://www.fsa.go.jp/inter/ios/20090626/03.pdf>.
- The Department of the Treasury. *Blueprint for a Modernized Financial Regulatory Structure* March 2008. <http://www.treasury.gov/press-center/press-releases/Documents/Blueprint.pdf>.
- The European Fund and Asset Management Association. *Quarterly Statistical Release: Trends in the European Investment Fund Industry in the Fourth Quarter of 2012 and Results for the Full Year 2012*. Brussels, March 2013. http://www.efama.org/Publications/Statistics/Quarterly/Quarterly%20Statistical%20Reports/130304_Quarterly_Statistical_Release%20Q4%202012.pdf.
- The Group of Thirty, Working Group on Financial Supervision. *The Structure of Financial Supervision: Approaches and Challenges in a Global Marketplace*. Washington, DC 2008. <http://www.group30.org/images/PDF/The%20Structure%20of%20Financial%20Supervision.pdf>.
- The Group of Thirty. Working Group on Financial Reform. *Financial Reform: A Framework for Financial Stability*. Washington, D.C.: The Group of Thirty, 2009. http://www.group30.org/images/PDF/Financial_Reform-A_Framework_for_Financial_Stability.pdf.
- Tiebout, Charles M. "A Pure Theory of Local Expenditures." *Journal of Political Economy* 64, no. 5 (1956): 416-424.
- Tirole, Jean. "Lessons from the Crisis." Chap. 2, In *Balancing the Banks: Global Lessons from the Financial Crisis*. Translated by Tribe, Keith, edited by Dewatripont, Mathias, Jean-Charles Rochet and Jean Tirole, 10-77. Princeton, New Jersey: Princeton University Press, 2010.

- U.S. Department of the Treasury. *Agreement among PWG and U.S. Agency Principals on Principles and Guidelines regarding Private Pools of Capital* 2007. http://www.treasury.gov/resource-center/fin-mkts/Documents/hp272_principles.pdf.
- Uchitelle, Louis. "Volcker Pushes for Reform, Regretting Past Silence." *The New York Times*, July 10, 2010, sec. Business. http://www.nytimes.com/2010/07/11/business/11volcker.html?pagewanted=all&_r=2&.
- United States Government Accountability Office (GAO). *Hedge Funds: Regulators and Market Participants are Taking Steps to Strengthen Market Discipline, but Continued Attention is Needed*. Washington, DC2008. <http://www.gao.gov/new.items/d08200.pdf>, 1-49.
- . . *Proprietary Trading: Regulators Will Need More Comprehensive Information to Fully Monitor Compliance with New Restrictions when Implemented*. Washington, DC: United States Government Accountability Office, July 2011, 1-49.
- United States Securities and Exchange Commission. *Cornish and Carey Commercial, Inc., SEC no-Action Letter* June 21, 1996. <http://www.sec.gov/divisions/investment/noaction/1996/cornishcarey022696.pdf>.
- . . *Implications of the Growth of Hedge Funds: Staff Report to the United States Securities and Exchange Commission*. Washington, D.C.: U.S. Securities and Exchange Commission, September 2003. <http://www.sec.gov/news/studies/hedgefunds0903.pdf>.
- . . *PanAgora Group Trust, SEC no-Action Letter* April 29, 1994. <http://www.sec.gov/divisions/investment/noaction/1994/panagora042994.pdf>.
- . . *Registration under the Advisers Act of Certain Hedge Fund Advisers* 2004. <http://www.sec.gov/rules/final/ia-2333.htm>.
- . . *Reporting by Investment Advisers to Private Funds and Certain Commodity Pool Operators and Commodity Trading Advisors on Form PF: A Small Entity Compliance Guide* January 5, 2012.
- United States Securities and Exchange Commission, Division of Market Regulation. *RE: Prime Broker Committee Request* January 25, 1994a. <http://www.sec.gov/divisions/marketreg/mr-noaction/pbroker012594-out.pdf>.
- Van den Burg, Ieke and Poul Nyrup Rasmussen. *Hedge Funds and Private Equity: A Critical Analysis*. Belgium: 2007. http://www.pes.eu/en/system/files/Hedge_Funds_EN.pdf.
- Van Hedge. *Number of Hedge Funds Increases for Tenth Consecutive Year* September 21, 1999.
- Varian, Hal R. *Intermediate Microeconomics: A Modern Approach*. 7th ed. New York: W. W. Norton and Company, 2006.

- Veljanovski, Cento. *Economic Principles of Law*. Cambridge: Cambridge University Press, 2007.
- Verrecchia, Robert E. "Essays on Disclosure." *Journal of Accounting and Economics* 32, no. 1-3 (2001): 97-180.
- Wagner, Wolf. "In the Quest of Systemic Externalities: A Review of the Literature." *CESifo Economic Studies* 56, no. 1 (2010): 96-111.
- Walter, Ingo. "Universal Banking and Financial Architecture." *The Quarterly Review of Economics and Finance* 52, no. 2 (2012): 114-122.
- Walter, John R. "Depression-Era Bank Failures: The Great Contagion or the Great Shakeout?" *Federal Reserve Bank of Richmond Economic Quarterly* 91, no. 1 (2005): 39-54.
- Weber, Alex, A. "Hedge Funds: A Central Bank Perspective." In *Financial Stability Review; Special Issue, Hedge Funds*, edited by Banque de France, 161-168, 2007.
- Wegman, Hanneke. "EU Alternative Fund Regulation Proposal: Pros and Cons." *European Company Law* 6, no. 4 (2009): 150-151.
<http://www.kluwerlawonline.com/document.php?id=EUCL2009031>.
- Whitehead, Charles K. "The Volcker Rule and Evolving Financial Markets." *Harvard Business Law Review* 1, (2011): 39-73.
- Yeung, Karen. *Securing Compliance: A Principled Approach*. Oxford: Hart Publishing, 2004.
- Zerbe, Richard O., Jr. and Howard E. McCurdy. "The Failure of Market Failure." *Journal of Policy Analysis and Management* 18, no. 4 (1999): 558-578.
- Zifcak, Spencer. "Contractualism, Democracy and Ethics." *Australian Journal of Public Administration* 60, no. 2 (06, 2001): 86-98.
- Zingales, Luigi. "The Future of Securities Regulation." *Journal of Accounting Research* 47, no. 2 (2009): 391-425.