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TITOLO TESI

CORPORATE GOVERNANCE AND DIVIDEND POLICY IN EUROPEAN BANKING

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ABSTRACT

This dissertation investigates corporate governance and dividend policy in banking. This topic has recently attracted the attention of numerous scholars all over the world and currently remains one of the most discussed topics in Banking. The core of the dissertation is constituted by three papers. The first paper generalizes the main achievements in the field of relevant study using the approach of meta-analysis. The second paper provides an empirical analysis of the effect of banking corporate governance on dividend payout. Finally, the third paper investigates empirically the effect of government bailout during 2007-2010 on corporate governance and dividend policy of banks.

The dissertation uses a new hand-collected data set with information on corporate governance, ownership structure and compensation structure for a sample of listed banks from 15 European countries for the period 2005-2010. The empirical papers employ such econometric approaches as Within-Group model, difference-in-difference technique, and propensity score matching method based on the Nearest Neighbor Matching estimator.

The main empirical results may be summarized as follows. First, we provide evidence that CEO power and connection to government are associated with lower dividend payout ratios. This result supports the view that banking regulators are prevalently concerned about the safety of the bank, and powerful bank CEOs can afford to distribute low payout ratios, at the expense of minority shareholders.

Next, we find that government bailout during 2007-2010 changes the banks' ownership structure and helps to keep lending by bailed bank at the pre-crisis level. Finally, we provide robust evidence for increased control over the banks that receive government money. These findings show the important role of government when overcoming the consequences of the banking crisis, and high quality of governance of public bailouts in European countries.

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CHAPTER 1

Introduction

1.1 Objectives of the dissertation

This dissertation investigates corporate governance and dividend policy in banking. Although the study on dividend policy of non-financial firms has more than 50 years of history,[1] the research on dividend policy of banks is relatively young. Before the banking crisis of 2007-2008, the research on banking dividend policy was mostly limited to analyzing the relationships between banking dividend policy and bank financials, such as bank value, risk, and performance. The study on banking corporate governance was rather scarce during this period (Becher et al (2005)).

The situation changed following the crisis. High remuneration of executives and large dividends to shareholders in poor performing banks attracted the attention of numerous scholars all over the world (Acharya (2011); Boyallian and Ruiz-Verdu (2012); Bebchuk et al. (2010)). After the crisis, banking dividend policy was analyzed in tight relationship with banking corporate governance. Poor corporate governance and unjustified dividend policy in banks were named between the main reasons of the banking crisis (BIS (2010); Mülbert (2010); Ferrarini and Ungureanu (2011)).

The situation in banking required government intervention. Such government bailout measures as equity investment and nationalization changed ownership structure of bailed banks.[2] Government bailout was usually followed by restructuring of corporate bodies, restrictions on dividends and executives' compensation, and other managerial disciplining

[1] Starting from the fundamental work of Modigliani and Miller (1961).
[2] For example, state became full owner of Northern Rock, Bradford & Bingley plc (the mortgage book), and Fortis Bank Nederland Holding.

measures. However, assignment of bailout money did not solve problems in all bailed banks: part of the banks participated in the so called 'risk shifting' behavior, when bank distributes large dividends for shifting risks from owners to creditors ((Acharya et al. (2011); Onali (2012)). Other part of the banks continued paying generous bonuses, share-based compensation, and large retirement packages for their top executives (Bebchuk et al. (2010)). The failures in governing public bailouts resulted in questioning the ability of bank regulators to carry out their roles effectively (Calderon and Schaeck (2012); Brei and Gadanecz (2012)). Currently, banking corporate governance and dividend policy remain between the most discussed topics in Banking.

Banking dividend policy and corporate governance may be related for a variety of reasons. In this dissertation, we focus on explanation provided by entrenchment hypothesis.[3] The entrenchment hypothesis argues that managers who fear disciplinary actions tend to pay higher dividends as a protection against such actions (Zwiebel (1996); Fluck (1999); Allen et al. (2000)). However, powerful managers may not need to pay dividends to discourage monitoring if monitoring from minority shareholders is weak. In this case, entrenched managers can invest in non-value maximizing projects with cash that minority shareholders would prefer to receive in the form of dividends. The literature on nonfinancial firms provides support to the entrenchment hypothesis (Hu and Kumar (2004)). The literature finds also that dividends dampen expropriation of minority shareholders in Western Europe (Faccio et al. (2001)).

In addition, when the firm is a bank, the objectives of managers and shareholders can enter into conflict with the objectives of other powerful stakeholders, such as depositors and regulators.[4] Monitoring from minority shareholders is not the only concern of bank managers, and monitoring from regulators may acquire a more prominent role. In particular, banking regulators have bank safety and financial stability as the main concern, and low dividend

[3] Alternative hypothesis is the rent extraction hypothesis (La Porta et al. (2000); Faccio et al. (2001); Gugler and Yurtoglu (2003)). It suggests that dividends are larger for banks where the controlling shareholder can extract wealth from the minority shareholders. In countries where there is a high level of protection for the rights of minority shareholders, dividends tend to be higher (La Porta et al. (2000)). As the power of the controlling shareholder increases, dividends decrease (i.e., there is rent extraction) – however, the presence of a second large shareholder offsets rent extraction from the controlling shareholder (Faccio et al. (2001); Gugler and Yurtoglu (2003)). Other hypotheses that explain the relationship between dividend policy and corporate governance are the signaling hypothesis (Bhattacharya (1979); Litzenberger and Ramaswami (1982); John and Williams (1985); Miller and Rock (1985)), and the free-cash flow hypothesis (Jensen (1986)).

[4] Bank executives are subject to the scrutiny of different stakeholders. Schaeck et al. (2012) provide evidence of shareholder discipline for risky institutions, while there is no evidence of discipline from debt holders and regulators.

payout ratios (dividends to equity) tend to increase the bank capital buffer (other things being equal). Therefore, banking regulators tend to favor conservative dividend policies, which may lead to expropriation of minority shareholders in the form of lower payout ratios.

Banking regulation has strong relationships with both dividend policy and corporate governance. The literature documents that deregulation of banks during the pre-crisis years caused the basic restructuring of banking regulators themselves (Wilcox (2005)). This, in turn, helped maintaining poor corporate governance policies – the policies that encouraged excessive risk-taking and inefficient distribution of wealth in banks (Levine (2012)). The crisis of 2007-2008 increased regulation over banking and caused a series of government bailouts accompanied by different restrictions, and managerial disciplining measures in bailed banks. These measures resulted in significant changes in banking corporate governance, ownership structure, and dividend policy.

Despite importance and relevance of the topic, literature on the relationship between banking corporate governance and dividend policy is rather scarce. Moreover, the empirical literature is often limited to U.S. banks, because of a dearth of corporate governance data for European banks. Finally, the literature lacks investigation on the effects of government bailout during 2007-2010 on corporate governance and dividend policy of banks.

This dissertation aims to address these gaps in the literature. First, we generalize the main achievements in the field of relevant study. Second, we analyze the effect of banking corporate governance on dividend payout using managerial entrenchment theory. Finally, we investigate the effect of government bailout during 2007-2010 on corporate governance and dividend policy of banks.

The core of the dissertation is constituted by three papers: a meta-analysis paper and two empirical papers addressing the above mentioned issues in the context of the European banking sector.

The first study investigates the relationship between dividend policy and value in a bank. It complements to a broad research that started with the fundamental work of Modigliani and Miller (1961) and was followed by refuting the Dividend Irrelevance argument for financial firms (Miller (1995); Casey and Dickens (2000)). Using the approach of meta-analysis we group and analyze the relevant empirical studies developed during the last twenty years. We

group the studies according to precise research questions and similar constructs used for value and dividend policy in a bank.

The second study analyzes the relationship between CEO power and dividend policy in European banking. The literature on CEO entrenchment and dividend policy finds that entrenched managers tend to distribute higher payout ratios to discourage monitoring from minority shareholders. We discriminate between the 'monitoring' and the 'expropriation' perspectives on managerial entrenchment and employ two different proxies for CEO power: CEO ownership, and board duality. We investigate the role of CEO power on bank dividend policy using a Within-Group model (also named Fixed-Effect model). We use a unique hand-collected data set for a sample of 109 listed banks in European Union-15 (EU-15) countries for the period 2005-2010.

Finally, the third study investigates the effects of government bailout on banking. The literature on non-financial firms finds that connection to government performs as 'helping hand', since firm benefits from government ownership or the presence of a government official on the board (Cheung et al. (2009); Frye and Iwasaki (2011)). We analyze whether bailed banks benefited from government bailout during 2007-2010 using a Helping Hand hypothesis. Next, we analyze whether government support was accompanied by increased control over the management of bailed banks using Managerial Disciplining hypothesis, which argues that the government sends its representatives to poorly performing firm to constrain firm managers from looting the firm. We use a difference-in-difference technique and propensity score matching method based on the Nearest Neighbor Matching estimator. We benefit from a unique hand-collected data set with information on corporate governance, ownership structure and compensation structure for a sample of 129 European listed banks for the period 2005-2010.

Our contribution to the literature is as follows. The first study contributes to the literature in at least three ways. First, by summarizing the results of relevant empirical papers, the study confirms the positive effect of dividend distribution on bank value. Thus, the study provides momentum for resolving the conflict between two opposite schools by supporting the ideas of positive theorists' school. Second, the study confirms a negative and significant relationship between the bank's market-to-book ratio and dividends per share. This result provides an important practical guidance for equity investors. Finally, the study confirms a negative and significant effect of cutting dividends on market value of large banks. This result supports the

Too-Big-To-Fail argument, implying higher stability and reliance on regulatory help for large banks. This result shows also that Too-Big-To-Fail problem should be seriously analyzed and addressed by implementation of adequate regulatory measures.

The second study gives different contributions to the literature, especially to the literature on the relationship between corporate governance and dividend policy in banking. First, we provide evidence that CEO power is associated with lower dividend payout ratios. External monitoring from a widely-held financial institution has a positive effect on payout ratios, while internal monitoring from independent directors decreases payout ratios. Second, we find that when the government is the largest owner or there is a government official on the board, dividend payout ratios are lower. These results support the view that banking regulators are prevalently concerned about the safety of the bank, and powerful bank CEOs can afford to distribute low payout ratios, at the expense of minority shareholders. The results are robust to different econometric techniques, including fixed-effect panel data estimators, and a combination of difference-in-differences with matching techniques.

The third study contributes to the literature, especially to the literature on government bailout in banking, in at least two ways. First, we find that government bailout helped to overcome capitalization problems in bailed banks and keep lending by bailed banks at the pre-crisis level. However, we find no significant improvement of the new loans' quality in bailed banks following bailout. Second, we provide robust evidence for increased control over the banks that receive government money: government implements restrictions on dividend payouts and managerial compensation and appoints its representatives as 'watchdogs' on the boards of bailed banks following bailout. These results are consistent with the Helping Hand and the Managerial Disciplining hypotheses and show high quality of governance of public bailouts in European countries. The results are robust to different econometric techniques, including propensity score matching method based on the Nearest Neighbor Matching estimator.

1.2 Structure of the dissertation

The remainder of this dissertation is organized as follows. We explain the first study in Chapter 2. The chapter is constituted by several sections, respectively: the introduction that

explains the main objectives of the study; the section that discusses the studies on the relationship between bank value and dividend policy; the section that analyzes two dimensions of the relationship; the section on quantitative meta-analysis procedures; results section; and the discussion section.

Chapter 3 describes EU-15 banking sector as a research context for the second paper. We illustrate main structural characteristics of banks across countries and legal origins. Then, we describe the differences in banking ownership structure in different EU-15 countries. We pay particular attention to board and CEO characteristics. Finally, we analyze the structure of compensation of CEO and management board across countries and legal origins.

We explain the second study in Chapter 4. The chapter has several sections, respectively: the introduction that explains the main objectives of the study; the section on literature review and hypotheses that discusses relevant literature and introduces the hypotheses to be tested; the section on methodology and data with an illustration of the data, model and the methodology used in the analysis; the results section; and the conclusions section.

Chapter 5 describes EU-15 banking sector with a focus on government bailout, as a research context for the third paper. We provide statistics on the amounts of bailout and repay across countries and legal origins. We compare corporate governance, ownership, and other characteristics across bailed and non-bailed banks. Moreover, we distinguish a group of delisted banks and analyze whether bailout money helped to save bailed banks.

We explain the third study in Chapter 6. The chapter is constituted by several sections and has the same structure as Chapter 4: introduction, literature and hypotheses, methodology and data, results, and conclusions sections.

Finally, Chapter 7 draws the conclusions of all three of the studies, on the basis of the results and findings presented in Chapters 2, 4 and 6.

CHAPTER 2

Bank value and dividend policy relationship: Connecting studies in two dimensions

This chapter investigates the relationship between value and dividend policy in a bank, based on relevant empirical literature developed during the last twenty years. It complements to a broad research that started with the fundamental work of Modigliani and Miller (1961) and was followed by refuting the Dividend Irrelevance argument for financial firms (Miller (1995); Casey and Dickens (2000)). The approach of meta-analysis employed here allows studies to be grouped and analyzed according to precise research questions and those with similar constructs.

2.1 Introduction

The problem of assessing the true value of a bank has become one of the most hotly debated topics in academic and public literature during recent years. The crisis of 2007-2008 demonstrated the weaknesses of the banking sector and required reviewing the main corporate policy decisions influencing bank value. While decisions on capital policy have caused fierce debate and resulted in numerous research papers, those on dividend policy have received less attention. Theoretical debate on the fundamentals of the latter has remained modest, although before and during the financial crisis the dividend decisions undertaken in banks caused depletion of regulatory capital and even led to banking failures. Therefore, investigating which banks pay dividends, and how and why they do so, is still important for prediction and prevention of future banking problems.

The current meta-analysis aims to shed more light on banking dividend policy and, in particular, on its relationship with bank value. The relationship analyzed in the paper embraces two different types, or dimensions, of the interaction between dividend policy and bank value. On the one hand, dividend payout affects bank value, one reason being that it involves the distribution of part of the capital. On the other hand, bank value is traditionally one of the main factors in banking dividend policy.[5] The meta-analytical approach employed here allows us to compare studies on *two different dimensions of the relationship*, in order to summarize the main achievements of previous research works and to combine the different results into an integrated model.

Previous research related to dividend policy in banks is rather scarce when compared to that in non-banking firms. The latter is found to be complex and conclusive, and includes several papers that attempt to integrate numerous theories of firm dividend payout into a single explanatory model.[6] However, banking dividend policy still remains a puzzling topic, with many unfilled gaps and no complex or conclusive results (Baker et al. (2008)). Therefore, systematizing the previous research achievements is of considerable importance in order to enhance the accumulation of knowledge in banking dividend policy study.

The specifics of the banking industry imply that most conclusive research on non-banking firms cannot be applied to the analysis of dividend policy in banks. This implication is supported in the previous literature by numerous arguments referring to the fundamental differences between banking and non-banking firms, which makes comparison of their respective dividend policies impossible. For example, firstly, analysis of dividend policy is more complicated in banks than in non-banking firms as banks are special market agents with monitoring functions. Because banks have access to internal information on their clients, their dividend policy is affected by clients' financial states and is informative about future permanent changes in the economy (Bessler and Nohel (2000)). Secondly, banking dividend policy is strongly driven by the clientele effect and signaling motives. According to this view, a bank attracts a particular type of investor who expects regular dividend distribution and assesses the bank that makes payouts as conservative, and the bank that cuts dividends as risky (Cornett et al. (2008)). Thirdly, previous empirical analysis suggests that banking dividend policy does not support the Dividend Irrelevance argument established for industrial

[5] For example, see the papers of Mucherjee and Austin (1980), Dickens et al. (2003), and Theis and Dutta (2009).
[6] For instance, see Dividend matrix suggested by Damodaran (2011).

firms by Miller and Modigliani in 1961 (Miller (1995); Casey and Dickens (2000)). Fourthly, because of strict capital requirements banking dividend payout is strongly affected by the level of an individual bank's capital adequacy (Acharya et al. (2009); Onali (2010)). Finally, dividend policy is more important for a bank than for a non-banking firm since a bank continues to distribute dividends even in difficult times and in spite of suffering losses (Bessler and Nohel (1996); Acharya et al. (2009)).

It is worth also pointing out that dividend policy is more complicated in banking than in non-banking firms, being driven by additional factors that do not influence non-banking firms, and therefore it should be investigated separately. The current research aims to summarize and systematize the results of previous studies on the relationship between dividend policy and value, focusing only on papers providing empirical evidence for banks.

The primary literature review, examining how the relationship between bank value and dividend policy was addressed in previous studies, reveals mixed results. On the one hand, there is a high level of agreement amongst the researchers about the significance of the effect, in particular the importance of: 1) bank value factor for determining the level of dividend distribution; and 2) dividend payout for bank value changes. On the other hand, empirical evidence on the directionality of the effects is contradictory.

For instance, if we consider *the first dimension* of the relationship – how bank value affects dividend payout – many research projects have employed bank value (or size)[7] as the main explanatory factor in dividend policy. One of the earliest works of this kind was that of Mucherjee and Austin (1980), who demonstrated that larger bank size is associated with higher dividend payout. Later, Collins et al. (1994), and Dickens et al. (2003) provided empirical support for a positive and significant effect of bank value on the level of dividend distribution. The work of Georgieva and Wilson (2010), however, focused on dividend omission behavior, and found that a small-sized bank has a higher propensity to avoid paying dividends compared to a large one. Many other examples in earlier literature also revealed the significant effect of size on banking dividend policy.

However, the previous research works do not agree about the direction of the effect of bank value on dividend policy. While the papers of Mucherjee and Austin (1980), Collins et al. (1994), and Dickens et al. (2003) demonstrate a positive correlation between bank size and

[7] While analyzing bank value, many papers refer to 'size' estimate calculated by total assets.

dividend payout, the works of Esteban and Perez (2001), and Brogi (2010), show the opposite, indicating that a smaller bank is associated with larger dividend distribution. Since the previous research provides significant results for either a positive or negative relationship, the true direction of the effect still remains unclear, and therefore further investigation into the reasons for the contradictory results is required. This investigation can be performed under a meta-analytical framework, by considering studies on the same question together, or by splitting them into smaller groups of comparable studies, which employ similar approaches for their empirical research.[8]

Studies on *the second dimension* of the relationship – how dividend payout affects bank value – demonstrate closer agreement amongst researchers about the direction of the effect. For instance, the papers of Filbeck and Mullineaux (1999), Gropp and Heider (2009), and Rousseau (2010) show positive changes in bank value after an increase in dividend payout. These papers support the ideas of the positive theorists' school, implying that dividend payout is advantageous to bank value. However, there are also two other theoretical schools in the literature, one of them predicting negative effect of payouts on bank value, and the other supporting the Dividend Irrelevance argument. Thus, empirical evidence proving the theoretical ideas of the two latter schools can also probably be found, and a systematic literature review is required.

Amongst the studies on the second dimension of the relationship, there are several works that provide the first attempts to connect the two dimensions of the relationship into one overall system of *interrelation*.[9] These works analyze the consequence of dividend news announcements for bank value in relation to different-sized banks. For example, Bessler and Nohel (1996) investigate market reaction to dividend cutting by large and small banks and demonstrate a stronger effect for large banks. Analysis of the interrelation between value and dividend policy is interesting as it reveals the advanced level of the study and can lead to a better understanding of the directionality of the effects in the relation.

The system of interrelation considers the second dimension of the relation as a continuation of the first. Since each small or large bank analyzes possible market reaction to its dividend decisions, it tries to make the best dividend policy choice to increase its value.

[8] For instance, using different estimates for bank value and dividend payout constructs makes the studies on the relationship non-comparable and even contradictory.

[9] In the current research, the term 'interrelation' is used together with such terms as 'continued relation', 'mutual relation', and 'two-way relation' and has a similar meaning.

Realization of a particular type of dividend policy in a bank implies a circle of such planning-decision-outcome events as to link the two parts of the interaction into a system of continued relationship. Bank size as one of the main strategic factors of dividend policy determines adoption of particular sets of dividend decisions for different-sized banks. Conversely, the propensity to follow a particular dividend policy defines the subsequent growth of bank value as a result of market disposition after a satisfactory dividend decision, or decrease in value otherwise. The literature about linking the two dimensions of the relationship into a single system of interrelation is of considerable importance and should be further analyzed.

To summarize, research on the interaction between bank value and dividend policy comprises three parts: 1) the first dimension of the relationship – how bank value affects dividend payouts; 2) the second dimension of the relationship – how dividend payout affects bank value, and 3) the interrelation between the two dimensions, which links the previous two. Thus, understanding the directionality of the effects in the relationship is a rather complex task requiring comparison of the empirical evidence from all the three possible relationship types. However, such complex analysis could lead to a better understanding of some inconclusive and contradictory results that have appeared in earlier literature.

The remainder of this paper is organized as follows. Section 2.2 provides a further look at the problem of analyzing the two dimensions of the relationship between bank value and dividend policy in the previous literature and introduces the linking perspective. Section 2.3 summarizes the main groups of relationships analyzed, demonstrating them in graph form, and then introduces the research questions and the dependent and independent constructs. Section 2.4 describes quantitative meta-analysis procedures on a sample of seventeen research works, which have appeared in journals or as conference papers or working papers during the last twenty years. Section 2.5 introduces the main findings of the current meta-analysis. Finally, Section 2.6 provides a discussion of the results and a conclusion.

2.2 Two dimensions of the relationship between bank value and dividend policy

Research on the relationship between value and dividend policy has a long history, going back to the fundamental work of Miller and Modigliani (1961). Since that time, a number of papers have examined the seminal theory's fairness in its implications for real working firms.

Most of these studies covered observations of industrial companies only, intentionally excluding banks from the analysis. As a result, empirical study on the banking sector is based on a relatively modest sample of papers.

However, during the last two decades interest in the study of banking value and dividend policy interaction has remained steady, and indeed has increased since the banking crisis of 2007–2008, raising the number of research works conducted in the following years to dozens. This research can be divided into *two parts* according to the dimensions of the relationship analyzed.

2.2.1 The first dimension of the relationship: The effect of bank value on dividend payout

A large number of papers investigate the effect of bank size on dividend payout policy. For example, the papers of Dickens et al. (2003), and Theis and Dutta (2009) are of this type.

However, the studies on the first dimension differ amongst themselves by analyzing various dividend policy options for banks. For instance, they investigate the effect of bank size on such dividend decisions as: 1) increasing payout, 2) keeping the same level of payout as in the previous period, 3) reducing payout, and 4) not paying dividends. It is obvious that the bank size factor interacts with different dividend policy options in different ways. Therefore, the current analysis divides the studies into *two groups*, focusing on either positive or negative dividend decisions undertaken by a bank, and investigates them separately. The first group covers the papers that study positive dividend policy options, i.e. same-level and increased payouts. The second group covers papers analyzing negative dividend decisions, i.e. reduced or no dividend distribution. For example, the paper of Dickens et al. (2003) belongs to the first group, and analyzes the impact of bank size on the level of dividend payout, while the paper of Georgieva and Wilson (2010) belongs to the second group, and investigates the effect of bank size on the propensity to omit payment of dividends. Such grouping is justified as it follows the previous authors' decision not to distinguish between: 1) increased and similar level of dividend payout (i.e. positive dividend decisions), or 2) reduced or no dividends (i.e. negative dividend decisions).

Analysis of the empirical results within the two different groups of papers reveals some contradictory findings. In particular, the studies in the first group provide empirical support

for either a positive or negative relation between bank size and dividend distribution level. While some research papers report a positive sign for the direction of the effect, i.e. a higher dividend payout for large banks (Collins et al. (1994); Dickens et al. (2003)), other papers report the opposite (Esteban and Perez (2001); Brogi, (2010)). Arguments about positive and negative directions of the effect are based on various factors and theories, although the interpretation of some factors looks both ways and is used for explaining both the positive and negative relationships.[10]

Analysis of the main theoretical arguments employed to explain the positive relationship between bank value and dividend payout level reveals several significant factors:

1) Insider shareholdings – small banks are usually held by insider shareholders, and profits are not shared among them as dividends but invested in future projects or used for forming reserve funds (Dutta (1999));
2) Agency problem – small banks are run by friendly groups of shareholders and managers, and most privileges are shared between them in the non-dividend form, so that minor shareholders suffer (Casey and Dickens (2000));
3) Moral hazard – large unprofitable banks bear higher credit risk than small banks, but continue to pay high dividends in order to escape negative market reaction (Brogi (2009));
4) Too-Big-To-Fail concept – large banks have lower bankruptcy probabilities, and thus higher returns and dividend yield (Dickens et al. (1999));
5) Investment opportunities[11] – small banks have better investment opportunities, and thus only a small part of their profits is shared as dividends (Dutta (1999)).

The opposite view, that there is a negative relationship between bank value and dividend payout level, predominantly uses diverse theoretical arguments. However, the Agency problem theory and Growth opportunities factor (employed also to explain the positive relationship) here receive a different interpretation and are used to support a negative effect of bank size on dividend distribution. There are several noteworthy factors:

1) Bank leverage – large banks have to serve their high leverage, which results in reduced profits and dividends (Junarsin and Ismiyanti (2009));

[10] For instance, the literature uses Agency problem theory and Growth opportunities factor for explaining both positive and negative directions of the effect of bank value on dividend policy.
[11] It is known also as 'growth opportunities' argument.

2) Product and territorial diversification – large banks tend to diversify their businesses, which results in decreased profitability and lower dividend payouts (Gupta and Jain (2004); Ameer (2007));
3) Reserves-forming by management – the management of large banks eschews dividend payments and increases reserves (Gupta and Jain (2004));
4) Agency problem – in order to minimize the Agency problem small banks tend to pay higher dividends (Ameer (2007));
5) Growth opportunities – small banks have greater growth opportunities and expect more future returns, and thus signal positive expectations to the market by distributing larger dividends (Ameer (2007));
6) Shareholders' character – small banks attract shareholders who are interested in high dividend payouts (Gupta and Jain (2004)).

As both theoretic views discussed above are supported by several empirical studies, and both provide strong arguments for either a positive or negative direction of the effect, they are further considered as *two opposite streams of research* within the first part of the studies on the first dimension of the relation. The following meta-analysis thus aims to analyze the underlying differences in the way of addressing the studies empirically, in order to understand the reasons for the conflicting empirical results.

2.2.2 The second dimension of the relationship: The effect of dividend policy on bank value

Research on the second dimension of the relationship includes papers that investigate how a dividend decision (i.e., its official announcement) affects the valuation of a bank. Studies have been conducted by a diverse group of researchers independently from work on the first dimension. They have mainly used distinct variables for the dependent and independent constructs and have employed distinct approaches and techniques, which were not utilized by researchers focusing on the first dimension. Although studies on both dimensions of the relationship have experienced independent growth, the writers of the current meta-analysis consider that sharing of the main theoretical and empirical achievements between the two parts of the research could enhance their further development.

Studies on the second dimension of the relationship can also be divided into *two different groups* of papers analyzing diverse dividend policy options and their effect on bank value.

The first group focuses on the effect of positive dividend decisions (retaining the same level and increasing the level of dividend payout) on bank value changes, while the second group investigates how negative dividend decisions (reducing and omitting dividends) influence bank value.

Review of the theoretical fundamentals of both groups reveals no general agreement amongst the researchers on the expected directionality of the effect. This disagreement reflects the existence of three schools, predicting different directions for the effect of dividend policy on bank value. The first consists of positive theorists who predict a positive effect of increasing dividend payout on a bank's market valuation (Cornett et al. (2008); Acharya et al. (2009)). The second school suggests that increasing dividend payout reduces bank value, and therefore the relationship is negative (Nnadi and Akpomi (2006); Goodhart et al. (2009)). The third school subscribes to the Dividend Irrelevance argument of Miller and Modigliani (1961) implying an insignificant effect of dividend policy on value. Examination of previous papers that analyze the second dimension of the relationship reveals several works belonging to the first two schools. However, no reference is found in recent banking literature to the third school's ideas. The inadequacy of the Dividend Irrelevance argument for banks was demonstrated by Miller in 1995, and since that time the argument has not attracted any followers in banking dividend policy research.

The positive relationship demonstrated by the first school is supported in the previous literature by several arguments. Overall, these arguments can be called the 'Signaling' argument, although they receive different formulations, for example:

1) Signaling of the strong current state of a bank (Collins et al. (2009); Cornett et al. (2008));
2) Maintaining shareholders' confidence (Kato et al. (2002));
3) Decreasing agency problems (Ameer (2007); Casey and Dickens (2000)).

The main idea of the Signaling argument is that through a high level of dividend distribution a bank informs the market about its future positive expectations and maintains the confidence of investors, who then respond to generous payouts by increasing stock value.

The followers of the second school, on the other hand, predict that increasing the level of dividend payout decreases bank value. Arguments for this negative relationship are also sound and are based on the following:

1) Dividend payment means distribution of part of the capital and, thus, reduction of bank value (Onali (2009));
2) Decision to pay dividends signals small growth opportunities in a bank (Dickens et al. (2003));
3) Dividend payment during a crisis, when a bank suffers severe losses, increases default risk (Goodhart et al. (2009); Onali (2009)).

The theoretical discussion between the two schools has a long history, and arguments on both sides are convincing. However, the main focus of the current meta-analysis is not theoretical but empirical evidence as the highest measure of the underlying theory's strength. The empirical studies of Filbeck and Mullineaux (1999), Gropp and Heider (2009), and Rousseau (2010), demonstrate the positive effect of dividend distribution on bank value, thereby supporting the ideas of the positive theorists' school. Observation of other empirical results in the field could reveal opposite results, and therefore a systematic literature analysis is required. As the current research aims to collect, analyze and summarize the previous empirical evidence, it can play an important part in revealing the true effect of dividend payout on bank value and thus solving the conflict between the two schools.

Studies on the second dimension of the relationship include several works that denote a new stage in the research, by investigating a two-way interrelationship between bank value and dividend policy. One such work is that of Bessler and Nohel (1996), who analyze market reaction to decisions to cut dividends in relation to different-sized banks, and demonstrate a stronger decrease in market value for large banks. Another is that of Foerster and Sapp (2006). The impact of their paper is the establishing of a new term 'continued relationship between dividends and the price of equity' and the providing of empirical evidence for its positive direction. The positive relationship lies in the fact that since the market acknowledges in advance the improving conditions for a strongly performing bank and raises its share prices, the potential of the bank to pay dividends increases (Foerster and Sapp (2006)). Finally, the paper of Rousseau (2010) shows a developed version of the model of Foerster and Sapp (2006) and includes two regressions on both dimensions of the relationship analyzed. Estimations of the two regressions reveal that the relationships are positive and significant.

Thus, the result can be considered as empirical evidence for stronger positive market reaction to dividend distribution by large banks.[12]

To sum up, linking the two dimensions of the relationship is important for the purpose of understanding better the directionality of the effects in the relationships between bank value and dividend policy, and because it is required by the current state of research. Moreover, it is supported by previous researchers who provided the first attempts to connect the two dimensions into a system of interrelation. The following section of the paper provides more detail about the perspective of such linkage, after first summarizing the main types of relationships analyzed, and introduces the research questions.

2.3 Linking different dimensions of the relationship between bank value and dividends

Analysis of the literature reveals two large sections of studies focusing on different dimensions of the relationship between dividend policy and value in banking. *The first section* includes the majority of papers and analyzes the effect of bank value on dividend policy – the first dimension of the relationship. *The second section* covers the papers investigating how different dividend decisions affect bank valuation – the second dimension of the relationship. These two sections of studies were developed mostly by researchers who conducted their analyses independently and by using diverse analytical methods and approaches.

In addition, several research papers provide some initial attempts to connect the two dimensions into a system of mutual relations (Bessler and Nohel (1996); Foerster and Sapp (2006); Rousseau (2010)). As these works indicate a new stage in banking dividend policy study and are different from the two previous areas of research, they are separated into a distinct *third section* focusing on the two-way relationship between value and dividend policy in banks.

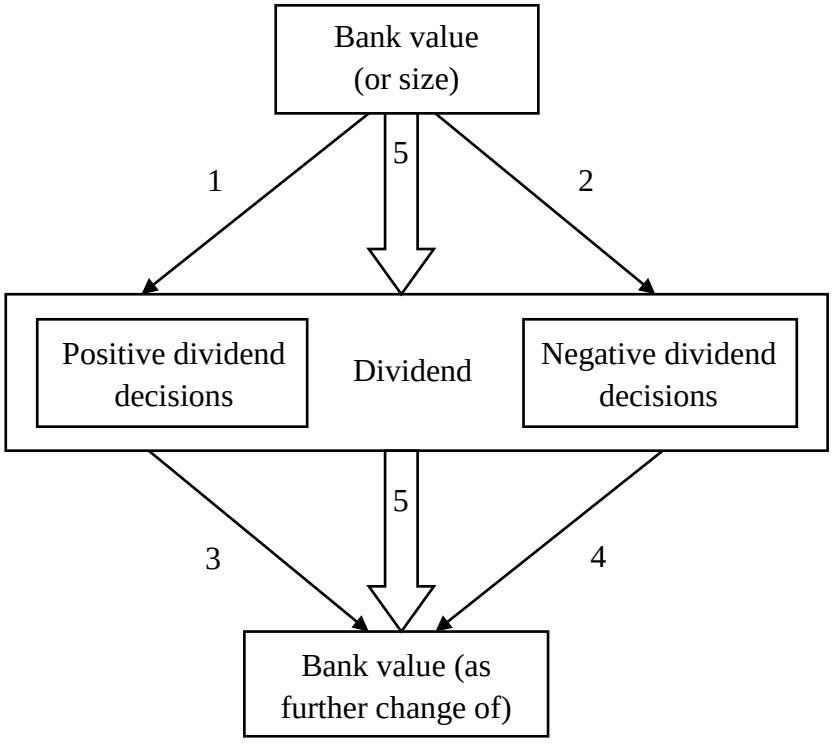
Further, analysis of the first and the second sections of studies reveals within each section two groups of papers investigating different dividend policy options undertaken in banks. One option comprises positive dividend decisions such as similar and increased dividend payout

[12] However, the research of Rousseau (2010) cannot be considered as a complete study on the continued relationship as it provides neither theoretical background nor discussion for the results obtained.

levels, while the second option covers negative dividend decisions such as reducing and omitting dividends. As the interaction of bank value with opposing dividend policy options demonstrates different signs for the effect, the studies cannot be considered together and will be analyzed separately within *the four groups* (two groups in each section). Thus, the first group includes works investigating the effect of bank size on positive dividend decisions, while the second group covers papers analyzing the effect of bank size on negative dividend decisions. The third and fourth groups focus on studies investigating how bank value changes after undertaking positive and negative dividend decisions, respectively.

In total, five groups of studies are analyzed, *the fifth group* investigating the continued relationship between bank value and dividend payout. Figure 2.1 summarizes the main dimensions of the relationship:

Figure 2.1: The research questions analyzed in the meta-analysis.



The research questions addressed in the current meta-analysis correspond to the five different interactions discussed above. They are following:

1) What is the effect of size on a bank's propensity to retain the same level or increase the level of dividend payout?
2) What is the effect of size on a bank's propensity to omit or reduce the level of dividend payout?
3) How does the decision to keep the same level or increase the level of dividend payout affect bank value?
4) How does the decision to omit or reduce dividend payout affect bank value?
5) What is the directionality of the effects in the continued relationship between bank value and dividend policy?

Defining the five groups of studies and focusing precise research questions on them is essential in order to obtain accurate results of the analysis within each group. However, another possible source of contradiction amongst the empirical evidence within studies of the same group should also be considered. Since the papers employ various constructs for bank value and dividend policy, and measure them differently, the results obtained can vary significantly and even be contradictory. Therefore, the current research examines the estimates for bank value and dividend policy constructs used in the previous literature. Papers employing the same constructs are organized into subgroups of comparable papers in order to see whether contradictory results are driven by construct differences.

2.3.1 Bank value construct

Previous studies on the two dimensions of the relationship employ several different measures for bank value construct, including *Book Value, Market Value, Market-to-Book ratio* or *Other Bank Value* estimates.

The most frequently used bank value measures are based on book estimates. One such measure, natural logarithm of book total assets, was employed in the papers of Collins et al. (2009), and Gropp and Heider (2009), to analyze how dividend distribution differs in relation to bank value. Other measures of bank size estimated on the basis of book values are 'fixed assets to total assets ratio' (Junarsin and Ismiyanti (2009)), and a dummy variable for large banks (Slovin et al. (1999)). As all the measures above rely on book values, they are grouped together under *Book Value (BV)* estimate.

Another group of measures for bank size is based on market values *(Market Value, MV)*, such as market value of bank stocks (Rousseau (2010)), or stock value change during a trading day (Black et al. (1995)). The distinct feature of this group of measures is that they are informative about a bank's actual market valuation, and transfer market opinion about a bank's investment projects, the risk, and the expectation of future profits and dividend payouts. However, during periods of overestimation and underestimation *Market Value* measures do not show a fair bank value.

The third type of estimates is *Market-to-Book ratio (M/B).* Comparing market value and book value of a bank has an important implication since the ratio is highly informative about the market assessment of a bank. A higher ratio for large banks means that stocks are expensive due to market recognition and low level of risk, while small banks usually do not have a long listing history and are associated with high risk level. However, there is an alternative way of interpreting *Market-to-Book ratio* in the literature. This involves using the measure as a proxy for bank growth opportunities and expects a negative relationship with bank size (higher growth opportunities for small banks). Since *Market-to-Book ratio* can be interpreted either positively or negatively in relation to bank size, the estimate is separated into a distinct group for analysis.

Measures of bank size that cannot be included in the three groups above can be placed in the fourth group, *Other Bank Value* estimates. For example, this group includes natural logarithm of revenues (used by Dickens et al. (2003); Theis and Dutta (2009)), which is strongly linked to a bank's performance and cannot be compared with measures referring to bank assets.

A summary of bank value estimates that are observed in the current meta-analysis is presented in Table 2.1.

Table 2.1 Summary of bank value estimates used in the meta-analysis.

Variable	*Description*
BV– Book Value	All measures estimated on the basis of book values
MV – Market Value	All measures estimated on the basis of market values
M/B – Market-to-Book ratio	Market value of total assets to book value of total assets
Other Bank Value	All other bank value variables

2.3.2 Dividend policy construct

Previous research papers used four precise measures for banking dividend policy analysis. They are: *Dividend Yield (Dyield), Dividends-to-Earnings (DP)* ratio, *Dividends-to-Equity (DPE*) ratio, and dummies for *Dividend Cutting* and *Dividend Paying*.

The most widely used measure is *Dividend Yield,* which indicates the amount of dividends paid for each unit of the investments. Correlation between bank size and *Dividend Yield* makes it possible to investigate the cost of equity for large and small banks. From the investor's point of view, the measure provides an answer to the question whether a large bank's shareholders receive more benefits from their investments than investors in a small bank.

The second type of estimates is *Dividends-to-Earnings (DP)* ratio. This estimate demonstrates what proportion of a bank's earnings is shared with investors, and is therefore considered as a measure of a bank's generosity in its dividend policy. *Dividends-to-Earnings* ratio does not perform well when observations include periods of negative or zero earnings, so its application is limited. However, it is effective for comparing dividend payouts between large and small banks functioning under normal economic conditions.

The third measure – *Dividends-to-Equity (DPE)* ratio – eliminates the weaknesses of the previous estimate and allows treatment of all observations for which earnings are positive or negative. *Dividends-to-Equity* ratio is informative about the whole set of conditions possible in banking practice and is effective for answering such questions as: What sized banks on average pay higher dividends?; and What sized banks on average avoid paying dividends more often?

Finally, several research papers use dummies for *Dividend Cutting* and *Dividend Paying* that represent corresponding events of reducing (or not paying) and retaining the same level of (or increasing) dividends in banks.

A summary of dividend policy estimates that are observed in the current meta-analysis is presented in Table 2.2.

Table 2.2 Summary of dividend policy estimates used in the meta-analysis.

Variable	*Description*
Dyield – Dividend Yield	Dividends paid per share
DP – Dividends-to-Earnings	Dividends paid to earnings ratio
DPE – Dividends-to-Equity	Dividends paid to equity ratio
Divcut and Divpay	Dummies for dividend cutting and dividend paying, which are equal to 1 for the corresponding event, and 0 otherwise

2.4 Quantitative meta-analysis procedures

2.4.1 Sample selection

In order to answer the five research questions above, an electronic search of relevant empirical studies was performed.

The search was based on seven electronic databases, which include research papers published or written between January 1990 and January 2011. In order to exclude from the large sample any irrelevant literature that focuses on either bank value or banking dividend policy without relating them, an adapted version of the step-by-step literature search procedure of Newbert (2007) was employed. Eventually, the literature search consisted of the following principles and steps:

1) Search for published journal articles, conference papers and working papers only.
2) Operate with seven databases: ProQuest, EBSCO, Scopus, Econlit, Emerald, SSRN and NBER, in order to receive as many appropriate results as possible.
3) Search for articles published between 1990 and 2010.
4) Search for relevant studies by keywords using one of the two strategies below (depending on the search system of a database):
    a. Search for any keyword in the title or abstract of papers;
    b. Search for a full phrase in the title, abstract and full text of papers.
5) Search for papers on the relationship between bank value and dividend policy with the following keywords and full phrases:

a. Defining the study field as banking by the keyword ‘bank*’ in order to eliminate irrelevant items;
b. Focusing on publications that study bank value with keywords: ‘bank* value’, ‘bank* size’ and ‘bank* stock’;
c. Eliminating studies on bank value that do not observe dividend policy with the keyword ‘dividend*’;
d. Focusing on publications that consider dividend distribution as a function of banking dividend policy with one of the keywords: ‘policy’, ‘choice’, ‘payment’, ‘repayment’, ‘reduction’, ‘cut’, ‘omission’, ‘level’, ‘size’;
e. Eliminating irrelevant articles by including one of the ‘relationship’ keywords: ‘relation’, ‘relationship’, ‘interrelation’, ‘correlation’, ‘influence’, ‘effect’, ‘affect’, ‘determine’;
f. Ensuring empirical content with one of the ‘methodological’ keywords: ‘data’, ‘empirical’, ‘test’, ‘statistical’, ‘finding’, ‘result’, ‘evidence’.

6) Eliminate duplicate articles through databases.
7) Ensure theoretical and empirical relevance by reading all remaining abstracts.
8) Ensure theoretical and empirical relevance by reading all remaining papers.

The search for relevant papers using keywords and full phrases within the search systems of seven databases after elimination of duplicates and irrelevant articles resulted in a sample of fifteen papers. While ProQuest, EBSCO, Scopus, SSRN and NBER databases were found to be convenient sources of research papers, providing four, three, one, six and one relevant papers, respectively, searches within Econlit and Emerald gave no useful results. The list of papers was completed by two other relevant articles located in the references of the fifteen initial papers, giving a final sample of seventeen papers. The majority of the research works in the sample are journal papers. The other six papers are introduced as working papers and conference papers without providing further information about their publication.

The empirical results presented in the previous papers were grouped under the five research questions. Papers containing results that were relevant for investigating more than one research question were included in all applicable groups. For each study, the dependent and independent constructs, expected and observed directions of the effect, *p*-value, *t*-statistics and standard error, degrees of freedom, country and period of observations were recorded.

2.4.2 Methods

The meta-analysis used in the current research is based on the methodology described by Rosenthal (1991), and follows its main analytical procedures.

This method has the advantage of providing complex answers to the questions about the directionality and significance of the effects in the interaction between banking value and dividend payout based on the previous empirical evidence. Answering the questions is not possible if we simply compare the papers in a standard literature review, since the studies differ significantly by: 1) analyzing the two diverse dimensions of the relationship, 2) observing opposite dividend policy options, and 3) employing various types of estimate for the bank value and dividend policy constructs.

The meta-analytic procedures employed here follows several fixed steps:[13] summarizing the empirical evidence of previous studies on the relationship, determining the variables of interest and verifying their effect on the relationship, and developing hypotheses for a group of comparable studies on the relationship.

In order to avoid the main limitation of the meta-analytical method, that it raises problems associated with an investigation of the effect size,[14] the current research focuses only on estimation of the directionality and significance of the effects in the interactions between the variables of interest. Therefore, the first step of the analysis involves collecting data on directions and *p*-values of the effects from previous empirical studies grouped under the five research questions.

Further, another possible problem with the meta-analysis method is eliminated by a division of studies grouped under the same research question into subgroups of studies that use the same types of empirical estimates for bank value and dividend policy constructs. Since the ways of measuring the main constructs differ significantly in the papers, this could result in non-comparability of *p*-values for empirical studies of the same group. Thus, splitting the papers into subgroups is crucial for understanding the underlying differences in the empirical results.

[13] Following Rosenthal (1991), and Sobrero and Schrader (1998).

[14] Since the type of results reported differs significantly between the studies, obtaining indicators that partial out the effect of covariates becomes problematic if not impossible. The problem of analyzing the effect sizes becomes even more severe if consider the presence of difference covariates in the different studies (Rosenthal (1991); Sobrero and Schrader (1998)).

Finally, the current research considers the so-called 'File Drawer problem' demonstrated by Rosenthal (1991) and implying a possible bias that could affect the meta-analysis results if they focused only on published empirical papers. Since papers that show significant empirical evidence are more likely to raise the interest of a journal they are published more often, and therefore the impact of non-significant empirical evidence on the results of meta-analysis may be undervalued (type I error). For dealing with the File Drawer problem, the current research first includes working papers and conference papers from SSRN and NBER databases in the analysis, and then employs the corresponding testing procedure suggested by Rosenthal (1991).

To sum up, the main advantage of using meta-analysis in the current research is that it allowed us to summarize previous empirical studies, which are not comparable under the usual literature review process. The application of the method is associated with several problems that could bias the results, but these problems are minimized by use of procedures suggested in specialized and authoritative literature.

2.4.3 Data coding

As the current meta-analysis focused on the directionality and significance of the effects in the studies, for each of them the direction of the effect and one-tailed *p*-value were recorded. If the exact *p*-value was not reported in the study, the available data on *t*-statistics were used to define the corresponding *p*-value from the statistical tables of distribution. If *t*-statistics were not reported, either, the available data on standard errors were used in order to calculate *t*-statistics before defining the *p*-value.

For each *p*-value, the corresponding normal deviate *Z*-score was determined from the statistical tables. Decisions about the sign of the *Z*-score were based on the underlying hypothesis predicting either positive or negative direction of the effects. The expected sign of the hypothesis was determined from the whole set of studies in a group (or subgroup) of papers. For instance, if the majority of studies in a group demonstrated a positive direction for the interaction between the two constructs, the hypothesis predicted a positive effect. In that case, each study showing a positive relationship was coded with positive *Z*-score while each study demonstrating a negative relationship was coded with negative *Z*-score. On the other hand, if most studies in a group revealed a negative direction for the interaction between the two constructs, the hypothesis predicted a negative effect. Thus, in that case each study

showing a positive relationship was coded with negative *Z*-score while each study demonstrating a negative relationship was coded with positive *Z*-score.

When more than one test was performed in a study for the same sample, a combination procedure was used. First, the integrated *Z*-score was calculated by summarizing all individual tests' *Z*-scores. Then the *p*-value associated with the integrated *Z*-score was calculated from the statistical tables. For instance, this procedure was employed when the same model with its slightly different functional forms was tested several times for the same sample. However, when a model was tested for different samples the reported results were coded as separate studies with *p*-values and *Z*-scores corresponding to each sample (for example, Black et al. (1995)).

The current research distinguishes several types of estimates for bank value and dividend policy constructs, and argues that studies using different measures cannot be compared. Therefore, if studies within the same paper employed several different measures for the dependent (and/or independent) constructs, during the coding procedure they were not combined in order to calculate a common *Z*-score. Instead, a distinct *Z*-score and corresponding *p*-value were reported for each study using a particular measure for bank value and/or dividend policy.[15] For example, in the research work of Onali (2009) the effect of bank book value on dividend payout is analyzed using two different measures for dividend policy constructs: *DP* (dividends paid to earnings ratio) and *DPE* (dividends paid to equity ratio). In the meta-analysis procedure studies using the two types of dividend policy estimates were coded separately.

2.4.4 Statistical tests

Recording the *Z*-scores and *p*-values for all the studies in the sample allowed testing of the heterogeneity, in other words checking the possibility of combining studies on the same research question. If the empirical results were homogeneous, this implied that each study in the group demonstrated the effect predicted by the underlying hypothesis and high level of significance. Finding homogeneity in the studies was followed by several additional tests, which aimed to verify the main test result.

[15] The separate coding of studies with distinct measures for the main constructs is necessary but is associated with a duplication problem. In order to avoid the problem, the positive results of testing will be verified by supplementary testing procedure based on calculation of common *p*-value for studies on the same sample (even if the studies use different measures) and comparing the two results. If supplementary test reveals negative result, the possibility of combining the studies will be rejected.

In the current research the test of the heterogeneity of the corresponding *Z*-scores (Rosenthal (1991)) was performed for the studies grouped under each of the five research questions. First, the average *Z*-scores for five groups were computed. Then, for each study on a particular research question, the squared difference between the individual and average *Z*-scores was calculated. Finally, the sum of all individual squared differences was used to obtain a group's *p*-value from a χ^2 statistics with *N*-1 degrees of freedom:

$$\sum_{i=1}^{N}(Z_i - Z_m). \qquad [1]$$

If the *p*-value obtained from the test was small, it was concluded that studies on the research question were heterogeneous and could be grouped together. However, in this case the reasons for the heterogeneity had to be analyzed. One possible reason arose when studies demonstrating the same direction of effect for the relation had significant but very different *p*-values.[16] For example, when one study had significant one-tailed *p*-value equal to 0.05 while another had significant *p*-value equal to 0.0001, the test result could reveal heterogeneity. Since in this case both studies confirmed a significant relationship in the same direction, they could be grouped together. However, if one of the studies showed no significant result ($p>0.1$) while another was significant, the possibility of grouping the studies together was rejected.

As the previous literature employs several different types of estimates for bank size and dividend policy constructs, grouping these studies together could reveal the second reason for the heterogeneity. In this case, heterogeneous studies on the same research question were divided into the smaller subgroups of the studies that used similar measures for bank value and dividend policy constructs. Then the heterogeneity test was performed for each subgroup. Importantly, the test results on both group and subgroup levels enabled us to understand whether the contradictory empirical evidence was related to differences between the constructs used in the studies.

The homogeneity result for studies in the same group (or subgroup) of papers was verified by additional testing methods (Rosenthal (1991)) aimed at identifying whether the result was systematic or random. Each test analyzed the probability that the *p*-value of the studies was obtained while the null hypothesis of no relationship between the dependent and independent constructs was true. The additional tests had both advantages, allowing them to perform well under certain conditions, and disadvantages, limiting their application in other cases. In order

[16] Following Sobrero and Schrader (1998).

to obtain accurate results on the systematic character of the homogeneity, first, the appropriateness of employing each additional testing procedure for a certain group (subgroup) of papers was analyzed. Then, on the basis of the whole range of the results the relationship was confirmed or rejected. Table 2.3 summarizes the additional tests employed in the current research and lists their advantages and limitations.

Table 2.3 Additional testing methods (following Rosenthal (1991)).

Method	*Computation*	*Advantages*	*Limitations*
Adding Logs	$\sum -2log_e p$	Easy, used when $N \leq 5$	Not applicable for opposite sign results
Adding *p*'s	$\frac{(\sum p^n)}{N!}$	Good power, easy	Not applicable when $\sum p \geq 1.0$
Adding *Z*'s	$\frac{\sum Z}{\sqrt{N}}$	Usually used, easy	-
Adding weighted *Z*'s	$\frac{df_1 Z_1 + df_2 Z_2 + \cdots + df_n Z_n}{\sqrt{df_1^2 + df_2^2 + \cdots + df_n^2}}$	Allows weighting the study's impact to overall test result	-
Testing mean *p*	$(0.50 - \bar{p})(\sqrt{12N})$	Easy	Not applicable when $N \leq 4$
Testing mean *Z*	$\frac{\sum Z/N}{\sqrt{S_{(Z)}^2/N}}$	No assumption of unit variance	Not applicable when $N \leq 5$

The final testing procedure employed in the meta-analysis was a File Drawer test suggested by Rosenthal (1991). The logic of the File Drawer test is that published journal articles represent only a small fraction of all studies performed on a research question. Thus, the test attempts to determine the actual number of the studies carried out, with the following computation procedure:

$$\frac{N\,(N\,\overline{Z}^2 - 2.706)}{2.706}, \qquad [2]$$

N = number of all published studies (qualitative and quantitative) in the sample.

As the current meta-analysis sample included both published and unpublished works, the File Drawer test for a group of papers was performed on published works only.

2.5 Results

Previous literature on the relationship between bank value and dividend policy reveals no concordance amongst the empirical results. The studies investigate the two different dimensions of the interaction between value and payout, and consider various dividend policy options. This makes comparison of the results within a normal literature review difficult if not impossible. Moreover, the different studies demonstrate contradictory directions of effect for the same relationship. For instance, the works grouped under Question 1 reveal two streams of research supporting either the positive or negative effect of bank size on dividend payout. Further, the empirical results differ between one another by the level of significance. Therefore, when two studies show the same direction of the effect and one is significant while the other is not, their results cannot be compared. Finally, the empirical evidence is based on different degrees of freedom. As a result, comparing and summarizing the main achievements of previous research works can become a particularly complicated task for the literature reviewer.

However, the meta-analysis used here is an appropriate and effective instrument for comparing the previous research in the study field. It is based on the use of strict sampling and testing procedures suggested in specialized and authoritative literature, and provides precise answers to the five research questions.

Table 2.4 summarizes the studies reviewed through the five research questions analyzed. It provides general information about each study (in particular, author, year of publication, country and period of sample observation), specifies the number of samples if a study analyzes more than one, lists dependent and independent constructs and intermediary constructs where necessary, shows expected and observed directions of the effect, one-tailed *p*-values and degrees of freedom for each study.

Table 2.4 Summary of the studies reviewed on each of five research questions.

N	*Study reviewed*	*Sample N*	*Dep. constr.*	*By:*	*Indep. constr.*	*Exp. dir.*	*Obs. dir.*	*p-value one tail.*	*df*	*Country*	*Period*
1. What is the effect of size on a bank's propensity to retain the same level or increase the level of dividend payout?											
1	Collins et al. (1994)		*Dyield*		*MV*	+	+	0.2090	932	USA	1977–1985
2	Collins et al. (1994)		*Dyield*		*M/B*	-	-	0.9999	932	USA	1977–1985
3	Collins et al. (2009)		*DPE*		*BV*	-	-	0.6249	56	USA	1994–1997
4	Dickens et al. (2003)		*Dyield*		*Other Bank Value*	+	+	0.0001	670	USA	1998–2000
5	Dickens et al. (2003)		*Dyield*		*M/B*	-	-	0.9999	670	USA	1998–2000
6	Esteban and Perez (2001)		*DPE*		*BV*	-	-	0.9985	479	Europe, 22 countries	1991–1998
7	Foerster and Sapp (2006)		*Dyield*		*Other Bank Value*	+	+	0.0228	81	Canada	1885–2003
8	Foerster and Sapp (2006)		*Dyield*		*Other Bank Value*	+	+	0.0001	81	Canada	1885–2003
9	Gropp and Heider (2009)		*Divpay*		*BV*	+	+	0.0210	2414	European Union, USA	1991–2004
10	Gropp and Heider (2009)		*Divpay*		*M/B*	+	+	0.0001	2414	European Union, USA	1991–2004
11	Junarsin and Ismiyanti (2009)		*Dyield*		*BV*	+	-	0.5000	662	Indonesia	2000–2004
12	Onali (2009)		*DP*		*BV*	+	+	0.0061	790	Europe (France, Germany, Italy and the UK)	2000–2007
13	Onali (2009)		*DPE*		*BV*	+	+	0.0050	802	Europe (France, Germany, Italy and the UK)	2000–2007
14	Onali (2010)		*DPE*		*BV*	+	-	0.5271	2721	EU, USA	2000–2008
15	Rousseau (2010)		*Dyield*		*MV*	+	+	0.0023	1085	USA	1866–1897
16	Theis and Dutta (2009)		*Dyield*		*Other Bank Value*	-	-	0.9633	92	USA	2006
17	Theis and Dutta (2009)		*Dyield*		*M/B*	-	-	0.9082	92	USA	2006
18	Brogi (2010)		*DP*		*MV*	-	-	na	na	Europe, Italy	1990–2009

2. What is the effect of size on a bank's propensity to omit or reduce the level of dividend payout?										
1	Georgieva and Wilson (2010)		*Divcut*		*BV*	-	-	0.0032	690	USA	2009–2010
2	Georgieva and Wilson (2010)		*Divcut*		*M/B*	-	-	0.1335	690	USA	2009–2010
3. How does the decision to keep the same level or increase the level of dividend payout affect bank value?										
1	Filbeck and Mullineaux (1999)		*MV*		*Divpay*	+	+	0.0608	41	USA	1976–1994
2	Gropp and Heider (2009)		*BV*		*Divpay*	+	+	0.0210	2414	European Union, USA	1991–2004
3	Gropp and Heider (2009)		*M/B*		*Divpay*	+	+	0.0001	2414	European Union, USA	1991–2004
4	Onali (2009)		*BV*		*DP*	+	+	0.0176	909	Europe (France, Germany, Italy and the UK)	2000–2007
5	Onali (2009)		*BV*		*DPE*	+	+	0.0050	928	Europe (France, Germany, Italy and the UK)	2000–2007
6	Onali (2010)		*BV*		*DPE*	+	+	0.0050	2968	EU, USA	2000–2008
7	Rousseau (2010)		*MV*		*Dyield*	+	+	0.1164	1102	USA	1866–1897
4. How does the decision to omit or reduce dividend payout affect bank value?										
1	Black et al. (1995)	Sample 1	*MV*		*Divcut*	-	-	0.2622	17	USA	1974–1977
2	Black et al. (1995)	Sample 2	*MV*		*Divcut*	-	-	0.0878	42	USA	1978–1987
3	Slovin et al. (1999)		*MV*		*Divcut*	-	-	0.0001	62	USA	1975–1992
5. What is the directionality of the effects in the continued relationship between bank value and dividend policy?										
1	Bessler and Nohel (1996)		*MV*	*Divcut*	*BV*	-	-	0.0016	53	USA	1974–1991
2	Slovin et al. (1999)		*MV*	*Divcut*	*BV*	-	-	0.0116	54	USA	1975–1992
3	Slovin et al. (1999)		*MV*	*Divcut*	*MV*	+	+	0.8473	54	USA	1975–1992
4	Rousseau (2010)		*MV*	*Dyeld*	*MV*	+	+	na	na	USA	1866–1897

The initial visual inspection of the studies revealed mixed evidence for the directions of the effects for the relationships analyzed under Questions 1 and 5. As the results reported in each of the two groups supported contradictory directions of an effect, the significance levels recorded were heterogeneous. On the other hand, the studies analyzed under Questions 2, 3 and 4 demonstrated agreement in the directions of the effects. However, only studies under Question 3 reported the homogeneity of the significance levels, implying a strong positive effect of dividend payout on bank value changes.

Tests for the heterogeneity of *Z*-scores for the five groups of studies support the primary conclusions on the statistical basis (Table 2.5). The heterogeneity test for the studies grouped under Question 1 revealed statistically different *p*-values (χ^2_{17}=113.82, p<0.0001) implying that the studies could not be grouped together. All studies on Question 2 showed a negative relationship; nevertheless the heterogeneity test failed to support the opportunity of grouping them together: χ^2_2=1.30, p=0.2542. As previously explained, heterogeneity can be observed even in cases where the difference between two significant *p*-values of individual studies is too high. However, comparison of the *p*-values of the two studies on Question 2 revealed that one of them was not significant (p=0.1335), and therefore the test result was valid.

Tests for the heterogeneity of the studies grouped under Question 3 revealed the most important result of the current meta-analysis, demonstrating that all studies of the group could be compared and combined between one another (χ^2_7=4.60, p=0.5960).[17] The homogeneity of the seven studies was verified by the additional testing procedures, which all confirmed the relationship. The studies on Question 3 determined the First result of the current meta-analysis, showing a positive and significant effect of dividend distribution on bank value. This result is important as it helps to resolve the conflict between the positive theorists and their opponents, on the one hand, and provides practical guidance for bank managers, on the other hand.

The First result: The effect of dividend payout on bank value is positive and statistically significant.

The heterogeneity test for the studies grouped under Question 4 revealed that they cannot be combined (χ^2_3=5.87, p=0.0531). Although the three studies in the group showed a negative

[17] Supplementary testing procedure also supported the result (χ^2_5=2.14, p=0.7100).

effect of cutting dividends on bank value, one of the results was not significant (p=0.2622), and therefore the heterogeneity test result is valid. Finally, performing the test for the studies grouped under Question 5 demonstrated their heterogeneity (χ^2_3=9.02, p=0.0110), supporting the result of the primary observation about non-comparability of studies showing different directions of the effects for the relationship.

As previously explained, one possible reason for heterogeneity is the use of various types of estimates for the dependent and independent constructs by different studies on the same research question. There were four different types of estimates for bank value[18] and four estimates for dividend policy,[19] as noted above in the literature analysis. It was supposed that combining the studies that used diverse estimates could provide biased results. Therefore, as a further step in the analysis we performed the heterogeneity test for the subgroups of studies (defined within the five groups) that employed similar measures for the dependent and independent constructs.

Defining the subgroups was useful for analyzing the studies on Questions 1 and 5 due to the variability of the measures employed in them. However, subgrouping was not applicable for studies on Questions 2 and 4 as analysis in each group employed common measures for bank value and dividend policy constructs. Therefore, the studies grouped under Questions 2 and 4 were deemed to be heterogeneous, and no further analysis was conducted.

The effect of bank size on a bank's decision to omit or reduce the level of dividend payout is negative but statistically heterogeneous.

The effect of omitting or reducing dividend payout on bank value is negative but statistically heterogeneous.

[18] *Book Value*, *Market Value*, *Market-to-Book ratio* and *Other Bank Value* estimates.
[19] *Dividend Yield*, *Dividends-to-Earnings*, *Dividends-to-Equity*, and *Dividend Cutting* and *Dividend Paying* dummies.

Table 2.5 Heterogeneity and additional tests for the studies on the five research questions.

Comparing		*Combining*							*File Drawer*
Test	*Result*	*Test*						*Result*	*Test*
		Adding Logs	*Adding p's*	*Adding Z's*	*Adding wZ's*	*Mean p*	*Mean Z*		
1. What is the effect of size on a bank's propensity to retain the same level or increase the level of dividend payout?									
χ^2_{17}=113.82	The studies reviewed	-	-	-	-	-	-	Relation not	-
p<0.0001	may not be combined							confirmed	
2. What is the effect of size on a bank's propensity to omit or reduce the level of dividend payout?									
χ^2_2=1.30	The studies reviewed	-	-	-	-	-	-	Relation not	-
p=0.2542	may not be combined							confirmed	
3. How does the decision to keep the same level or increase the level of dividend payout affect bank value?									
χ^2_7=4.60	The studies reviewed	-	p<0.0001	6.02	5.71	4.29	7.42	Relation	1
p=0.5960	may be combined			p<0.0001	p<0.0001	p<0.0001	p<0.0001	confirmed	
4. How does the decision to omit or reduce dividend payout affect bank value?									
χ^2_3=5.87	The studies reviewed	-	-	-	-	-	-	Relation not	-
p=0.0531	may not be combined							confirmed	
5. What is the directionality of the effects in the continued relationship between bank value and dividend policy?									
χ^2_3=9.02	The studies reviewed	-	-	-	-	-	-	Relation not	-
p=0.0110	may not be combined							confirmed	

Table 2.6 Heterogeneity and additional tests for the subgroups of the studies determined within the groups on the five research questions.

		Comparing		*Combining*							*File Drawer*
		Test	*Result*	*Tests*						*Result*	*Test*
				Adding Logs	*Adding p's*	*Adding Z's*	*Adding wZ's*	*Mean p*	*Mean Z*		
1. What is the effect of size on a bank's propensity to retain the same level or increase the level of dividend payout?											
1. *BV* to all dividend constructs	Collins et al. (2009) Esteban and Perez (2001) Gropp and Heider (2009) Junarsin and Ismiyanti (2009) Onali (2009) Onali (2009) Onali (2010)	χ^2_7=23.85 *p*=0.0006	The studies reviewed may not be combined	-	-	-	-	-	-	Relation not confirmed	-
2. *MV* to all dividend constructs (Positive relation)	Collins et al. (1994) Rousseau (2010)	χ^2_2=2.04 *p*=0.1532	The studies reviewed may not be combined	-	-	-	-	-	-	Relation not confirmed	-
3. *M/B* to all dividend constructs	Collins et al. (1994) Dickens et al. (2003) Gropp and Heider (2009) Theis and Dutta (2009)	χ^2_4=40.49 *p*<0.0001	The studies reviewed may not be combined	-	-	-	-	-	-	Relation not confirmed	-
4. *Other Bank Value* measure to all dividend constructs (*Dyield)*	Dickens et al. (2003) Theis and Dutta (2009) Foerster and Sapp (2006) Foerster and Sapp (2006)	χ^2_4=21.51 *p*<0.0001	The studies reviewed may not be combined	-	-	-	-	-	-	Relation not confirmed	-
5. All bank value constructs to *Divpay* (Positive relation)	Gropp and Heider (2009) Gropp and Heider (2009)	χ^2_2=1.75 *p*=0.1859	The studies reviewed may not be combined	15.44 *p*=0.0039	*p*=0.0002	4.19 *p*<0.0001	4.19 *p*<0.0001	-	-	Relation confirmed	0

6. All bank value *(BV)* constructs to *DPE*	Collins et al. (2009) Esteban and Perez (2001) Onali (2009) Onali (2010)	χ^2_4=15.32 *p*=0.0016	The studies reviewed may not be combined	-	-	-	-	-	-	Relation not confirmed	-
7. All bank value constructs to *Dyield*	Collins et al. (1994) Collins et al. (1994) Dickens et al. (2003) Dickens et al. (2003) Foerster and Sapp (2006) Foerster and Sapp (2006) Junarsin and Ismiyanti (2009) Rousseau (2010) Theis and Dutta (2009) Theis and Dutta (2009)	χ^2_{10}=78.09 *p*<0.0001	The studies reviewed may not be combined	-	-	-	-	-	-	Relation not confirmed	-
8. *M/B* to *Dyield* (Negative relation)	Collins et al. (1994) Dickens et al. (2003) Theis and Dutta (2009)	χ^2_3=3.83 *p*=0.1473	The studies reviewed may not be combined	42.29 *p*<0.0001	*p*<0.0001	5.35 *p*<0.0001	5.53 *p*<0.0001	-	-	Relation confirmed	28
5. What is the directionality of the effects in the continued relationship between bank value and dividend policy?											
1. *BV* to *MV* (through *Divcut)* (Negative relation)	Bessler and Nohel (1996) Slovin et al. (1999)	χ^2_2=0.23 *p*=0.6315	The studies reviewed may be combined	21.79 *p*=0.0002	*p*<0.0001	3.69 *p*=0.0001	3.68 *p*=0.0001	-	-	Relation confirmed	8

Investigation of the different estimates employed in the studies for the dependent and independent constructs, and analysis of their possible combinations revealed eight subgroups of studies for Question 1 and one subgroup for Question 5. Table 2.6 lists all possible subgroups defined within each group of studies and reports the heterogeneity test results for them.

According to Table 2.6, the subgrouping provides different results for studies investigating Question 1. For instance, several subgroups still show contradictory directions of the effect and low *p*-values for the heterogeneity test (subgroups 1, 3, 4, 6, and 7). Therefore, the studies in these subgroups cannot be combined. Although subgroup 2 demonstrates agreement amongst the studies in the directions of the effect, the heterogeneity test reveals no combining opportunity. Comparison of the significance levels of the studies shows that the heterogeneity test result is valid as one of the results is not significant (p=0.2090). Thus, the studies in subgroup 2 cannot be placed together, either.

However, analysis of subgroups 5 and 8 provides some valuable results. The three studies in subgroup 8 investigated the effect of *M/B* ratio on *Dyield* and demonstrated its positive direction. Although the heterogeneity test revealed that the studies could not be grouped together (χ^2_3=3.83, p=0.1473), comparison of the individual significance levels demonstrated that the test result was biased by a large difference between the significant *p*-values (0.0001, 0.0001 and 0.0918). Therefore, the studies could be grouped together. The additional testing procedures confirmed the relationship. Moreover, the File Drawer test suggested that possibly there are another 28 papers on the relationship analysis.

The Second result: The effect of Market-to-Book ratio on Dividend Yield is negative and strongly significant.

Another result arises from the analysis of studies in subgroup 5. The two studies suggested that the decision to pay dividends (*Divpay* dummy) is positively affected by bank value. Although the heterogeneity test implied that the studies cannot be combined (χ^2_2=1.75, p=0.1859), the individual significant *p*-values (0.0001 and 0.0210) demonstrate the contrary. The additional testing procedures also supported the relationship. This result confirms an overall positive effect of bank value on the decision to distribute dividends (not to be

confused with the measures considering the level of dividend distribution such as *Dyield* or *Divpay*).[20]

The Third result: The effect of bank value on the decision to pay dividends – Divpay is positive and statistically significant.

One subgroup was defined within a group of studies that were concerned with the analysis on the interrelation between bank value and dividend policy (Question 5). The two studies investigated the effect of cutting dividends on *Market Value* of the different-sized banks (estimated by *Book Value*) and demonstrated a negative relationship. The heterogeneity test revealed that the studies could be put together (χ^2_2=0.23, p=0.6315). The additional testing procedures also confirmed the relationship. The File Drawer test suggested that there might be another eight studies investigating this research problem.

The result above implies that for banks with a large book size cutting dividends has a stronger negative consequence, while for smaller banks cutting dividends is more likely to receive moderate market reaction.

The Fourth result: The effect of negative dividend decision on bank market valuation is stronger for large banks (defined on the basis of Book Value).

Summing up, the current meta-analysis produced several important results based on analysis of previous empirical studies. First, increasing the level of dividend distribution leads to a further increase in bank value. Second, banks with high *Market-to-Book ratio* distribute smaller dividends per share. Third, large bank value is associated with higher probability of dividend distribution. Fourth, large banks have stronger negative market reaction to their stocks after cutting dividends.

2.6 Discussion

The results of the current meta-analysis have several important implications from theoretical, practical and methodological points of view.

[20] However, the result's theoretical importance is limited as the finding is based on two studies from the same research work.

2.6.1 The theoretical perspective

First of all, the results obtained are important from the theoretical perspective. Since several relationships were confirmed by the meta-analysis, they can be used for better understanding of the directionality of the effects in the interaction between value and dividend policy in banks. Although other relationships are not confirmed their analysis also allows us to derive some noteworthy results.

Question 3 results discussion

Investigation of the studies grouped under Question 3 supports a positive and significant effect of dividend payout on bank value (the First result). Since this result indicates that dividend distribution is good for banks, it provides strong empirical support for the ideas of the positive theorists' school. The analysis result is based on strict sampling and testing procedures. Moreover, it has high external validity as observations include banks from different countries (European countries, USA) and includes operating times during normal and crisis periods. Therefore, the current meta-analysis result may have a significant impact on resolving the conflict between the two opposing schools that predict either positive or negative direction of the effect for the relationship, and demonstrates that practical evidence is quite ambiguous.

Question 1 results discussion

Analysis of the group of studies on Question 1 did not provide a strong significant result. Instead, the studies demonstrated contradictory directions of the effect and diverse significance levels, implying that the effect of bank size on dividend distribution is not very evident. The result supported the existence of two streams of research in the literature, the first suggesting that large banks are associated with higher payout and the second arguing the opposite. Comparison of the studies by country and period of observation did not clarify the reasons for heterogeneity. However, splitting the studies into several subgroups that use the same measures for the dependent and independent constructs provided some interesting results. One of the subgroups showed negative and significant effect of *Market-to-Book ratio* on *Dividend Yield* (the Second result). According to the previous literature this result can be given two different interpretations. One interpretation considers *M/B* ratio as a measure of the expensiveness of stocks, and indicates that a bank with a higher ratio tends to distribute fewer

dividends per share because of high market recognition and the absence of any need to maintain shareholders' confidence. If we follow this view, the finding provides strong support for the Agency cost theory as it was interpreted by the second stream of the research on the first dimension of the relationship. The other interpretation regards *M/B* ratio as a measure of growth opportunities, and suggests that a bank with better projects tries to reserve cash for investment purposes and avoids high payouts to the shareholders. According to the latter view the Second result supports the Growth Opportunities argument employed by the second stream of the research on the first dimension, for explaining negative interaction between bank size and payout.

Another result from the subgroup analysis showed that the effect of bank value on the decision to pay dividends is positive (the Third result). As the finding is based on two studies reported in the same paper, it is considered that the result's theoretical importance is limited, and therefore it is not discussed here.

The meta-analysis of the studies on Question 1 allows us to conclude that while there is strong negative interaction between the two estimates for the dependent and independent constructs (*M/B* ratio and *Dyield*), other relationships are not significant and cannot be confirmed. Therefore, the overall impact of bank size on dividend policy is not clear, and probably there are other factors that have a stronger effect on determining the level of dividend payout in a bank.

Question 2 results discussion

The studies grouped under Question 2 analyzed the effect of bank size on negative dividend policy decisions and demonstrated a negative relationship, suggesting fewer dividend cuts for large banks. This result is explained in the literature by the so-called 'Too-Big-To-Fail' concept, which asserts that large banks have greater stability and higher reluctance to cut dividends even during periods of crisis. However, as the studies in the group are heterogeneous in their significance levels, more empirical support is required to confirm the relationship and the underlying theoretical concept.

Question 4 results discussion

The studies grouped under Question 4 also demonstrated agreement in the direction of the effect as they all showed the negative effect of cutting dividends on bank value. This result is

not surprising when we consider a bank's special market role and the high importance of dividend payouts for a bank. In order to avoid negative market reaction or to shift risks from owners to creditors the bank continues to pay dividends in spite of suffering losses, and stops payout completely only shortly before it fails. Such behavior is described in the literature by the Positive Signaling and Risk Shifting theories. It is obvious that cutting dividends in a risk-shifting and positive-signaling bank is considered as an indicator that the bank is close to failure, and leads to panic sales of shares. Analysis of the relationship is essential for verifying the underlying theories; however, because of the heterogeneity of the significance levels the result of the current research cannot be considered as complete. More new empirical evidence on the relationship can probably provide support for Risk Shifting and Positive Signaling arguments or reject their practical significance.

Question 5 results discussion

Finally, the fifth group of studies represents the most interesting part of the research connecting the two dimensions of the relationship into the interrelation system. The studies in this group tested the hypothesis that a large bank experiences stronger market reaction to its dividend policy choices, but showed mixed results. However, subgrouping of similar papers revealed a strongly significant negative effect of bank book size on changes of market value after dividend reductions. This result supports, on the one hand, the 'Too-Big-To-Fail' argument, implying higher stability and reliance on regulatory help for large banks, and, on the other hand, such theories as Signaling or Risk Shifting, explaining the development of latent problems in dividend-paying banks. The intuition of the relationship suggests that a large bank, relying on its reputation and external support in the event of crisis, continues to participate in further risk-taking activities and uses dividends as a mechanism for manipulating shareholders' confidence or shifting risks from owners to taxpayers. Since a large bank allows the problems to increase to their critical points, cutting dividends indicates that the bank is no longer able to control the situation and has no regulatory support. Therefore, if a large bank reduces its dividend, this receives overreaction in the market when compared to the moderate reaction to dividend restriction by a small bank.

The significant negative effect derived from the interrelation analysis can be considered as a link between the groups of studies analyzed by Questions 2 and 4. The former showed negative heterogeneous results for the relationship between bank size and dividend cutting (a large bank restricts its dividends more rarely) while the latter demonstrated negative

heterogeneous results for the effect of restricting dividends on bank value. Although the studies in each of the two groups cannot be put together, and the underlying relationships are not confirmed, the Fourth result of the meta-analysis implies that their results are probably close to the truth. It is likely that, with more new empirical analyses, the relationships analyzed by Questions 2 and 4 can be confirmed.

2.6.2 The practical importance

The practical importance of the research lies in the correct interpretation and application of the analysis results by all interested parties. The First result, that dividend distribution leads to further growth of bank value, is beneficial for banking management. As an increase in value for the owners is the primary aim of an honest manager, he or she should try to adopt the best possible dividend payout policy, which means an optimal balance between forming reserves and sharing profits. The Second result is highly useful for bank owners and potential investors as it implies that banks with a high *M/B* ratio distribute fewer dividends per share. If the investor is interested in high dividend return for a unit of investments, he or she should avoid buying stocks in a bank with a high *M/B* ratio. However, if dividend yield is not important for the investor who evaluates a bank according to the level of safety or growth opportunities, a high *M/B* ratio signals good investment choice. The Third result, implying that large bank size is associated with higher probability of dividend distribution, could also be essential from the investor's point of view, although this result should be interpreted together with other banking signals.

Lastly, the Fourth result refers to the interrelation analysis and has several practical applications. First of all, the result is beneficial for banking management, as the relationship is driven by two reasons related to particular management behavior in large banks: 1) poor or no previous dividend cutting experience, so that the market considers dividend restriction as a kind of outstanding negative event and overreacts, 2) information asymmetry that arises because a dividend cutting announcement is not accompanied by further information and explanation of the reasons (investment needs, forming reserves, etc.) The conclusion is that a large bank associated with the highest degree of information asymmetry should be interested in building effective and honest communications with its investors instead of simply relying on dividend as a communication tool. Second, the result is useful for different investors, as comparing the changes in large and small banks' stocks during a period of banking dividend cuts is informative about the depth of an imminent crisis. Third, the result indicates such

regulatory faults as the Too-Big-To-Fail problem. Since a large bank relies heavily on regulatory support, it is not concerned about limiting its participation in risky projects or restricting dividends. However, if a bank is refused external help, cutting dividends can accelerate its failure. The main fault of the banking regulation system is that it allows excess reliance on its support by large banks, which, in the end, makes the regulators responsible for large banking failures. Demonstration of the concept on the empirical basis within the current research suggests that the Too-Big-To-Fail problem should be seriously analyzed and addressed by the implementation of adequate legal and practical measures.

2.6.3 The methodological importance

Finally, the methodological importance of the current meta-analysis lies in the justification for the grouping procedure, in particular: 1) distinguishing the studies on the two dimensions of the relationship, 2) distinguishing the studies that focus on different dividend policy options, and 3) defining groups for the studies that analyze the interrelation between bank value and dividend payout. Such grouping allows us, for instance, to confirm a positive effect of dividend payout on bank value (Question 3, the First result). Moreover, the results of the meta-analysis support the division of the studies of one group into several smaller subgroups, based on similar estimates for the dependent and independent constructs used. In particular, such a split provides the Second, Third and Fourth results of the current meta-analysis.

CHAPTER 3

Research context: European banking industry

After the crisis of 2007-2008, the dividend policy of banks was analyzed in tight relationship with corporate governance. Banking dividend policy and corporate governance were between the most hotly discussed topics in Banking. Poor corporate governance and dividend policy of troubled banks attracted the attention of numerous scholars all over the world (Acharya (2011); Boyallian and Ruiz-Verdu (2012); Bebchuk et al. (2010)). Moreover, poor corporate governance and unjustified dividend policy in banks were named between the main reasons of the banking crisis (BIS (2010); Mülbert (2010); Ferrarini and Ungureanu (2011)).

Despite importance and relevance of the topic, the literature on the relationship between banking corporate governance and dividend policy is rather scarce. Moreover, the empirical literature lacks investigation on European banking, because of a dearth of corporate governance data for European banks.

We develop this chapter in order to give more information on European banking sector and show its diversity. This chapter describes European banking sector as a research context for the second paper (Chapter 4). The description is based on a new hand-collected data set for 109 listed banks[21] located in 15 EU countries for the period 2005-2010.[22] We focus on such banking characteristics as ownership structure, corporate governance, and executives' compensation across different countries and legal origins. Following La Porta et al. (1998) we analyze four legal origins: English (Ireland and the UK), French (Belgium, France, Greece,

[21] We describe our sampling procedure in Chapter 4.
[22] We provide detailed information on our data in the Appendix 1 (Table A1).

Italy, Luxembourg, the Netherlands, Portugal and Spain), German (Austria and Germany), and Scandinavian (Denmark, Finland and Sweden).

Table 3.1 illustrates the main structural characteristics of banks across countries and legal origins. It employs two measures for bank size: number of employees, and total assets. Looking at these measures, we find that large banks dominate the banking sector in English legal origin countries, while small banks are mostly prevalent in Scandinavian countries. Banking sector in German and French origin countries is dominated by medium-sized banks. When looking at country level, large banks dominate the banking sector in the UK, France, Belgium, Germany, the Netherlands and Spain, while small banks dominate the banking sector in Finland, Greece, Luxembourg, Denmark and Portugal. Medium-sized banks are mostly prevalent in Austria, Ireland, Italy and Sweden.

The banks in English origin countries distribute larger dividends on equity (more than 6%) compared to banks in Scandinavian, French and German origin countries (about 4%, 4% and 3%, correspondingly). When looking at country level, the banks in Sweden demonstrate the highest level of dividends per equity (about 9%), followed by banks in the UK, France and Finland (about 7%, 6% and 6%, correspondingly). The smallest dividend payer banks are located in Luxembourg, Austria and Denmark.

Table 3.1 Main characteristics of EU banking.

Country	*N of bank observations*	*N of employees*	*Total assets, mil.EUR*	*DPE, %*
Austria	35	21087	62.93	1.26
Belgium	16	39956	496.93	2.84
Denmark	64	3367	44.58	1.44
Finland	20	3695	20.42	6.13
France	48	42421	614.99	6.46
Germany	54	18227	309.77	3.71
Greece	47	10424	33.03	1.93
Ireland	12	19808	166.34	3.97
Italy	121	15237	94.52	3.68
Luxembourg	8	9171	40.38	1.01
Netherlands	25	31845	330.93	4.69
Portugal	23	10160	51.74	3.14
Spain	48	37308	233.82	5.20

Sweden	24	14684	216.99	9.48
United Kingdom	53	88824	691.31	6.69
Total:	598	26011	229.94	4.06
Legal origin				
English	65	76082	594.40	6.19
French	336	23253	212.71	3.98
German	89	19324	212.70	2.75
Scand	108	5926	78.42	4.10

Table 3.2 illustrates differences in banking ownership structure in the EU-15 countries. Banks in English origin countries usually have dispersed shareholding structure (75% and 52% of all observations in Ireland and the UK, correspondingly). Usually these banks do not have any large shareholder with a 10% or more share stake (henceforth, large owner). In comparison, the banks in German origin countries have highly concentrated share ownership (The probability of dispersed ownership is only about 11%). In 89% of the observations, they have the first large owner. In 48% of the observations, they have also the second large owner.

In all observed countries, the largest share stake usually belongs to a widely-held financial institution. The probability that financial institution is the largest owner ranges in different countries between 52-100%. The probability of family largest share ownership is relatively high in Spain, Portugal, the UK, Germany and Denmark (between 20-29%). The probability of government largest share ownership is relatively high for banks in Ireland, Finland, Belgium, Germany and Sweden (more than 15%). In most observed countries, the probability that non-financial institution holds the largest share stakes equals zero (The exceptions are Italy and Portugal). 'Other type of the largest owner' indicates ownership by a trust, related fund or foundation (including employee foundation and charity foundation). The probability that other type owner holds the largest share stake in a bank is relatively high in Austria and Denmark (about 17 and 21% of the observations, correspondingly).

Table 3.2 Ownership type and large share ownership.

Country	*Widely held, dummy*	*First large owner, dummy.*	*Second large owner, dummy.*	*Family as the largest owner, dummy*	*Government as the largest owner, dummy*	*Widely-held financial institution as the largest owner, dummy*	*Widely-held non-financial institution as the largest owner, dummy*	*Other type of the largest owner, dummy*
Austria	0	1.00	0.83	0	0	0.83	0	0.17
Belgium	0	1.00	0.75	0	0.25	0.75	0	0
Denmark	0.38	0.63	0.19	0.21	0.07	0.52	0	0.21
Finland	0.30	070	0.40	0	0.30	0.60	0	0.10
France	0.21	0.79	0.44	0	0.04	0.96	0	0
Germany	0.19	0.81	0.24	0.22	0.17	0.61	0	0
Greece	0.16	0.84	0.26	0	0.15	0.85	0	0
Ireland	0.75	0.25	0	0	0.36	0.64	0	0
Italy	0.36	0.64	0.21	0.06	0	0.74	0.09	0.12
Luxembourg	0	1.00	0.13	0	0	1.00	0	0
Netherlands	0.28	0.72	0.25	0	0	1.00	0	0
Portugal	0.17	0.91	0.48	0.26	0	0.61	0.13	0
Spain	0.31	0.69	0.13	0.29	0	0.58	0	0.13
Sweden	0	1.00	0.38	0	0.17	0.83	0	0
United Kingdom	0.52	0.50	0	0.23	0.12	0.65	0	0
Total:	0.28	0.73	0.28	0.11	0.08	0.72	0.02	0.07
Legal origin								
English	0.56	0.45	0	0.19	0.16	0.65	0	0
French	0.26	0.74	0.28	0.09	0.04	0.78	0.04	0.06
German	0.11	0.89	0.48	0.13	0.10	0.70	0	0.07
Scand	0.28	0.72	0.27	0.12	0.14	0.61	0	0.14

Table 3.3 illustrates the breakdown of a large number of board characteristics by country and legal origin. Board characteristics vary according to board organization structure, size, and composition, representation of different parties on the board, internal share ownership, and gender structure.

The main board specifications are the organization structures and size. Most banks in English and French origin countries have large one-tier boards[23] (in average 14 members). Their boards usually comprise executive members (21-37% of board members), CEO (with the probability of 60-100%), and are less independent[24] (only 50-55% of board independence). The probability that chairman performs CEO functions (board duality) is relatively high in these countries (about 16-17%). In comparison, banks in German and Scandinavian countries predominantly have a two-tier board structure and a smaller Board of Directors (henceforth, BoD) (approximately, 8-11 members). While the average percentage of executive directors on the board is very small (0-3%), the board independence is high (79-95%). The average probability of board duality does not exceed 1%.

The remuneration committees are present in all banks in Ireland, Sweden and the UK during the entire period of observations. Banks in all remaining countries (except for Austria and Germany) set up the committees starting from 2008-2009 only.

Representation of different parties on the board is another relevant board feature. Government officials[25] have seats on the boards of banks in Austria, Belgium, Greece, Sweden, and the UK. Part of the banks in Austria has a government representative on the board during the entire period of observation, while the other part has no government official on the board during the whole period.[26] Most banks in Sweden have no state representative; although, government official has a seat on the board of Nordea Bank AB during the whole period of observations because Sweden state holds either the first (during 2005-2008) or the second (during 2009-2010) largest share stake in the bank. Government officials have seats on the boards of all banks in Belgium starting from 2008-2009. State representatives have seats on the boards of several banks in Greece and the UK starting from 2008-2009, too. In several banks government representation is related to significant state share ownership resulting from government bailout.[27] However, in other banks government representation is not related to

[23] In the Appendix 2 (Section A2.2.2), we give a more detailed explanation of how we distinguish between one-tier and two-tier board structure.
[24] In the Appendix 2 (Section A2.2.3) we give a more detailed explanation of how we define 'independent directors'.
[25] In the Appendix 2 (Section A2.2.1), we give a more detailed definition of the variable *Government Official on the Board*.
[26] Government representation is not related to large government ownership in these banks, since Austrian state does not hold any large stake in them.
[27] For instance, government owns significant stakes in some banks that have government representatives on their boards: one bank in Belgium (Ageas), two banks in Greece (Agricultural Bank of Greece and Attica Bank SA) and one bank in the UK (Lloyds Banking Group Plc).

state ownership. The number of government representatives on the board ranges between 0 and 3, with the highest number for Austria.

Looking at employee representation, we observe the difference between, on the one hand, English and French, and, on the other hand, German and Scandinavian legal origin countries. Banks in German and Scandinavian countries demonstrate a high probability of employee representation (90% and 67%, correspondingly), and relatively large number of employee representatives on the BoD (6 and 2, correspondingly). In comparison, all banks in English origin countries and most banks in French origin countries have no employee representative on the BoD (The exceptions are France and Greece where employee representatives have seats on the boards of banks with the probabilities of 52% and 10%, correspondingly).

Table 3.3 compares also the gender structure of the boards across countries and legal origins. The number of females on the BoD is relatively high in English origin countries, some Scandinavian countries (namely, Sweden and Finland), and Belgium and Spain. The lowest average number of women on the BoD is observed in Germany, Luxembourg and Italy. The number of women on the management board (MntB) is relatively high in Sweden and Finland. The probability of female CEO is the highest in Sweden (25%), followed by France, Spain, and Denmark, where women govern banks with the probability of 2%. The sample provides no observation for female CEO in English and German legal origin countries.

Finally, the heterogeneity in corporate governance may be observed looking at internal share ownership. CEO share ownership and management board share ownership are relatively high in Portugal, Germany, and the UK. BoD share ownership is also high in these countries, and in addition, in France and Spain. Banks in Scandinavian countries have the lowest levels of internal share ownership.

Table 3.3 Board characteristics.

Country	*Board composition*							*Representatives on the BoD*				*Gender*			*Internal share ownership*		
	One-tier board, dummy	*Board duality, dummy*	*CEO on the BoD, dummy*	*BoD executives' share, %*	*BoD independence, %*	*Remuneration committee, dummy*	*BoD size*	*Gov. repres., dummy*	*N of gov. repres.*	*Employee repres., dummy*	*N of empl. repres.*	*Females on the BoD*	*Females on the MntB*	*Female CEO, dummy*	*BoD ownership, %*	*MntB ownership, %*	*CEO ownership, %*
Austria	0	0	0	0	99.16	0.09	14.20	0.55	1.13	0.84	6.00	0.88	0.37	0	0.04	0.02	0.01
Belgium	1.00	0	1.00	18.91	32.96	0.75	18.81	0.31	0.56	0	0	1.31	0.13	0	3.40	0.00	0.00
Denmark	0	0	0	0	84.09	0.22	6.51	0	0	0.92	3.05	0.60	0.05	0.02	0.73	0.12	0.09
Finland	0.20	0.05	0.20	2.43	68.04	0.45	8.25	0	0	0.11	0.11	1.45	1.65	0	1.35	0.51	0.42
France	0.50	0.35	0.50	9.19	48.11	0.75	13.00	0	0	0.52	1.27	1.29	0.53	0.02	11.94	0.25	0.05
Germany	0	0	0	0	92.45	0.02	9.44	0	0	0.94	6.52	0.10	0.00	0	9.68	7.50	7.45
Greece	1.00	0.29	1.00	27.71	26.20	0.67	13.27	0.21	0.21	0.10	0.19	0.95	0.15	0	7.85	6.72	6.63
Ireland	1.00	0.17	1.00	22.67	70.76	1.00	15.00	0	0	0	0	1.92	0.00	0	0.10	0.04	0.02
Italy	0.87	0.05	0.34	27.93	51.40	0.41	14.61	0	0	0	0	0.39	0.12	0	8.25	0.86	0.80
Luxembourg	1.00	0.50	1.00	38.78	28.00	0.50	12.33	0	0	0	0	0.00	0.00	0			
Netherlands	0	0	0	0	93.75	0.52	8.04	0	0	0	0	0.88	0.00	0	0.09	0.89	0.39
Portugal	0.74	0.26	0.74	21.23	58.49	0.78	19.00	0	0	0	0	0.52	0.26	0	14.79	14.64	14.30
Spain	1.00	0.19	1.00	20.78	50.63	0.85	14.26	0	0	0	0	1.40	0.26	0.02	15.27	5.71	4.83
Sweden	1.00	0	1.00	13.90	70.18	1.00	11.18	0.27	0.27	0.45	1.86	2.77	1.45	0.25	2.68	0.51	0.35
United Kingdom	1.00	0.17	1.00	40.04	51.81	1.00	13.96	0.04	0.04	0	0	1.47	0.42	0	8.03	7.41	5.91
Total:	0.59	0.11	0.49	16.07	64.27	0.54	12.58	0.07	0.11	0.30	1.45	0.93	0.29	0.02	7.00	3.14	2.81
Legal origin																	
English	1.00	0.17	1.00	36.83	55.31	1.00	14.15	0.03	0.03	0	0	1.56	0.34	0	6.56	6.05	4.82
French	0.78	0.16	0.60	20.55	50.02	0.61	14.13	0.04	0.06	0.09	0.22	0.83	0.20	0.01	9.64	2.97	2.67
German	0	0	0	0	95.10	0.05	11.36	0.20	0.42	0.90	6.33	0.40	0.15	0	5.89	4.56	4.53
Scand	0.26	0.01	0.26	3.44	78.60	0.44	7.84	0.06	0.06	0.67	2.25	1.25	0.68	0.07	1.34	0.30	0.23

Table 3.4 illustrates the breakdown of CEO characteristics by country and legal origin. We refer to such CEO characteristics as age, education, previous experience in the bank, tenure, share ownership, founder CEO and others. Average bank CEO is 54 years old, has 6 years tenure, holds about 3% of bank shares, and has previous career in the same bank with the probability of 73%. CEO is also a founder of a bank for about 5% of all observations.

The oldest CEOs are observed in French origin countries (especially, Portugal, Belgium and France), while the youngest CEOs are observed in Scandinavian countries (especially, Sweden). However, average CEO tenure is the longest in Scandinavian countries (especially, Denmark – more than 11 year), while it is relatively short in French and English origin countries (around 5-6 years). In Belgium and Ireland average CEO tenure does not exceed 3 years. The reason for short CEO tenure in French and English origin countries is a large number of CEO replacements during 2005-2010. The probability of forced CEO turnover is the highest in English origin countries (more than 6%), while it is less than 1% in Scandinavian countries. The highest probability of forced CEO turnover is observed in Belgium, Ireland and France (13%, 25% and 8%, correspondingly).

In most observed countries, the CEOs come to power after many years of career development. In other countries, the bank founders become CEOs. In Portugal, the Netherlands and Germany the probability that CEO has a previous career in the same bank is relatively low, while the probability that CEO is also a bank founder is high (48%, 16% and 11%, correspondingly).

CEO share ownership is relatively high in English origin countries (due to generous equity compensation schemes) and German origin countries (partly due to founder CEOs, and partly due to equity compensation schemes). CEO share ownership is relatively low in Scandinavian countries, where no CEO is a bank founder.

Level of education is another CEOs' feature of interest. The last column of Table 3.4 illustrates the distribution of Ph.D. holder CEOs across different countries and legal origins. The probability that CEO holds a Ph.D. degree is the highest in Germany (55%), Austria (54%), and the Netherlands (44%). Overall, for 55% of all observations the CEOs in German origin countries hold Ph.D. degrees. The probability that CEO has a Ph.D. degree is relatively small in French, Scandinavian and English origin countries (17%, 6% and 2%, correspondingly).

Table 3.4 CEO characteristics.

Country	*CEO age*	*CEO tenure*	*CEO turnover, dummy*	*Forced CEO turnover, dummy*	*Founder CEO, dummy*	*CEO previous career in the same bank, dummy*	*CEO ownership, %*	*CEO Ph.D. degree, dummy*
Austria	57	9.00	0.06	0.03	0	1.00	0.01	0.54
Belgium	56	2.56	0.31	0.13	0.06	0.81	0.00	0.31
Denmark	54	11.56	0.11	0.02	0	0.80	0.09	0
Finland	53	3.65	0.15	0	0	0.70	0.42	0.25
France	56	5.15	0.15	0.08	0	0.90	0.05	0.10
Germany	53	7.51	0.13	0.04	0.11	0.34	7.45	0.55
Greece	55	4.07	0.21	0.02	0.02	0.59	6.63	0.35
Ireland	54	2.42	0.33	0.25	0	0.92	0.02	0.08
Italy	53	4.14	0.20	0.02	0.03	0.79	0.80	0.15
Luxembourg	56	9.14	0.14	0	0	1.00		0
Netherlands	53	4.68	0.12	0.04	0.16	0.40	0.39	0.44
Portugal	60	7.74	0.13	0.04	0.48	0.59	14.30	0.05
Spain	54	6.44	0.15	0.02	0	0.68	4.83	0
Sweden	46	4.63	0.13	0	0	0.75	0.35	0
United Kingdom	54	7.38	0.09	0.01	0	0.83	5.91	0
Total:	54	6.21	0.15	0.03	0.05	0.73	2.81	0.19
Legal origin								
English	54	6.46	0.14	0.06	0	0.85	4.82	0.02
French	55	4.93	0.18	0.04	0.06	0.73	2.67	0.17
German	54	8.10	0.10	0.03	0.07	0.60	4.53	0.55
Scand	52	8.50	0.12	0.01	0	0.77	0.23	0.05

CEO compensation structure is another feature that illustrates the diversity in corporate governance across analyzed countries and legal origins. Table 3.5 provides information on CEOs' cash compensation, salary, bonus, stock and option grant. In English and German origin countries the CEOs receive relatively high cash compensation, salary and bonuses, while compensation of Scandinavian CEOs is relatively modest. The highest average cash compensation for CEOs is observed in Austria (2980), Germany (2102), the UK (2334), and Spain (3036). The lowest average cash compensation is observed in Denmark (575), Sweden (523) and Portugal (850).

In addition to cash compensation, in English and German origin countries the CEOs receive also a share-based compensation with the probabilities of 70% and 35%, correspondingly. In comparison, in French origin countries the probability of share-based compensation for CEOs is lower than 15%. In Belgium and Portugal the probability of share-based compensation equals zero. The probability of CEO option grant program ranges between 9-56% in different countries (the exception is Portugal where such probability equals zero).

Table 3.5 provides also information on the management board cash compensation, salary, bonus, stock and option grant. In English and German origin countries the managers receive relatively high cash compensation, salary and bonuses, while Scandinavian managers receive relatively modest cash compensation. Average cash compensation of managers is high in the UK (8884), Spain (7596) and Greece (6988). It is low in Denmark (1154), France (2807) and Sweden (3713). In English origin countries, the managers receive share-based compensation with the probability of 74%. In French origin countries, this probability barely exceeds 20%.

The disclosure of executives' compensation information varies across different countries. While in most observed countries, the banks report aggregate information on the management board compensation, in other countries, the banks provide information for individual management board members. Greek banks do not provide information on CEO compensation. Luxembourg banks disclose no information related to compensation of CEO and the management board.

Table 3.5 Compensation of CEO and management board.

Country	*CEO compensation*					*Management board compensation*				
	CEO cash compensation, th.EUR	*CEO salary, th.EUR*	*CEO bonus, th.EUR*	*CEO stock compensation, dummy*	*CEO option compensation , dummy*	*MntB cash compensation, th.EUR*	*MntB salary, th.EUR*	*MntB bonus, th.EUR*	*MntB stock compensation , dummy*	*MntB option compensation , dummy*
Austria	2983	1163	1431	0	0.50	3864	3023	1648	0.17	0.09
Belgium	1456	814	540	0	0.56	6072	3727	2269	0.20	0.73
Denmark	575	567	42	0.22	0.15	1154	1023	95	0.18	0.19
Finland	1159	581	567	0.61	0.28	4230	933	117	0.65	0.25
France	1118	584	522	0.26	0.24	2807	1767	1046	0.25	0.28
Germany	2103	821	1242	0.40	0.15	6363	2841	3203	0.32	0.22
Greece	-	-	-	-	-	6988	10447	0.4	0	0.88
Ireland	1610	848	518	0.67	0.33	4228	2182	1205	0.67	0.42
Italy	1652	659	421	0.05	0.27	3726	2372	978	0.09	0.26
Luxembourg	-	-	-	-	-	-	-	-	-	-
Netherlands	1123	611	323	0.26	0.30	4313	2505	1541	0.30	0.30
Portugal	850	555	413	0	0	6488	3120	3367	0.13	0.26
Spain	3036	1296	1669	0.36	0.09	7596	3332	3616	0.38	0.09
Sweden	523	367	73	0.26	0.32	3713	2994	184	0.21	0.32
United Kingdom	2335	954	1314	0.72	0.30	8884	3620	4736	0.75	0.60
Total:	1637	756	746	0.30	0.24	4861	2801	2222	0.30	0.29
Legal origin										
English	2201	935	1167	0.71	0.31	8024	3355	4084	0.74	0.57
French	1660	742	638	0.15	0.23	4946	2905	1937	0.20	0.28
German	2215	865	1266	0.35	0.20	5422	2892	2765	0.26	0.16
Scand	717	498	131	0.32	0.21	2303	1664	132	0.29	0.23

Summarizing the results above, we conclude that there is a high diversity in dividend policy, ownership structure, corporate governance, and compensation structure in the EU-15 banking. This diversity is observed on the levels of countries and legal origins across a large number of features.

The sole common feature across different countries and legal origins is the largest ownership by a widely-held financial institution. In all observed countries, the largest share stake usually belongs to a widely-held financial institution. Another feature that seems to be similar across different countries and legal origins is under-representation of women on the corporate bodies of banks. The proportion of women directors and women managers is far from being half of the BoD size and management board size, correspondingly. The probability of female CEOs is also extremely low.

Next chapter introduces the second study. It focuses on such corporate governance characteristic as CEO power and analyzes its effect on dividend policy in European banks. The chapter employs different proxies for CEO power: CEO ownership, board duality, CEO tenure, and unforced CEO turnover events. The chapter analyzes also how the effect of CEO power on dividend policy changes in the presence of monitoring from regulators.

CHAPTER 4

Are CEO power, monitoring incentives, and dividends related?

Evidence from a regulated industry[28]

The existing literature on CEO entrenchment and dividend policy argues that entrenched managers tend to distribute higher payout ratios to discourage monitoring from minority shareholders. Empirical literature finds that in Western Europe dividends dampen expropriation of minority shareholders. What happens if monitoring from regulatory authorities is in conflict with the interest of minority shareholders? In banking, monitoring from minority shareholders may impose weaker pressure on bank CEOs than monitoring from regulators. The latter are prevalently concerned about protection of the creditors of the bank (depositors) and bank soundness, and therefore may favor conservative dividend policies (in particular, low ratios of dividends to equity). Therefore, entrenched CEOs may distribute *lower* dividend payout ratios to deter scrutiny from regulators. Low payout ratios also allow using excess cash for private benefits of the CEO.

In this chapter, we investigate the role of CEO power on bank dividend policy in a sample of 109 listed banks in the EU-15 (Western Europe) countries for the period 2005-2010. We employ different proxies for CEO power: CEO ownership, board duality, CEO tenure, and unforced CEO turnover events.

[28] This study has been submitted to *Journal of Corporate Finance*. It was developed in collaboration with Prof. Onali (Bangor University, Xi'an Jiaotong-Liverpool University (XJTLU)).

4.1 Introduction

The existing literature on dividend policy and expropriation from insiders in non-financial firms documents that dividends dampen expropriation of minority shareholders in Western Europe (Faccio et al. (2001)). The literature on managerial entrenchment posits that entrenched managers distribute higher dividend payout ratios to discourage monitoring from minority shareholders (Hu and Kumar (2004)). Therefore, in Western Europe dividend payout ratios should be higher for firms where expropriation from powerful insiders is more likely.

Is this true even for banks? Do powerful (entrenched) CEOs distribute higher dividend payout ratios to discourage monitoring from minority shareholders?

When the firm is a bank, the objectives of managers and shareholders can enter into conflict with the objectives of other powerful stakeholders, such as depositors and regulators.[29] Monitoring from minority shareholders is not the only concern of bank CEOs, and monitoring from regulators may acquire a more prominent role. In particular, regulators may favor low ratios of dividends to equity, since large ratios would increase default probability. Accordingly, high dividend payout ratios may attract more scrutiny from regulators. Therefore, the relation between CEO power and payout ratios in banks is not necessarily positive. In fact, entrenched CEOs may distribute *lower* payout ratios to deter scrutiny from regulators. This idiosyncrasy of the banking sector warrants an investigation of the role of dividends in shaping the dynamics of the agent-principal relation in banking. To this day, however, a study of the relation between CEO power and dividends in banks is still missing.[30]

In this chapter, we test these two perspectives on managerial entrenchment by investigating the association between CEO power and dividends in European banks. To discriminate between the 'expropriation' and the 'monitoring' perspectives on managerial entrenchment, we employ two different proxies for CEO power: CEO ownership, and board duality. We expect a U-shaped relation between payout ratios and CEO ownership, regardless of whether the 'expropriation' or 'monitoring' perspective is valid. We allow for this nonlinear relation by

[29] Bank executives are subject to the scrutiny of different stakeholders. Schaeck et al. (2012) provide evidence of shareholder discipline for risky institutions, while there is no evidence of discipline from debt holders and regulators.

[30] Since CEOs tend to be risk-averse (Smith and Stulz (1985)), entrenchment should reduce bank risk taking. Entrenchment can thus reduce the probability of bank default and, in the presence of government-sponsored safety nets (such as deposit insurance), may benefit the public as a whole. Recent contributions provide evidence of a nexus between CEO power and bank risk-taking (Pathan (2009)), and CEO compensation incentives and bank risk-taking (Hagendorff and Vallascas (2011)).

including the square of CEO ownership in our regressions. Using board duality as an additional proxy allows us to discriminate between the 'monitoring' and the 'expropriation' perspective. The former is consistent with a positive relation between board duality and payout ratios, while the latter is consistent with a negative relation. In robustness checks, we also employ CEO tenure and unforced CEO turnovers as alternative proxies for CEO power. We also control for other standard determinants of dividend payout ratios, such as size, profitability, and growth opportunities (Fama and French (2001)).[31]

We bring to bear a new hand-collected dataset on bank ownership structure and corporate governance for 109 listed banks from EU-15 countries and combine this dataset with data collected from *Bankscope* on dividends and other variables that are believed to influence dividend policy.

There are several reasons we choose to home in on the relation between CEO power and dividend payout ratios of EU-15 (i.e. Western Europe) banks. First, we focus on Western Europe because the existing literature documents that in Western Europe dividends dampen expropriation of minority shareholders (Faccio et al. (2001)). Therefore, we would expect that for firms, for which there is a higher probability of expropriation from insiders (in this case, the CEO), dividend payout ratios are higher. Second, the topic of corporate governance in financial institutions (Erkens et al. (2012)), and European banks in particular (Arnaboldi and Casu (2011)),[32] has recently drawn attention from both academics and policy makers. Poor corporate governance can increase the probability of bank failures, with potentially large negative externalities due to contagion risk, disruption of the payment system, and costs deriving from deposit insurance (BIS (2010); Mülbert (2010)).[33] For these reasons, bank directors should comply with higher and broader standards of care (Macey and O'Hara (2003)). Despite this, the relation between dividend policy and corporate governance in European banks is an under-researched topic, probably because of a lack of corporate governance data for European banks.

By way of preview, our findings can be summarized as follows.

[31] Blau and Fuller (2008) develop a model that emphasizes the trade-off between dividends and financial flexibility. Managers that believe the firm has good future growth opportunities may desire a higher level of financial flexibility.

[32] Corporate governance can be defined as 'the allocation of authority and responsibilities, i.e. the manner in which the business and affairs of a bank are governed by its board and senior management' (BIS (2010), p. 5).

[33] However, Fahlenbrach and Stulz (2011) find that banks with CEOs whose incentives were better aligned to those of shareholders did not perform better during the crisis. Their findings are at odds with the view that lack of alignment between CEOs and shareholder incentives was at the root of the financial crisis.

First, we find a U-shaped relation between CEO ownership and payout ratios: for percentages of CEO ownership below five and a half percent, CEO ownership is negatively related to payout ratios. After this critical level, the relation becomes positive. These findings are consistent with both a 'monitoring' perspective (i.e. CEO power is positively related to dividends) and an 'expropriation' perspective (i.e. CEO power is negatively related to dividends). However, results for other proxies of CEO power support the 'expropriation' perspective, suggesting that powerful CEOs tend to distribute lower payout ratios. In particular, we find a negative relation between board duality and payout ratios and between CEO tenure and payout ratios, and a positive relation between unforced CEO turnovers and payout ratios. The results are robust to different econometric specifications (including different sets of control variables and using different econometric techniques), although the results for CEO tenure are weaker. We show that endogeneity in the form of reverse causality is unlikely to have driven our results. Using a combination of difference-in-differences and matching techniques, we find confirmation that board duality negatively affects payout ratios, while unforced CEO turnover events positively affect payout ratios.

Second, we provide robust evidence that when a widely-held financial institution is the largest owner of the bank dividend payout ratios increase, indicating that external monitoring from other financial institutions can reduce expropriation. This is consistent with Faccio et al (2001), who document that in Western Europe affiliation to a group can dampen expropriation. However, internal monitoring from independent directors reduces payout ratios. The latter result is consistent with the fact that internal monitoring in banks could have bank safety as the primary objective.

Finally, when the government is the largest owner or there is a government official on the board, dividend payout ratios are lower, suggesting that the government is incentivized to put bank safety and the interest of creditors before the interest of minority shareholders.

The rest of the paper is structured as follows. Section 4.2 reviews the literature and develops the hypotheses. Section 4.3 describes the methodology and the data set. Section 4.4 reports the results and robustness checks. Section 4.5 summarizes and concludes.

4.2 Literature review and hypotheses

Powerful CEOs can invest in non-value maximizing projects (i.e. projects with a negative Net Present Value, NPV) to increase their own utility (e.g. for empire-building objectives).[34] Shareholders can monitor CEOs to prevent expropriation, but monitoring can be too costly if ownership is dispersed and a free-rider problem arises (Shleifer and Vishny (1986)).

A partial solution to this problem is provided by dividends. Dividends can be a monitoring device for shareholders, because they reduce the amount of cash that CEOs can dissipate in non-value maximizing projects (Jensen (1986)) and increase the frequency at which firms seek funds on the capital market, which subjects CEOs to stronger scrutiny from outside investors (Easterbrook (1984)).

According to the managerial entrenchment literature, entrenched CEOs can increase payout ratios to discourage monitoring from minority shareholders (Hu and Kumar (2004)). However, powerful CEOs may not need to pay dividends to discourage monitoring if monitoring from minority shareholders is weak, since entrenched CEOs can fend off take-over threats (Stulz (1988)). In this case, entrenched CEOs can invest in non-value maximizing projects with cash that minority shareholders would prefer to receive in the form of dividends. A possible reason for poor external monitoring is weak protection of the rights of minority shareholders (La Porta et al. (2000)). Such might be the case in certain parts of Western Europe, where the market for corporate control is relatively inefficient.

In banking, entrenched CEOs may be more worried about external monitoring from banking regulators than from minority shareholders. Banking regulators are primarily concerned about bank safety and financial stability. Since low dividend payout ratios (dividends to equity) tend to increase the bank capital buffer (other things being equal), banking regulators tend to favor conservative dividend policies, which may lead to expropriation of minority shareholders in the form of lower payout ratios.

We argue that the entrenchment hypothesis can lead to different predictions, depending on whether a ‘monitoring’ or an ‘expropriation’ perspective prevails. The ‘monitoring’ perspective posits a positive relation between dividend payout ratios and CEO power. The ‘expropriation’ perspective posits a negative relation.

[34] Alternatively, bank CEOs can decide not to take projects with positive NPV (Vallascas and Hagendorff (2012)).

In section 4.2.1, we develop the entrenchment hypothesis, according to the existing literature for non-financial corporations. In section 4.2.2, we develop ancillary hypotheses regarding the relation between bank dividend policy and bank ownership structure and board characteristics.

4.2.1 The entrenchment hypothesis: 'Monitoring' and 'expropriation'

The entrenchment hypothesis argues that managers who fear disciplinary actions tend to pay higher dividends as a protection against such actions (Zwiebel (1996); Fluck (1999); Allen et al. (2000)). The literature on nonfinancial firms provides support to the entrenchment hypothesis (Hu and Kumar, 2004). The entrenchment hypothesis is closely related to one of the classical theories for why firms pay dividends. The 'monitoring hypothesis' (Easterbrook (1984) and Jensen (1986)) posits that dividends are paid to decrease agency costs between managers and shareholders.[35] By paying dividends, managers increase the utility of minority shareholders and decrease monitoring incentives.[36] In the presence of other mechanisms that address this issue, dividends may be less important (Noronha et al. (1996); Onali (2012)). Alternative monitoring mechanisms may be a large shareholder (Shleifer and Vishny (1986)), such as an institutional investor (Zeckhauser and Pound (1990)), insider ownership (Farinha (2003)) and, as a particular case of the latter, CEO ownership (Schooley and Barney (1994)).

We employ two main proxies for CEO power: *Board Duality* and *CEO Ownership*. The former is a dummy variable, which takes on the value one if the CEO chairs the board, and zero otherwise. The latter is the percentage of shares held by the CEO. In robustness tests, we employ alternative proxies for CEO power.

The literature on managerial entrenchment in non-financial firms has provided evidence of a U-shaped relation between CEO ownership and payout ratios. Since CEO ownership decreases agency costs between shareholders and the CEO, this finding is consistent with the view that CEO ownership and dividends are substitute monitoring devices, until CEO ownership reaches a critical level. After this critical level, CEO ownership ceases to be a monitoring device due to

[35]Alternative hypotheses relating to dividend policy are the signaling hypothesis (Bhattacharya (1979); Litzenberger and Ramaswami (1982); John and Williams (1985); Miller and Rock (1985)), and the free-cash flow hypothesis (Jensen (1986)).

[36] Dividends can mitigate the conflict between strong and weak stakeholders (Bøhren et al. (2012)). This is in line with the 'substitute model' for dividends: Dividends are paid by insiders to establish a good reputation and reduce the conflict with minority shareholders (La Porta et al. (2000)). According to the 'outcome model', dividends are the 'outcome' of regulation that protects the right of minority shareholders (La Porta et al. (2000)).

entrenchment-related agency costs, and the relation between CEO ownership and dividend payout ratios becomes positive (Farinha (2003)). This interpretation of the U-shaped relation is consistent with a 'monitoring perspective' of the entrenchment hypothesis. This perspective focuses on the monitoring from minority shareholders.

While the 'monitoring perspective' may explain the U-shaped relation between CEO ownership and dividend payout ratios, there is an alternative explanation. CEOs are incentivized to decrease dividend payout ratios to expropriate minority shareholders (i.e. use cash that could be distributed to shareholders to invest in non-value maximizing projects). As CEO ownership increases, CEOs can expropriate minority shareholders to a greater extent, due to the higher level of entrenchment that reduces the probability of being fired. However, after a critical level of CEO ownership, the benefit of expropriating minority shareholders by decreasing payout ratios is offset by the opportunity cost of receiving a larger dividend. This interpretation of the U-shaped relation is consistent with an 'expropriation perspective' of the entrenchment hypothesis.[37]

The key difference between the 'monitoring' and 'expropriation' perspective is that according to the former the CEO needs to acquire a minimum percentage of shares to entrench himself, while according to the latter expropriation can start from low levels of ownership, since monitoring from minority shareholders is of negligible importance relative to monitoring from regulators. In other words, in the case of bank CEOs, expropriating minority shareholders by distributing low payout ratios has the additional advantage of discouraging monitoring from the regulators.

According to the 'monitoring' perspective of the entrenchment hypothesis, insider ownership and dividends may be substitute monitoring devices, and therefore *Board Duality* should be positively related to dividend payout ratios, while *CEO Ownership* should be negatively related to dividend payout ratios. However, the benefits of monitoring from insiders may become negligible after a certain threshold is reached (Schooley and Barney (1994); Farinha (2003)), which implies a U-shaped relation between *CEO Ownership* and dividend payouts. These considerations lead to two testable hypotheses:

[37] As Saunders, Strock, and Travlos (1990) point out, as CEO ownership increases, the incentives of the CEO converge with the incentives of the minority shareholders. In this respect, the expropriation perspective is consistent with a 'liquidity theory' of dividends: In cases where the CEO is also a very large owner, he may attempt to diversify his portfolios by increasing liquidity in the form of dividend payments (Beck and Zorn (1982)).

H1a: 'Entrenchment' hypothesis using a 'monitoring' perspective: Board Duality increases dividend payout ratio and there is a U-shaped relation between CEO Ownership and dividend payout ratios.

To allow for a U-shaped relation between *CEO Ownership* and dividend payouts, we include a squared term, *CEO Ownership Squared*, in our regressions. According to H1a, the expected sign on *CEO Ownership* is negative (since dividends and insider ownership are substitute monitoring devices), while the expected sign on *Board Duality* and *CEO Ownership Squared* is positive.

Hypothesis H1a derives from the prediction that entrenched managers employ dividends as a monitoring device. However, entrenched managers may not be interested in using dividends as a monitoring device, provided that they are powerful enough to fend off take-over threats. Entrenched managers without strong external monitoring may be able to extract rent from minority shareholders. This consideration leads us to posit a negative relation between *Board Duality* and payout ratios. The relation between *CEO Ownership* and payout ratios, on the other hand, remains as predicted by H1a. When the CEO owns a small percentage of shares, he may regard dividends as an opportunity cost larger than the benefits deriving from dissipating cash in non-value maximizing projects, for instance with the purpose of empire building and perquisite consumption. However, as the percentage of shares she owns increases, CEO's incentives converge with the interest of ordinary shareholders (Saunders, Strock, and Travlos (1990)). Therefore, a negative coefficient on *CEO Ownership* and a positive coefficient on *CEO Ownership Squared* are consistent with a trade-off between the benefits from expropriation at the expense of shareholders and opportunity costs from not receiving a dividend.

H1b: 'Entrenchment' hypothesis using an 'expropriation' perspective: Board Duality decreases dividend payout ratios and there is a U-shaped relation between CEO Ownership and dividend payout ratios.

Figure 4.1 illustrates the relation between CEO ownership and dividend payout ratios according to H1a and H1b. Both of them predict a U-shaped relation. However, the two hypotheses disagree on the primary cause of this relation: H1a predicts that it is monitoring from minority shareholders (which can be reduced by increasing the dividend payout ratio);

H1b predicts that it is the net benefit resulting from expropriation of minority shareholders (which can be increased by reducing the dividend payout ratio).

In the Appendix 2 (Section A2.1), we provide a more detailed explanation of Figure 4.1 by examining the relation between CEO ownership, agency costs and expropriation benefits, and how dividends affect this relation.

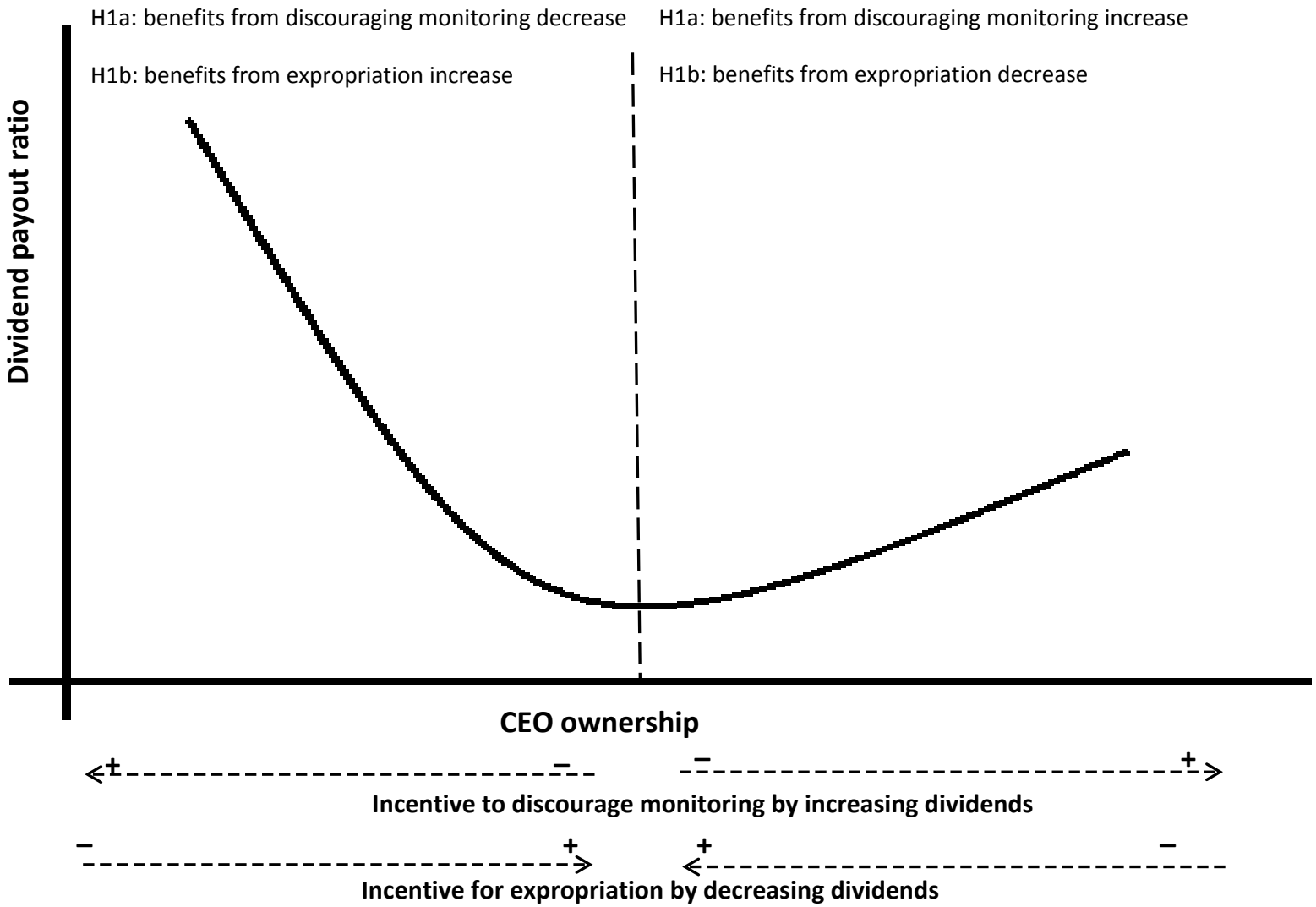
4.2.2 Other hypotheses

In cases where the CEO is also a very large owner, he may attempt to diversify his portfolio by increasing liquidity in the form of dividend payments (Beck and Zorn (1982)). This behavior may lead to larger dividend payout ratios:

H2: 'Liquidity' hypothesis: When the CEO is also the largest bank shareholder, dividend payout ratios are higher.

According to H2, the coefficient on a dummy variable that identifies banks for which the CEO is also the largest owner (*CEO as the Largest Owner*) should be positive. This is consistent with Hu and Kumar (2004), who find that executive stock options increase dividend payouts. Note that this is also consistent with a U-shaped relation between *CEO Ownership* and dividend payouts (for large levels of ownerships, *CEO Ownership* increases dividend payout ratios), and in particular it is consistent with H1b: for high levels of CEO ownership, the incentives of CEOs are similar to those of minority shareholders. However, H2 is inconsistent with H1a, since the latter posits that dividends are not determinants of the objective function of CEOs, and are paid only to increase the utility of minority shareholders.

Figure 4.1: Predicted sign of the relation between CEO ownership and dividend payout ratios according to H1a and H1b.



A key determinant of the relation between dividend payout ratios and CEO entrenchment is the level of external monitoring (Hu and Kumar (2004)). Large investors are able to exert stronger monitoring than minority shareholders, and therefore large shareholders on the board and institutional investor ownership may act as substitute monitoring devices for dividends:

H3: 'Alternative monitoring mechanism' hypothesis: When a large bank shareholder is on the board, or when the largest bank shareholder is a widely-held institutional investor, dividend payout ratios are lower.

To test H3, we construct the following dummy variables: a dummy *Large Owner on the Management Board* (Laeven and Levine (2009)), which takes on the value one if an owner holding at least 10% of bank shares is on the management board, and zero otherwise; and the dummies *Widely-held Financial Institution as the Largest Owner* and *Widely-held Non-Financial Corporation as the Largest Owner*. These dummies take on the value one if an institutional investor (financial institution or non-financial corporation) is the largest shareholder and zero otherwise. According to H3, the coefficients on these dummies should be negative.

However, H3 is at odds with some of the recent findings in the empirical literature. As Khan (2006) points out, the presence of large institutional investors may lead to *larger* dividend payouts if this is in line with their preferred payout policy. Similarly, Short et al. (2002) find that institutional investors are positively associated with dividend payout ratios. Khan (2006) and Short et al. (2006) findings may be consistent with an 'expropriation reduction' hypothesis. It can be argued that the presence of institutional investors increases the degree of protection of minority shareholders, reducing the probability of expropriation. Faccio et al. (2001) find that in the specific case of Western Europe, group-affiliated corporations (corporations controlled by widely held financial institutions or non-financial corporations) pay larger dividend payout ratios. Moreover, external monitoring from widely-held institutional investors may push entrenched managers with inferior investment opportunities to make higher payouts (Hu and Kumar (2004)). Large owners on the management board may also increase the intensity of external monitoring on entrenched managers. Following these arguments, we develop an alternative hypothesis for the role of institutional shareholders and large shareholders on the board:

H4: 'Expropriation reduction' hypothesis: When the largest bank shareholder is a widely-held institutional investor, or when a large bank shareholder is on the board, dividend payout ratios are higher.

We also examine the effect of government ownership and the presence of a government official on the board. According to Gugler (2003), when the government acquires ownership of a firm, there is a double principal-agent problem: between the government and the citizens (the government is the agent), and between the government and the managers (the government is the principal). Since government ownership should result in even stronger agency costs, a monitoring hypothesis suggests that government ownership should lead to higher dividend payouts:

H5: 'Double principal-agent problem' hypothesis: When the largest bank shareholder is the government, dividend payout ratios are higher.

We measure the effect of government ownership with a dummy variable *Government as the Largest Owner*. This dummy takes on the value one if the government is the largest shareholder and zero otherwise.

However, the government's objective could be twofold: 1) maximizing shareholder value; 2) protecting depositors' rights. The latter objective could be a consequence of possible reputational and political damage in the case of bank liquidation, or could be associated with concerns of potential losses deriving from deposit insurance schemes or other types of (implicit or explicit) guarantees. Since high dividend payout ratios can reduce the ability of a bank to pay back its creditors, government ownership may lead to lower dividend payout ratios. This would reduce the possibility that shareholders extract rents from depositors:

H6: 'Depositor protection' hypothesis: When the largest bank shareholder is the government, dividend payout ratios are lower.

According to H5 (H6) the coefficient on *Government as the Largest Owner* should be positive (negative). We employ an additional measure for the effect of government intervention on bank dividend policy: *Government Official on the Board*.[38] This is a dummy variable, which equals one when there is at least one government official on the board, and zero otherwise. The

[38] In the Appendix 2 (Section A2.2.1), we give a more detailed definition of the variable *Government Official on the Board*.

expected sign of the coefficient on *Government Official on the Board* is negative according to H6.

4.3. Methodology and data

This section describes the methodology and data set. Section 4.3.1 describes the econometric framework and the main variables of our models. Section 4.3.2 describes the data set.

4.3.1 Methodology

The literature on the entrenchment hypothesis for nonfinancial firms is heterogeneous in terms of econometric methodology and dependent variable chosen for the empirical analysis. Since regulators are prevalently concerned about the safety of the bank, and common equity is a key component of the regulatory capital ratios in banking, we employ the ratio dividend to equity as dependent variable, following previous literature on bank dividend policy.[39] Using equity in the denominator rather than earnings has an additional advantage: it eliminates the problem of dealing with negative dividend payout ratios (Acharya et al. (2012); Onali (2010)).

The baseline specifications to test H1 (regarding the relation between CEO power and dividend payout ratios) are as follows:

$$DPE_{i,t} = f(Board\ Duality_{i,t}, C_{i,t}) \quad [1]$$

$$DPE_{i,t} = f(CEO\ Ownership_{i,t}, CEO\ Ownership\ Squared_{i,t}, C_{i,t}) \quad [2]$$

Where $i = 1,2,\ldots, N$ labels panel units (banks), $t = 1,2,\ldots, T_i$ labels time periods (years), and $C_{i,t}$ is a vector of control variables to account for bank-level and country-level characteristics. Note that, since our panel is unbalanced, $T_i = T$ does not apply for all banks in the panel. The dependent variable, *DPE*, is dividends to equity.

[39] Adjusting for share repurchases does not change substantially our results.

Our bank-level control variables are: *Bank Size*, *Tier1 Capital*, *Growth Opportunities*, and *Profitability*.[40] We proxy for *Bank Size* using the natural logarithm of book value of total bank assets. Large firms tend to pay more dividends (Fama and French (2001)). The variable *Tier1 Capital* proxies for the impact of capital requirements deriving from the Basle Accord (1988 and subsequent revisions). It is constructed as a ratio of Tier 1 capital to risk-weighted assets. We expect a positive coefficient on *Tier 1 Capital*: For banks close to the minimum capital requirement, scrutiny from regulators should discourage generous dividend policies.

We measure *Growth Opportunities* as market value of bank equity divided by book value of bank equity, which also proxies for the quality of a bank investment opportunity set (Hu and Kumar (2004)). Since poor investment opportunities should exacerbate CEO incentives to discourage monitoring, for unregulated firms *Growth Opportunities* should have a negative effect on *DPE*. However, in banks the expected relation may be positive if monitoring from regulators is more important than monitoring from minority shareholders: Only banks with good investment opportunities may afford to pay high payout ratios.

Finally, we proxy for bank *Profitability* using a ratio of net income to average total assets (Fama and French (2001)). Finally, we use *GDP per Head* (natural logarithm of country GDP her head) to account for differences in time-varying country-level economic conditions,[41] and year dummies to account for unobservable, time-varying effects for the European banking industry, which are assumed to have the same impact on dividend policy in all observed banks.

To test H2-H6 we change *[1]* and *[2]* as follows

$$DPE_{i,t} = f(Board\ Duality_{i,t}, Q_{i,t}, C_{i,t}) \qquad [3]$$

$$DPE_{i,t} = f(CEO\ Ownership_{i,t}, CEO\ Ownership\ Squared_{i,t}, Q_{i,t}, C_{i,t}) \qquad [4]$$

Where $Q_{i,t}$ is a vector of variables controlling for the impact of different characteristics of bank *i*'s ownership structure or board (we insert each variable one at a time, to reduce collinearity). The introduction of $Q_{i,t}$ allows testing hypotheses H2-H6.

[40] Size, profitability, and growth opportunities are believed to be the main drivers of dividend policy for non-financial firms (Fama and French (2001)). Onali (2012) employs *Tier 1 Capital* as a proxy for capital requirements.

[41] We cannot employ country dummies, since their coefficients would be unidentified in fixed-effect regressions.

To allow for unobservable, time-invariant bank-specific characteristics, for all specifications we employ a Within-Group model (also named Fixed-Effect model).[42] The WG model is an OLS regression that uses transformed variables rather than the original ones. The dependent and independent variables are demeaned (by subtracting the average value for each panel unit from each observation) to eliminate the time-invariant component of the error term, which allows for unobservable bank-specific characteristics. Since demeaning eliminates any time-invariant component at the bank level, this technique allows for endogeneity due to correlation between an explanatory variable and the time-invariant component of the error:

$$y_{i,t} - \bar{y}_i + \bar{\bar{y}} = \alpha + \gamma_t + \boldsymbol{\beta}\left(\mathbf{x_{i,t}} - \bar{\mathbf{x}}_\mathbf{i} + \bar{\bar{\mathbf{x}}}\right) + \left(\varepsilon_{i,t} - \bar{\varepsilon}_i + \bar{\bar{\varepsilon}}\right)$$
$$\varepsilon_{i,t} = u_{i,t} + v_i \qquad [5]$$

where $y_{i,t}$ is the dependent variable, $\mathbf{x_{i,t}}$ is a vector of explanatory variables, v_i is the time-invariant component of the error term for bank i, $u_{i,t}$ is the idiosyncratic component of the error term, and γ_t are year dummies. Moreover, $\bar{y}_i = \sum_{t=1}^{T_i} y_{i,t} / T_i, \bar{\bar{y}} = \sum_{i=1}^{N}\sum_{t=1}^{T_i} y_{i,t} / NT_i$,[43] and similarly for $\mathbf{x}_{i,t}$ and $u_{i,t}$.

Since v_i is time-invariant, it disappears after the demeaning procedure, and this eliminates endogeneity in the form: $E(\mathbf{x_{i,t}}, v_i) \neq 0$. Other forms of endogeneity (e.g. simultaneity bias) are unlikely to affect our analysis. As argued by Saunders, Strock, and Travlos (1990), banks can adjust their ownership structure and board characteristics only in the long run. However, dividends can easily be adjusted in the short run. As a result, it is unlikely that changes in dividend payout ratios cause short-run changes in bank ownership structure and board characteristics, rendering the probability of endogeneity trivial. Hu and Kumar (2004) also argue that corporate governance mechanisms and ownership structure that determine managerial entrenchment are exogenous in the short and medium run.

We adjust the standard errors using the 'Huber sandwich estimator'. The WG model with cluster-robust standard errors can address inconsistency of the OLS estimator (if $E(\mathbf{x_{i,t}}, v_i) \neq 0$)

[42] The same results can be obtained including bank dummies in the equations (Least Squares Dummy Variables model). Hausman tests (for specifications without robust standard errors) suggest that the WG model be preferred to the Random Effect model.

[43] Adding the grand means $\bar{\bar{y}}$, $\bar{\bar{\mathbf{x}}}$, and $\bar{\bar{\varepsilon}}$ has the desirable advantage to provide an intercept estimate (Cameron and Trivedi (2010)).

and corrects the downward-bias (due to intra-group correlation) of the OLS standard errors (Cameron and Trivedi (2010)).[44]

4.3.2 Data and descriptive statistics

We build a new hand-collected data set with information on board composition and ownership structure for 109 listed banks (commercial banks, bank holding companies, and cooperative banks)[45] located in 15 EU countries for the period 2005-2010.[46]

We start with the universe of European publicly quoted banks listed on *Bankscope* (EU-15). For the sake of comparability, we focus on banks that use International Financial Reporting Standards (IFRS) as accounting standards. We home in on institutions classified as: commercial banks, cooperative banks, and bank holdings and holding companies. A total number of 127 banks satisfy these selection criteria. Next, we exclude institutions for which data on gross loans is unavailable (6, resulting in 121 remaining banks).[47] Finally, to allow hand-collection of information on corporate governance and ownership structure, we stipulate that there is at least one annual report (available on the bank's web site) [48] for the period 2005–2010. These criteria result in a sample of 109 banks.

The sample banks are mostly located in Italy, consistent with Vallascas and Hagendorff (2012).[49] Data availability for bank ownership structure varies considerably depending on the country. For Finland, Ireland, the Netherlands, Portugal, Spain, Sweden, and the UK, information on ownership structure and in particular on insider ownership is generally available (e.g., number of shares held by the CEO, management board members, and members of the Board of Directors, henceforth BoD). For Austria, Belgium, Denmark, France, Germany, and Italy ownership structure data is generally available, but insider ownership data is scarce.

[44] Since the average number of observations available for each bank is less than five, and for consistency with the managerial entrenchment literature for non-financial firms (e.g. Farinha (2003), and Hu and Kumar (2004)), we refrain from using a partial-adjustment model *á la* Lintner (1956).
[45] All cooperative banks in our sample are publicly traded and, therefore, are partly owned by non-members. In Section 4.3, we offer robustness tests excluding cooperative banks from the sample.
[46] We collect information from different sources: bank annual reports (including notes to financial statements), corporate governance reports, and other documents available from the web sites of the banks, banking regulators and authorities, and other publicly available sources.
[47] Our purpose is to exclude firms that are not in the lending business, as in Fahlenbrach and Stulz (2011).
[48] The data is collected on an annual basis.
[49] The geographic distribution of our sample differs from that of Vallascas and Hagendorff (2012) due to different selection criteria. In particular, Vallascas and Hagendorff (2012) stipulate that data on CEO compensation be available for at least five years.

Finally, for Greece and Luxembourg, data on ownership structure is generally available, but there is no information on insider ownership.[50]

Table 4.1 presents the main steps of our sample construction. Our final sample is an unbalanced panel with 598 bank-year observations.[51] Table 4.2 provides a breakdown of the number of banks per country and type of bank, and the sample representativeness relative to the population of listed banks in the EU-15 countries over the sample period.

Table 4.1 Steps of sample construction.

	Search criterion	*Number of banks*
Step 1	Listed banks	2,454
Step 2	World region: European Union (15)	255
Step 3	Accounting standards: IFRS	187
Step 4	Specialization: Commercial banks, Cooperative banks, Bank holdings & Holding companies	127
Step 5	Information availability: gross loans	121
Step 6	Information availability (annual reports on the banks' web sites and market capitalization)	109

Table 4.2 Sample composition and representativeness.

Country	*Banks*	*Sample %*	*Observations*	*Sample %*
Austria	7	6%	35	6%
Belgium	3	3%	16	3%
Denmark	11	10%	64	11%
Finland	4	4%	20	3%
France	8	7%	48	8%
Germany	9	8%	54	9%
Greece	11	10%	47	8%
Ireland	2	2%	12	2%
Italy	22	20%	121	20%
Luxembourg	2	2%	8	1%
Netherlands	5	5%	25	4%
Portugal	4	4%	23	4%
Spain	8	7%	48	8%
Sweden	4	4%	24	4%
United Kingdom	9	8%	53	9%
Total:	109	100%	598	100%

[50] Two Greek banks do not disclose any information on ownership structure.
[51] We exclude from our sample the observations with missing data on *DPE* and control variables. This operation drops down a number of observations from 654 to 598.

		BHC	*Commercial*	*Cooperative*	*Total:*
Total Bankscope sample in 2010 (listed banks, EU-15)					
1	Banks	36	95	24	155
2	Sample %	23.23	61.29	15.48	100.00
Sample banks					
3	Banks	30	68	11	109
4	Sample %	27.52	62.39	10.10	100.00
5	Representativeness, % (3/1)	83.33	71.58	45.83	70.32
Total Bankscope sample in 2010 (listed banks, EU-15)					
1	Millions of Euros	10,391,355	13,175,756	2,405,691	25,972,802
2	Share of total assets, %	40.00	50.73	9.27	100.00
Sample banks					
3	Millions of Euros	10,285,447	13,032,494	2,247,875	25,565,816
4	Share of total assets, %	40.23	50.97	8.80	100
5	Representativeness, % (3/1)	98.98	98.90	93.44	94.78

We calculate the dividend payout ratio (*DPE*) as dividends paid for a given year divided by bank equity.[52] Table 3 reports statistics for *DPE* and proxies for the variables that we use to test H1-H6. For convenience, we also report the descriptive statistics for two alternative proxies of CEO power that will be employed in robustness tests: *CEO Tenure* and *CEO Unforced Turnover*. We reduce the effect of outliers by winsorizing all continuous variables at the 5th and 95th percentile. Winsorizing is common in studies dealing with financial ratios, because observations for which the denominator is close to zero may create severe outliers (Jacobson et al. (2011)). In the specific case of *DPE*, for which the numerator is small relative to the denominator, relatively small reductions in equity can result in large fluctuations of *DPE*. We prefer winsorizing to trimming as it retains more information.[53]

[52] Only five banks do not pay dividends at all during the sample period.

[53] Some of the variables present considerable skewness and leptokurtosis even after winsorization at the 1st and 99th percentile. For instance, the sample skewness and kurtosis for *DPE* is 3.48 and 21.42 without winsorization, respectively. These values drop to 2.80 and 13.67 after winsorization at the 1st and 99th percentile, suggesting that outliers may bear a strong influence on estimation even after winsorizing. On the other hand, after winsorizing at the 5th and 95th percentile, *DPE* has a kurtosis of around 3. In unreported tests, we also inspect more closely the influence of winsorization on the distribution of the residuals of the WG regressions, and conclude that winsorizing at the 5th and 95th percentile results in a much higher goodness-of-fit than winsorizing at the 1st and 99th percentile. In particular, the R-squared within increases by around 6-7%.

Table 4.3 Summary statistics for *DPE*, ownership structure and board characteristics (*DPE* and *CEO Ownership* winsorized at the 5th and 95th percentile).

		Observations		*Banks*		*Mean*		*Standard deviation*		*Minimum*		*Maximum*	
Panel		*A*	*B*	*A*	*B*	*A*	*B*	*A*	*B*	*A*	*B*	*A*	*B*
DPE	Dividends for a given year divided by bank equity (%)	598	537	109	99	3.581	3.441	3.377	3.225	0	0	11.730	11.730
Board Duality	Dummy variable: 1 if CEO chairs the board, and 0 otherwise	587	526	108	98	0.109	0.101	0.312	0.301	0	0	1.000	1.000
CEO Ownership	Percentage of shares held by CEO	483	433	98	90	2.765	2.617	4.601	4.453	0	0	10.810	10.810
CEO Tenure	Natural logarithm of the number of years for which the CEO has been in office	590	530	109	99	1.430	1.409	0.906	0.899	0	0	3.434	3.434
CEO Unforced Turnover	Dummy variable: 1 if there is an unforced CEO turnover (see definition in the Appendix 2) and, 0 otherwise	598	537	109	99	0.117	0.119	0.322	0.324	0	0	1.000	1.000
CEO as the Largest Owner	Dummy variable: 1 if the CEO is the largest shareholder, and 0 otherwise	597	536	109	99	0.054	0.054	0.225	0.226	0	0	1.000	1.000
Large Owner on the Management Board	Dummy variable: 1 if owner holding at least 10% of bank shares is on management board, and 0 otherwise	586	525	107	97	0.116	0.110	0.321	0.314	0	0	1.000	1.000
Widely-held Financial Institution as the Largest Owner	Dummy variable: 1 if a widely-held financial institution is the largest shareholder, and 0 otherwise	553	492	101	91	0.718	0.726	0.450	0.447	0	0	1.000	1.000
Widely-held Non-Financial Corporation as the Largest Owner	Dummy variable: 1 if a widely-held non-financial corporation is the largest shareholder, and 0 otherwise	553	492	101	91	0.022	0.018	0.146	0.134	0	0	1.000	1.000
Government as the Largest Owner	Dummy variable: 1 if the government is the largest shareholder, and 0 otherwise	553	449	101	91	0.080	0.082	0.271	0.275	0	0	1.000	1.000
Government Official on the Board	Dummy variable: 1 if there is government official on the board, and 0 otherwise	554	496	105	95	0.070	0.077	0.256	0.266	0	0	1.000	1.000

Panel A: All available observations. Panel B: only observations for which data on the control variables and the proxy for CEO power is available.

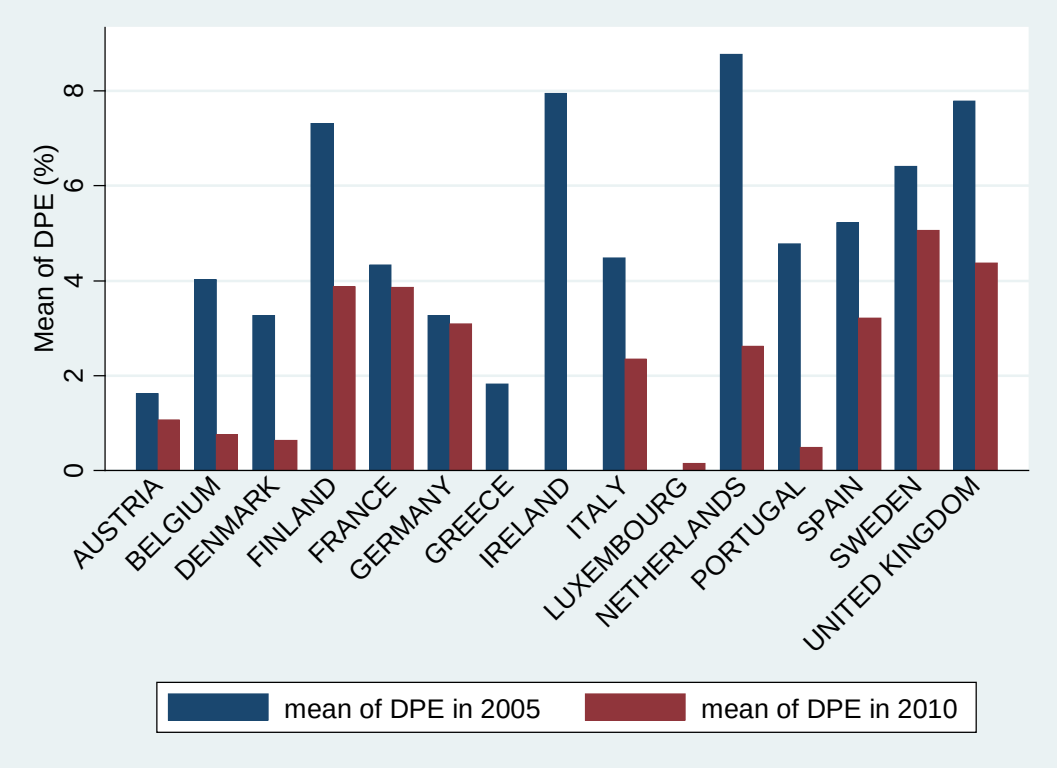
We report the statistics for the variables before (Panel A) and after (Panel B) excluding observations for which data on the control variables and the proxy for CEO power are missing. For Panel A, the number of observations (banks) ranges from 507 (90) to 598 (109). For Panel B, the number of observations is between 449 and 537, depending on the specification. The sample characteristics do not change substantially from Panel A to Panel B. This suggests that sample selection bias due to lack of data for the control variables is unlikely to bear an influence on our findings.

The average *CEO Ownership* is around 2.7%, and the percentage of banks for which the CEO is also the chairman of the bank is around 10%. Unreported statistics also show that the *within bank* variation for our proxies of CEO power is moderate, but far from being insignificant: the within standard deviation for *CEO Ownership* is around 0.77%, and for *Board Duality* is around 12.9%.

Correlation analysis (unreported, for the sake of space) suggests that our proxies for CEO power are strongly positively correlated (28%, significant at the 1% level). For cases for which *Board Duality* takes on the value one, the average *CEO Ownership* is 1.7%, significantly larger than for cases for which *Board Duality* takes on the value zero (0.35%).

Figure 4.2 shows the geographical distribution of *DPE*, at the beginning (2005) and end (2010) of the sample period. The reduction in the mean of *DPE* occurred to a similar extent in most countries, with sharper declines for the countries that were most affected by the crisis (in particular, the PIIGS). For Portugal, the mean *DPE* dropped from 4.77% in 2005 to 0.50% in 2010. For Italy, the mean of *DPE* dropped from 4.48% to 2.36% and, for Spain, from 5.22% to 3.22% (with peaks in 2007 of 4.99% and 6.64%, respectively). For Greece, the mean *DPE* was 1.83% in 2005, 4.35% in 2007, and 0% in 2010. However, Irish banks were the most affected: the mean *DPE* was 7.95% in 2005 and 0% in 2010. On the other hand, for Germany the drop was relatively small (from 3.27% in 2005 to 3.09% in 2010).). In the subsequent multivariate analysis, we investigate whether the crisis has had a significant impact with robustness tests.

Figure 4.2: Average *DPE* (winsorized at the 5th and 95th percentile) across countries at the beginning and at the end of the sample period.



4.4. Results

In this section, we report the results of the tests of H1-H6. We employ the econometric procedure described in Section 4.3.1 to investigate whether CEO power, proxied by *Board Duality* and *CEO Ownership*, results in lower payout ratios due to managerial entrenchment. Section 4.4.1 reports the main results. Section 4.4.2 reports the results when we employ two alternative proxies for CEO power: CEO tenure and 'unforced' CEO turnovers. Section 4.4.3 provides an investigation of potential reverse causality issues, as well as a battery of robustness checks.

4.4.1 Main results

Tables 4.4 and 4.5 report the results for seven WG regressions run according to equations [1]-[4]. Equations [1] (without the $Q_{i,t}$) and [3] test H1 using *Board Duality* as a proxy for CEO power, while equations [2] and [4] use *CEO Ownership* as a proxy for CEO power. All regressions include $C_{i,t}$ and year dummies.

Table 4.4 Results considering *Board Duality* as a proxy for CEO power.

Dependent variable: *DPE*	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Board Duality	-1.489***	-1.488***	-1.510***	-1.223***	-1.357***	-0.701	-1.803***
	(0.501)	(0.502)	(0.502)	(0.449)	(0.484)	(0.448)	(0.560)
CEO as the Largest Owner		1.766***					
		(0.284)					
Large Owner on the Management Board			-1.856				
			(1.501)				
Widely-held Financial Institution as the Largest Owner				1.699**			
				(0.714)			
Widely-held Non-Financial Corporation as the Largest Owner					-0.535		
					(0.487)		
Government as the Largest Owner						-2.025**	
						(0.836)	
Government Official on the Board							-2.287**
							(0.974)
Controls	YES	YES	YES	YES	YES	YES	YES
Year dummies	YES	YES	YES	YES	YES	YES	YES
Observations	526	525	515	482	482	444	494
R-squared within	0.407	0.407	0.407	0.407	0.385	0.425	0.428
Number of banks	98	98	96	90	90	90	94

The regressions are run using a Within-Group model for panel-data at the bank level. The dependent variable is *DPE* - dividend payout as a ratio of dividends to equity. All specifications include time dummies and the following control variables: *Size* (log of total assets of the bank), *Market-to-Book* (ratio of market value of equity to book value of equity), *Tier1 Capital* (ratio of Tier 1 capital to risk-weighted assets), *Profitability* (return on average asset), *GDP per capita* (natural logarithm of GDP per capita). The continuous variables are winsorized at the 5^{th} and 95^{th} percentile. Cluster-robust standard errors are reported in parentheses. The superscripts ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Table 4.5 Results considering *CEO Ownership* as a proxy for CEO power.

Dependent variable: *DPE*	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CEO Ownership	-2.610***	-2.488***	-2.452***	-2.595***	-2.585***	-2.585***	-2.456***
	(0.854)	(0.867)	(0.866)	(0.941)	(0.913)	(0.935)	(0.820)
CEO Ownership Squared	0.234***	0.214***	0.220***	0.234***	0.232***	0.234***	0.220***
	(0.077)	(0.079)	(0.079)	(0.085)	(0.082)	(0.084)	(0.074)
CEO as the Largest Owner		2.454***					
		(0.589)					
Large Owner on the Management Board			-1.544				
			(1.646)				
Widely-held Financial Institution as the Largest Owner				1.944**			
				(0.925)			
Widely-held Non-Financial Corporation as the Largest Owner					-0.369		
					(0.531)		
Government as the Largest Owner						-2.506**	
						(1.017)	
Government Official on the Board							-2.018*
							(1.167)
Controls	YES	YES	YES	YES	YES	YES	YES
Year dummies	YES	YES	YES	YES	YES	YES	YES
Observations	433	432	423	388	388	366	408
R-squared within	0.406	0.407	0.402	0.410	0.382	0.435	0.426
Number of banks	90	90	88	82	82	82	87

The regressions are run using a Within-Group model for panel-data at the bank level. The dependent variable is *DPE* - dividend payout as a ratio of dividends to equity. All specifications include time dummies and the following control variables: *Size* (log of total assets of the bank), *Market-to-Book* (ratio of market value of equity to book value of equity), *Tier1 Capital* (ratio of Tier 1 capital to risk-weighted assets), *Profitability* (return on average asset), *GDP per capita* (natural logarithm of GDP per capita). The continuous variables are winsorized at the 5^{th} and 95^{th} percentile. Cluster-robust standard errors are reported in parentheses. The superscripts ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

In Table 4.4, the coefficient on *Board Duality* is negative and highly significant for all regressions except for one (the specification including *Government as the Largest Owner*, for which the coefficient is negative but insignificant). For the cases for which the coefficient on *Board Duality* is significant, it ranges from 1.223% to 1.803%. Considering that the average *DPE* in our sample is 3.441%, the economic impact of *Board Duality* is significant. In Table 5, the coefficient on *CEO Ownership* is negative and highly significant while the coefficient on *CEO Ownership Square* is negative and highly significant for all seven specifications.

A negative coefficient on *Board Duality* and a U-shaped relation between *CEO Ownership* and payout ratios support H1b and refute H1a. Therefore, our results are consistent with expropriation in the form of lower dividend payout ratios, at the expense of minority shareholders. The coefficients on *CEO Ownership* and *CEO Ownership Squared* for the first regression reported in Table 4.5 suggest that the benefits of expropriation peak when *CEO Ownership* is 5.58%, and then decline. Since 5.58% is relatively large as compared to the mean of *CEO Ownership* (2.617%), the relation tends to be negative for a large portion of the sample. This lends further support to the hypothesis that CEO power decreases dividend payout ratios.

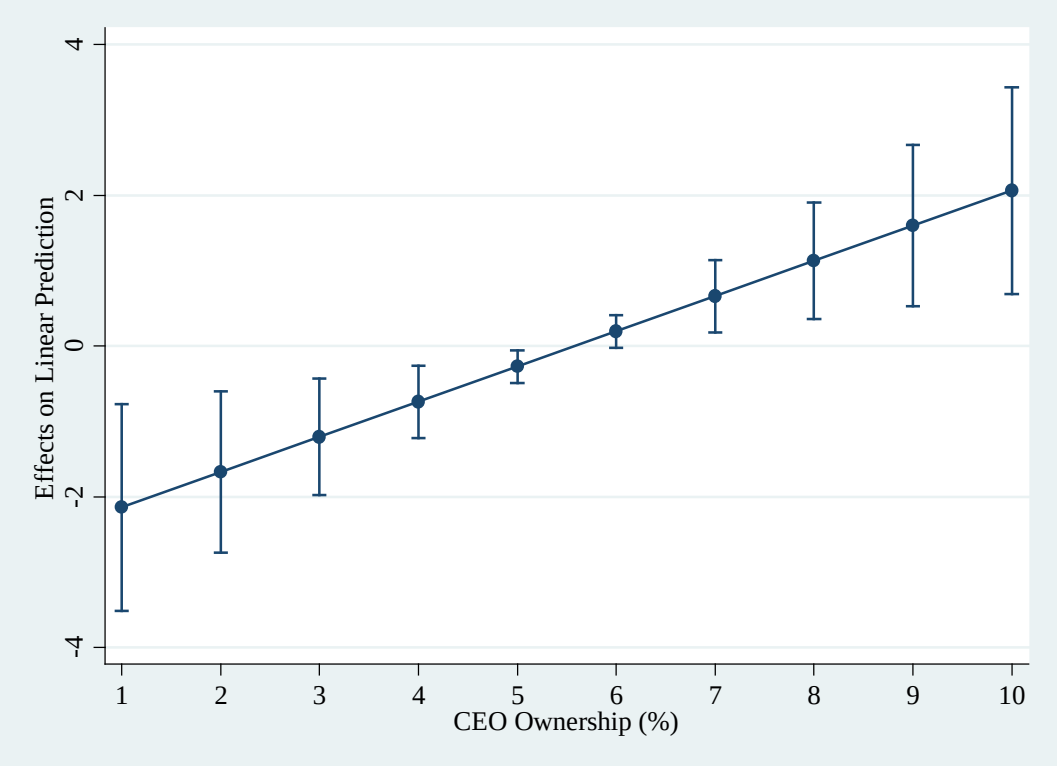
Figure 4.3 illustrates the average marginal effects of *CEO Ownership* on *DPE* for different values of *CEO Ownership*, along with the 95th confidence intervals (i.e. the first derivative of *DPE* with respect to *CEO Ownership*, for different values of *CEO Ownership*). The average marginal effects are significant at the 5% level when they are calculated at different values of *CEO Ownership* (we choose values between 1% and 10% of *CEO Ownership*).[54] Consistent with the results reported in Table 5, average marginal effects are negative for *CEO Ownership* $\leq$ 5.5%, and positive for *CEO Ownership* > 5.5%.

The results for the other variables are as follows. The coefficients on *CEO as the Largest Owner* are positive and significant, supporting H2. The coefficients on *Widely-held Financial Institution as the Largest Owner* are positive and significant, supporting H4 and refuting H3. However, the coefficient on *Widely-Held Non-Financial Corporation as the Largest Owner* is insignificant for both equation [3] (*Board Duality* regressions) and [4] (*CEO Ownership* regressions). These results suggest that the effect of institutional investors as largest shareholders of the bank depends on whether the investor is a financial institution or a non-

[54] When the marginal effects are calculated at *CEO Ownership* = 6%, they are significant at the 10% level.

financial corporation.[55] The coefficient on *Large Owner on the Management Board* is insignificant. Finally, the coefficients on *Government as the Largest Owner* and on *Government Official on the Board* are negative and significant (the latter is weakly significant for the *CEO Ownership* regressions). These results support H6.[56]

Figure 4.3: Average marginal effects of *CEO Ownership* on *DPE* (with 95% confidence intervals).



4.4.2 CEO tenure and CEO unforced turnover as a proxy for CEO power

Our main findings may be sensitive to the proxy for CEO power. To address this concern, we employ two alternative measures of CEO power: the natural logarithm of the number of years for which the CEO has been in office (*CEO Tenure*), and unforced turnovers of the CEO (*CEO Unforced Turnover*).

[55] However, the results for the *Board Duality* regressions may be due to a very low number of observations available for *Board Duality* when *Widely-Held Non-Financial Corporation* is equal to one.
[56] The coefficients on the control variables are either insignificant or with a sign consistent with expectations. In particular, the coefficient on *Growth Opportunities* tends to be positive, consistent with the view that only banks with good investment opportunities can afford high payout ratios.

Finkelstein and Hambrick (1989) argue that some determinants of CEO power take time to develop, and for this reason CEO power tends to increase with tenure.[57] Since the relationship between tenure and dividend payout ratios may be nonlinear (Hu and Kumar (2004)), we consider the natural logarithm of tenure (in years).[58]

The results for *CEO Tenure* are reported in Table 4.6. The coefficients on *CEO Tenure* are negative. However, they are only weakly significant in five of the seven regressions. The coefficients on the other variables are very close to those in Tables 4.4 and 4.5. Although weaker, these results substantially confirm that powerful CEOs tend to distribute lower dividend payout ratios.

If CEO tenure is likely to increase CEO power, CEO turnover events should decrease it. This is because the new CEO may need some time to entrench herself and pursue policies that do not maximize shareholder value. However, CEO turnover may depend on dividends, since dividend cuts may lead to CEO dismissal (Schaeck et al. (2012)). For this reason, we consider only unforced CEO turnovers as a proxy for CEO power, by creating a dummy equal to one if a turnover that cannot be defined as a forced turnover takes place, and zero otherwise (*CEO Unforced Turnover*).[59] There is a strong and significant correlation between *CEO Tenure* and *CEO Unforced Turnover* (–0.5813, significant at the 1% level).

The results for *CEO Unforced Turnover* are reported in Table 4.7. Consistent with our hypothesis, *CEO Unforced Turnover* has a positive effect on payout ratios, and the coefficients are significant for all seven specifications, confirming the negative relation between CEO power and payout ratios. The sign and significance of the coefficients on the other explanatory variables remain substantially the same as those in Tables 4.4, 4.5, and 4.6.

[57] *CEO Tenure* may also increase moral hazard, since for CEOs close to retirement reputational damages resulting from dismissal are less important (Murphy (1986); Hu and Kumar (2004)).
[58] Using the number of years as a proxy (without the log transformation) results in insignificant results, even when, similar to the specifications for *CEO Ownership*, we include a squared term in the regressions.
[59] In the Appendix 2 (Section A2.2.4), we give a more detailed explanation of how we distinguish between forced and unforced CEO turnovers.

Table 4.6 Robustness checks: *CEO Tenure* as a proxy for CEO power.

Dependent variable: *DPE*	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CEO Tenure	-0.307*	-0.334*	-0.307*	-0.370**	-0.366**	-0.319*	-0.315*
	(0.170)	(0.171)	(0.173)	(0.168)	(0.170)	(0.173)	(0.176)
CEO as the Largest Owner		2.405***					
		(0.396)					
Large Owner on the Management Board			-1.821				
			(1.458)				
Widely-held Financial Institution as the Largest Owner				1.745**			
				(0.735)			
Widely-held Non-Financial Corporation as the Largest Owner					-0.426		
					(0.498)		
Government as the Largest Owner						-2.136***	
						(0.795)	
Government Official on the Board							-2.152**
							(1.008)
Controls	YES	YES	YES	YES	YES	YES	YES
Year dummies	YES	YES	YES	YES	YES	YES	YES
Observations	530	529	518	485	485	445	494
R-squared within	0.402	0.404	0.401	0.409	0.385	0.430	0.422
Number of banks	99	99	97	91	91	91	95

The regressions are run using a Within-Group model for panel-data at the bank level. The dependent variable is *DPE* - dividend payout as a ratio of dividends to equity. All specifications include time dummies and the following control variables: *Size* (log of total assets of the bank), *Market-to-Book* (ratio of market value of equity to book value of equity), *Tier1 Capital* (ratio of Tier 1 capital to risk-weighted assets), *Profitability* (return on average asset), *GDP per capita* (natural logarithm of GDP per capita). The continuous variables (except for *CEO Tenure*) are winsorized at the 5^{th} and 95^{th} percentile. Cluster-robust standard errors are reported in parentheses. The superscripts ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Table 4.7 Robustness checks: *CEO Unforced Turnover* as a proxy for CEO power.

Dependent variable: *DPE*	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CEO Unforced Turnover	0.554***	0.602***	0.604***	0.492**	0.575**	0.517**	0.654***
	(0.208)	(0.208)	(0.217)	(0.209)	(0.220)	(0.251)	(0.240)
CEO as the Largest Owner		2.420***					
		(0.364)					
Large Owner on the Management Board			-1.685				
			(1.329)				
Widely-held Financial Institution as the Largest Owner				1.687**			
				(0.751)			
Widely-held Non-Financial Corporation as the Largest Owner					-0.706		
					(0.508)		
Government as the Largest Owner						-2.049**	
						(0.814)	
Government Official on the Board							-2.106**
							(1.009)
Controls	YES	YES	YES	YES	YES	YES	YES
Year dummies	YES	YES	YES	YES	YES	YES	YES
Observations	461	452	423	423	396	434	461
R-squared within	0.425	0.426	0.426	0.411	0.448	0.449	0.425
Number of banks	99	97	91	91	91	95	99

The regressions are run using a Within-Group model for panel-data at the bank level. The dependent variable is *DPE* - dividend payout as a ratio of dividends to equity. All specifications include time dummies and the following control variables: *Size* (log of total assets of the bank), *Market-to-Book* (ratio of market value of equity to book value of equity), *Tier1 Capital* (ratio of Tier 1 capital to risk-weighted assets), *Profitability* (return on average asset), *GDP per capita* (natural logarithm of GDP per capita). The continuous variables (except for *CEO Tenure*) are winsorized at the 5^{th} and 95^{th} percentile. Cluster-robust standard errors are reported in parentheses. The superscripts ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

4.4.3 Robustness checks

As said earlier with respect to the relation between dividends and CEO turnover, a possible concern for the results reported in sections 4.1 and 4.2 is reverse causality between payout ratios and CEO power. While this concern is relatively weak for *Board Duality* and *CEO Ownership* (a change in payout ratios is unlikely to lead to a higher probability for the CEO to become the chairman or to increase his shareholding), a dividend cut may reduce CEO tenure, because it may increase the probability of dismissal (Schaeck et al. (2012)). To address this concern, we repeat estimation of the seven models reported in Tables 4.4–4.7 after lagging all the explanatory variables (including the controls) by one period. To exclude the possibility that causality runs in the opposite direction, we also run regressions where *Board Duality*, *CEO Ownership*, and *CEO Tenure* are the *dependent* variables, and the lag of *DPE* is the main explanatory variable. In Table 4.8, we report our estimation results, which confirm our main findings qualitatively and quantitatively for *Board Duality* and *CEO Ownership*, while the coefficients on the first lag of *CEO Tenure* and *CEO Unforced Turnover* are insignificant, but maintain the expected sign (negative for the former and positive for the latter). It is not surprising that the coefficients on the lags of *CEO Tenure* and *CEO Unforced Turnover* are insignificant, since using the lag rather than the current value of these variables is likely to introduce noise in the data.[60] As for the issue of reverse causality, in the regressions on *Board Duality*, *CEO Ownership*, *CEO Tenure*, and *CEO Unforced Turnover* the lag of *DPE* is insignificant, suggesting that reverse causality should not be a serious problem.

[60] Consider an example using *CEO Unforced Turnover* as a proxy for CEO power. Assume that in period *t* the CEO of bank *i* has been replaced (the value for *CEO Unforced Turnover* is one), and the new less-powerful CEO accepts to increase the payout ratio. This will have a positive effect on the coefficient on *CEO Unforced Turnover*, consistent with expectations. However, the lag of *CEO Unforced Turnover* (whose value is zero) will have a negative effect on the estimated coefficient (since the increase in *DPE* will be associated with a low value for *CEO Unforced Turnover*). Therefore, using the lag rather than the current value for *CEO Unforced Turnover* introduces noise in the data that is likely to be the reason for our insignificant result. The same thing is likely to occur for *CEO Tenure*, since replacement of a CEO will result automatically in shorter tenure. If tenure of the departing CEO is, for instance, 10 years in period $t - 1$, using the lag rather than the current value of *CEO Tenure* introduces noise in the data, since a large payout ratio at time *t* (due to a very short tenure for the new CEO) is associated with the observation for *CEO Tenure* at time $t - 1$ (which reflects long tenure). These effects are unlikely to occur for *Board Duality* or *CEO Ownership*. Unless there is a CEO turnover, it is unlikely that a CEO will gain or lose a substantial amount of power in one year simply because she has been nominated (or dismissed as) Chairman of the board, and large swings in the level of *CEO Ownership* after only one here are unlikely.

Table 4.8 Robustness checks: Summary of results for reverse causality test.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Year effects	YES	YES	YES	YES	YES	YES	YES
Controls	YES	YES	YES	YES	YES	YES	YES
Additional explanatory variable	None	*CEO as Largest Owner*	*Large Owner on the Management Board*	*Widely-held Financial Institution as the Largest Owner*	*Widely-held Non-Financial Corporation as the Largest Owner*	*Government as the Largest Owner*	*Government Official on the Board*
Dependent variable: ***DPE – Proxy for CEO power and other explanatory variables lagged***							
Proxy for CEO power: 1. Board Duality; 2. CEO Ownership; 3. CEO Tenure; 4. CEO Unforced Turnover							
1. *Board Duality (lagged)*	-1.474***	-1.481***	-1.506***	-1.334**	-1.323***	-0.319	-1.619***
	(0.455)	(0.455)	(0.466)	(0.553)	(0.469)	(0.601)	(0.514)
2. *CEO Ownership (lagged)*	-1.122***	-1.128***	-1.017***	-1.126***	-1.151***	-1.270***	-1.006***
	(0.353)	(0.354)	(0.324)	(0.371)	(0.360)	(0.388)	(0.309)
2. *CEO Own. Squared (lagged)*	0.096***	0.096***	0.086***	0.098***	0.100***	0.112***	0.085***
	(0.033)	(0.033)	(0.030)	(0.034)	(0.033)	(0.036)	(0.029)
3. *CEO Tenure (lagged)*	-0.185	-0.179	-0.207	-0.273	-0.261	-0.296	-0.199
	(0.162)	(0.163)	(0.168)	(0.175)	(0.173)	(0.179)	(0.183)
4. *CEO Unforced Turnover (lagged)*	0.224	0.220	0.270	0.341	0.372	0.381	0.341
	(0.240)	(0.241)	(0.246)	(0.257)	(0.249)	(0.262)	(0.276)
Dependent variable: ***Board Duality – DPE and other explanatory variables lagged***							
DPE (lagged)	0.002	0.002	0.002	0.005	0.005	0.006	0.001
	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.005)	(0.004)
Dependent variable: ***CEO Ownership – DPE and other explanatory variables lagged***							
DPE (lagged)	-0.040	-0.040	-0.038	-0.031	-0.034	-0.035	-0.044
	(0.033)	(0.033)	(0.035)	(0.031)	(0.032)	(0.035)	(0.037)
Dependent variable: ***CEO Tenure – DPE and other explanatory variables lagged***							
DPE (lagged)	-0.012	-0.011	-0.009	-0.010	-0.013	0.005	-0.007
	(0.020)	(0.020)	(0.021)	(0.022)	(0.022)	(0.023)	(0.020)
Dependent variable: ***CEO Unforced Turnover – DPE and other explanatory variables lagged***							
DPE (lagged)	-0.008	-0.008	-0.007	-0.009	-0.006	-0.016	-0.009
	(0.010)	(0.010)	(0.010)	(0.011)	(0.011)	(0.011)	(0.010)

- Table 4.8 continued -

The regressions are run using a Within-Group model for panel-data at the bank level. All explanatory variables are lagged by one period. All specifications include time dummies and the following control variables: *Size* (log of total assets of the bank), *Market-to-Book* (ratio of market value of equity to book value of equity), *Tier1 Capital* (ratio of Tier 1 capital to risk-weighted assets), *Profitability* (return on average asset), *GDP per capita* (natural logarithm of GDP per capita). The continuous variables are winsorized at the 5^{th} and 95^{th} percentile. Cluster-robust standard errors are reported in parentheses. The superscripts ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

To further examine the issue of endogeneity, we employ matching techniques in combination with a difference-in-Differences (DID) approach. Matching techniques can overcome several problems of a multiple regression framework. In particular, they are not sensitive to functional form, and increase comparability of the units in the treatment and control group, improving identification of causal effects. However, matching techniques do not allow for differences in the two groups due to unobservable characteristics. On the other hand, DID can allow for such differences, by incorporating bank fixed effects, time effects, and their interaction in the analysis. In so doing, it can correctly identify the remaining effect for each bank over time.

We define two groups of banks as the treatment and control group, respectively: The banks in the treatment group are defined as those for which there in an event of increased CEO power in year *t* (i.e. *Board Duality* or *CEO Unforced Turnover* equals 1); the banks in the control group are defined as those for which there are no such events in year *t*. To allow for inertia in the treatment effects, we consider the effects of the treatment over three years (i.e. the year of the event and the following two years). Therefore, we have a DID setup whereby we compare the average outcome for treated and untreated banks ($w = 1$ for the former and $w = 0$ for the latter) before and after the treatment ($\tau = 0$ before and $\tau = 1$ after). The interaction term $I = w \times \tau$ is the variable of interest to determine whether the treatment has had an effect on the treated banks or not. In our setup, $I_{i,t} = 1$ for bank i at time t if for such bank the CEO power proxy (*Board Duality* or *CEO Unforced Turnover*) takes on the value one in that year or in any of the two previous years, and $I_{i,t} = 0$ otherwise.

The usual DID approach entails running the OLS regression (Bertrand et al. (2004)):

$$DPE_{i,t} = A_i + B_t + \beta I_{i.t} + cC_{i.t} + e_{i,t} \qquad [6]$$

Where A_i and B_t are fixed effects for banks and years, respectively, $C_{i.t}$ are control variables, and $e_{i,t}$ is an error term. The coefficient β is the estimated impact of the treatment.

Since we have different periods for treatments across different treated banks, we follow Bertrand et al. (2004) and run an OLS regression of *DPE* on bank dummies and year dummies. The residuals are employed in the following analysis for identification of the treatment effects. While Bertrand et al. (2004) suggest that the second stage be simply an OLS regression on the resulting residuals, we combine the DID procedure with matching techniques to further

increase the reliability of our results. Through matching, we are able to discern the effect of the treatment through a comparison of the outcome for each treated bank with the outcome for a group of banks very similar to it. This is a clear improvement over a simple comparison of the overall mean of the outcome for treated and untreated banks in the pre- and post-treatment periods (i.e. simple DID approach).

In particular, to allow for the possibility that the two groups differ in the probability of receiving treatment, we employ the Nearest Neighbor Matching (NNM) estimator (Abadie and Imbens (2002)), which permits adjusting for differences (in observable characteristics) between the treatment and control group. In short, let $Y_{i,t}(0)$ and $Y_{i,t}(1)$ denote two potential outcomes for bank *i* at period *t*: $Y_{i,t}(1)$ is the outcome when the bank receives the treatment, and $Y_{i,t}(0)$ is the outcome when it does not receive the treatment. In our case, $Y_{i,t}$ is *DPE* for bank *i* at time *t*. If both $Y_{i,t}(0)$ and $Y_{i,t}(1)$ were observable, the effect of the treatment on unit bank *i* would be observed directly as $Y_{i,t}(1) - Y_{i,t}(0)$. Since it is unobservable, it has to be estimated. If assignment to the treatment is random for banks with similar values of the pre-treatment covariates, the average outcome of similar untreated banks can be employed to estimate the untreated outcome (Abadie et al. (2004)).

For convenience, let us denote each observation for the outcome Y_z, where $z = 1, 2, \ldots, NT$ (we assume that the sample is balanced). Then, the Sample Average Treatment Effect (SATE) is estimated as follows:

$$SATE = NT^{-1}\sum_{z=1}^{NT}\left[Y_z(1) - Y_z(0)\right] \qquad [7]$$

SATE can be interpreted as the impact of the treatment on the whole sample of banks, not only on the treated banks. The Sample Average Treatment effect for the Treated (SATT) can be defined as:

$$SATT = N_1 T^{-1}\sum_{i|w_i=1}\left[Y_z(1) - Y_z(0)\right] \qquad [8]$$

Where $w_i = 1$ denotes that bank *i* belongs to the sub-sample of treated banks. We prefer using the SATE rather than the SATT, since any bank could be exposed to the treatment in a

certain year. In other words, we are not dealing with cases for which only certain banks are subject to the treatment, for instance because of a regulation targeting only certain banks.[61]

When we estimate average treatment effects only one of the two outcomes is *observed*, and the *unobserved* potential outcome (i.e. the counterfactual treatment outcome) must be estimated for each sample bank-year observation. For each bank-year observation, NNM: 1) minimizes $d_{M(i,t),}$ or the distance between the covariates for that observation and the M^{th} closest match (in terms of value of the covariates) in the opposite treatment group (Abadie et al. (2004)), and 2) estimates the unobserved outcome, by averaging the observed outcomes for the *m* observations of the opposite treatment groups that are selected as matches for that observation. In other words, the covariates adjust for observable differences between the two groups.[62]

We match the treatment observations with observations that as similar as possible along the following dimensions:

1) For *Board Duality*, we choose two additional covariates: an index of the degree of shareholder protection against possible abuse of power from insiders (*Anti-Director Rights*)[63] and the ratio of bank credit to GDP (*Bank Credit*). These variables are constructed according to Beck et al. (2001) and Levine (2002). The variable *Anti-Director Rights* could decrease the probability of receiving treatment, since high values for this index suggest that the rights of minority shareholders are well protected. On the other hand, high values for *Bank Credit* could increase the probability of receiving the treatment, since in bank-based countries the market for corporate control may be ineffective (Köke (2004)).
2) For *CEO Unforced Turnover*, we choose one additional covariate: the age of the CEO (*CEO Age*). While the probability of an unforced turnover of course increases with age (since the CEO is likely to retire sooner).

[61] Abadie et al. (2004) take as an example the case of a program targeting post-graduation earnings of youth from poor neighborhoods. In this case, estimating the SATT makes sense, since the potential impact of the program on youth from non-poor neighborhoods is of negligible importance.

[62] We prefer matching on covariates to matching on propensity score, since the former provides the finest balancing score (Rosenbaum and Rubin (1983)). For more details on NNM, see Abadie et al. (2004).

[63] We construct this index as follows. We assign a value of zero for countries for which none of the following conditions exists: (1) it is possible for shareholders to send via mail their proxy vote; (2) there is no requirement for shareholders to deposit their shares before the general shareholders' meeting; (3) it is permitted to cumulate votes as well as to have proportional representation of minorities in the board of directors; (4) an oppressed minorities mechanism is in place; (5) the minimum percentage of share capital that entitles a shareholder to call for an extraordinary shareholders' meeting is less than or equal to 10 percent; or (6) shareholders have preemptive rights that can be waived only by a shareholders' vote. For every condition that is satisfied, we add one to the value of the index. Therefore, the index can take on values from zero to six (following La Porta et al. (2000)).

3) For both proxies, we also match on the variables previously employed as controls ($C_{i,t}$). This is to increase the plausibility of the assumption of unconfoundness (i.e. conditional on the covariates used for the matching, treatment is basically randomized).

Moreover, since the probability of receiving treatment may also depend on other bank characteristics related to corporate governance and ownership structure, for robustness we match also on the following variables (one for each specification, for consistency with the previous analysis): *CEO as the Largest Owner*, *Widely-held Financial Institution as the Largest Owner*, *Large Owner on the Management Board*, *Widely-held Non-Financial Corporation as the Largest Owner*, *Government as the Largest Owner*, and *Government Official on the Board*. In our estimations, we report the results for two and four matches, and we adjust for finite-sample bias due to inexact matching (this bias increases with the number of covariates) and for heteroskedastic errors (Abadie et al. (2004)).

Table 4.9 reports the results for the SATE resulting from the DID associated with NNM. The results strongly support the previous findings with respect to both *Board Duality* and *CEO Unforced Turnover*. The coefficients for SATE are negative and significant for the all seven specifications with *Board Duality*, and positive and significant for all seven specifications with *CEO Unforced Turnover*.

Table 4.9 Robustness Checks: Difference-in-differences with matching (Nearest Neighbor Matching estimator).

Dependent variable: *DPE*	(1)	(2)	(3)	(4)	(5)	(6)	(7)
			Sample Average Treatment Effects				
			Two matches (m = 2)				
Treatment 1: Board Duality	-0.694***	-0.806***	-0.750***	-0.514***	-0.559***	-0.406**	-0.978***
	(0.187)	(0.188)	(0.188)	(0.198)	(0.198)	(0.197)	(0.207)
Treatment 2: CEO Unforced Turnover	0.348***	0.436***	0.363***	0.369***	0.413***	0.444***	0.478***
	(0.129)	(0.125)	(0.124)	(0.13)	(0.133)	(0.133)	(0.131)
			Four matches (m = 4)				
Treatment 1: Board Duality	-0.780***	-0.902***	-0.825***	-0.622***	-0.659***	-0.558**	-1.062***
	(0.219)	(0.228)	(0.221)	(0.236)	(0.237)	(0.236)	(0.237)
Treatment 2: CEO Unforced Turnover	0.406***	0.465***	0.420***	0.455***	0.449***	0.492***	0.505***
	(0.124)	(0.125)	(0.12)	(0.133)	(0.129)	(0.128)	(0.12)

SATE is estimated on the residuals of a regression of *DPE* on bank and year fixed effects. The estimated SATE is bias-adjusted , and the standard errors are heteroskedasticity-robust.

The treatment, $I_{i,t}$, is defined as follows:

Treatment 1: $I_{i,t}$ *= 1 if Board Duality*$_{i,t}$ *= 1 in year t, t-1, or t-2,* and 0 otherwise.

Treatment 2: $I_{i,t}$ *= 1 if CEO Unforced Turnover*$_{i,t}$ *= 1 in year t, t-1, or t-2,* and 0 otherwise.

Therefore, the post-treatment period for treated banks (w_i = 1) can last for three years at most, and one year at least. The following covariates are used to estimate the potential outcomes for both *Treatment 1* and *Treatment 2* and for all seven specifications: *Size* (log of total assets of the bank), *Market-to-Book* (ratio of market value of equity to book value of equity), *Tier1 Capital* (ratio of Tier 1 capital to risk-weighted assets), *Profitability* (return on average asset), *GDP per capita* (natural logarithm of GDP per capita). For *Treatment 1*, the additional covariates *Bank Credit* and *Anti-Director Rights* are employed in all seven specifications. For *Treatment 2* the additional covariate *CEO Age* is employed in all seven specifications. Finally, the following additional covariates are employed for both *Treatment 1* and *Treatment 2* in specifications (2) to (7), respectively (separately for each specification): *CEO as the Largest Owner*, *Widely-held Financial Institution as the Largest Owner*, *Large Owner on the Management Board*, *Widely-held Non-Financial Corporation as the Largest Owner*, *Government as the Largest Owner*, and *Government Official on the Board*. The superscripts ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

We perform additional robustness tests to check the sensitivity of our results to the specification of our models. The results of these tests are not reported, but are available upon request from the authors.

First, we investigate the effect of board independence on dividend payout ratios. Sharma (2011) provides evidence that board independence affects the propensity to pay dividends. Boards with a large number of independent directors[64] should be able to exert stronger monitoring on entrenched CEOs. Internal monitoring from independent directors could lead to higher payout ratios (Hu and Kumar (2004)). However, higher board independence could be an alternative monitoring mechanism to dividends, similar to H3. We construct a dummy variable *Strong Board Independence*, equal to one if at least 50% of the board members consist of independent directors, and zero otherwise. The coefficient on *Strong Board Independence* is negative and significant or weakly significant for the regressions on *Board Duality*, *CEO Ownership*, *CEO Tenure*, and *CEO Unforced Turnover* suggesting that independent directors may act as alternative monitoring devices. The coefficients on *Board Duality*, *CEO Ownership*, *CEO Tenure*, *CEO Unforced Turnover*, and the other variables remain virtually the same as those reported in Tables 4.4–4.7.

Second, we investigate the effect of being close to the capital requirements on dividend payout ratios. Recent contributions (Onali (2012)) find that for banks whose regulatory capital ratio is close the minimum requirement payout ratios are lower. We include a dummy variable, *Capital Requirements*, which takes on the value one if *Tier 1 Capital* is less than six percent, and zero otherwise. *Capital Requirements* enters all the regressions with a negative coefficient. The coefficient is negative and significant at the 5% level in most cases, confirming Onali's findings. The coefficients on *Board Duality*, *CEO Ownership, CEO tenure*, *CEO Unforced Turnover* and the other variables remain virtually unaltered.

Third, we include a dummy variable, *Crisis*, which takes on the value one for the years 2008 and 2009, and zero otherwise.[65] The dummy is negative but insignificant in most cases. The reason for this is that during the crisis bank share prices dropped, and therefore the effect of the crisis is already picked up by the control variable *Growth Opportunities* (market-to-

[64] In the Appendix 2 (Section A2.2.3), we give a more detailed explanation of how we define 'independent directors'.
[65] To avoid multicollinearity, we exclude the year dummies.

book ratio).[66] When *Growth Opportunities* is excluded from the regressions, the coefficient on *Crisis* becomes negative and significant for most of the specifications. The coefficients on *Board Duality*, *CEO Ownership*, *CEO Tenure*, *CEO Unforced Turnover*, and the other variables remain virtually unaltered.

We also create two interaction variables between *Crisis* and the variables related to CEO ownership: *CEO Ownership* and *CEO Ownership Squared*. The overall effect of CEO ownership on dividend payout ratios during the crisis is measured by the sum of the coefficients of *CEO Ownership* and *CEO Ownership Squared* and the respective interaction terms. The coefficients on the interaction terms tend to offset the impact of *CEO Ownership* on *DPE*, although they tend to become insignificant for specifications including $Q_{i,t}$. For the equation excluding $Q_{i,t,}$ the coefficients on *Crisis*×*CEO Ownership* and *Crisis*×*CEO Ownership Squared* are 0.682 and –0.063, respectively. These results imply that during the crisis the critical level of CEO ownership after which the relation becomes positive was 4.70%, instead of 5.50%. Thus, the incentive for CEO-owners to pay themselves a dividend exceeded the opportunity costs for a much lower level of CEO ownership. This finding is consistent with the view that during the crisis many banks attempted to shift risk to creditors by paying dividends (Acharya *et al.* (2011); Onali (2012)).

Fourth, we exclude from the sample Italian banks, which are the most numerous in the sample, and the results remain qualitatively the same as those reported in Tables 4.4–4.7. Similarly, when we exclude from the sample the 11 cooperative banks, the results remain substantially the same as those reported in Tables 4.4–4.7.

Finally, we assess the sensitivity of our results to changes in our econometric specification.

First, to allow for outliers without winsorizing the response variable (*DPE*), we employ quantile regressions, with both bank and year fixed effects. We run the regressions so that the conditional median of *DPE* (*not* winsorized) is estimated, instead of the conditional mean. The results confirm those reported in Tables 4.4–4.7. The coefficients remain significant.

Second, since for a significant number of observations *DPE* is equal to zero (about 20% of the total number of observations), we repeat the analysis using a Tobit model, with both bank

[66] The average of *Growth Opportunities* for *Crisis* =1 is 0.92, while for *Crisis* = 0 it is 1.54.

and year fixed effects, as before.[67] The results remain substantially the same as those reported in Tables 4.4–4.7.

Third, we take the natural logarithm of *DPE* to reduce skewness and kurtosis, instead of winsorizing *DPE*. The results remain qualitatively the same as those reported in Tables 4.4–4.7.

4.5 Conclusions

In this paper, we have investigated the effect of CEO power on dividend policy in banks from EU-15 (Western Europe) countries. According to the managerial entrenchment literature, dividend payout ratios are positively related to CEO power (Hu and Kumar (2004)), since dividends discourage monitoring from minority shareholders. In Western Europe, dividends dampen expropriation of minority shareholders (Faccio et al. (2001)), consistent with a positive relation between dividend payout ratios and expropriation incentives. However, due to monitoring from banking regulators, who dislike generous dividend policies, the relation between CEO power and dividend payout ratios in Western European banks may be *negative*. Entrenched bank CEOs may catch two birds with a stone by paying lower dividend payout ratios: In doing so, they are less likely to attract undesired attention from the banking regulators, and can employ excess cash for non-value maximizing project that may increase their personal utility.

We have taken advantage of a unique and painstakingly hand-collected data set with information on board (BoD and management board) composition and ownership structure for European listed banks for the period 2005-2010. This data set has been merged with data from *Bankscope* and bank annual reports with information on dividends and other financial characteristics of the banks.

We have provided evidence of a U-shaped relation between CEO ownership and dividend payout ratios: for percentages of CEO ownership below (above) around five and a half percent, CEO ownership is negatively (positively) related to dividend payout ratios. This may

[67] The estimates of unconditional fixed effect estimators for binary-choice models are known to be biased, due to the 'incidental parameters problem'. However, Greene (2004) shows that the slope estimates for the unconditional fixed effect Tobit estimator are virtually unbiased.

suggest that insider ownership and dividends cease to be substitute monitoring devices after a certain level of CEO ownership is reached. However, we find a negative relation between board duality and dividend payout ratios and between CEO tenure and payout ratios, and a positive relation between unforced CEO turnover events and dividend payout ratios. We argue that these results suggest expropriation of CEOs at the expense of minority shareholders in the form of lower dividend payout ratios. The results for board duality and unforced CEO turnover events hold even when we employ a combination of difference-in-differences and matching techniques to sharpen identification of the causality between CEO power and dividend payout ratios.

We also provide robust evidence that when a widely-held financial institution is the largest owner of the bank, payout ratios increase, indicating that financial institutions can decrease expropriation. However, internal monitoring from independent directors does not seem to reduce expropriation, suggesting that internal monitoring in banks could have bank safety as the primary objective.

In line with the view that regulators may put the interest of depositors before that of bank shareholders, we find that banks where government is the largest shareholder, or where there is a government official on the board, make lower dividend payout ratios.

We further analyze how connection to government and government intervention affect banking corporate governance and dividend policy in Chapters 5 and 6. We provide descriptive statistics on government bailout in the EU-15 countries during 2007-2010 in Chapter 5. We test whether bailed banks benefited from the government bailout measures, and whether government support was followed by increased control over the management of bailed banks in Chapter 6.

CHAPTER 5

Government bailout in European banking

Banking regulation has strong relationships with both dividend policy and corporate governance. Banking regulation affects banking corporate governance and dividend policy but also changes itself adapting to the needs of the banking sector. During the pre-crisis years, deregulation of banks caused the basic restructuring of banking regulators themselves (Wilcox (2005)). This, in turn, helped maintaining poor corporate governance policies – the policies that encouraged excessive risk-taking and inefficient distribution of wealth in banks (Levine (2012)). The crisis of 2007-2008 increased regulation over banking and caused a series of government bailouts accompanied by restrictions on dividends and executives' compensation, and other managerial disciplining measures in bailed banks. As a result, banking corporate governance, ownership structure and dividend policy experienced significant changes.

The literature lacks investigation on the effects of government bailout during 2007-2010 on corporate governance and dividend policy of banks. One possible reason is a dearth of corporate governance data for European banks.

We develop this chapter in order to give more information on government bailouts in European countries and their consequences for European banking. This chapter describes the research context for the third study (Chapter 6). The description is based on our hand-collected data set for 129 listed banks[68] located in 15 EU countries for the period 2005-2010.[69]

[68] We have already described the main steps of our sample construction in Chapter 4. Analyzing bailouts and their effects requires taking into account the banks delisted during the period of observations. Therefore, we

First, we provide statistics on the amounts of bailout money distributed by national regulators and the amounts of bailout money repaid by banks, during 2007-2010 across 15 EU countries and four legal origins.[70] Second, we compare characteristics for banks that have received a bailout and for banks that have not, both before and after bailout. We focus on such characteristics of banks as dividend policy, board composition, ownership structure, management compensation, and others that will be analyzed in the third study. Finally, we distinguish a group of delisted banks and analyze the effectiveness of government bailout for saving troubled institutions.

Table 5.1 provides statistics on government bailouts across 15 EU countries and four legal origins. The first column shows the amounts of bailout money distributed in each country and legal origin during 2007-2010.[71] The countries that distributed the largest amounts of bailout money are: the UK, Germany, Ireland, the Netherlands and Belgium (1106, 418, 158, 143 and 138 bil.EUR, correspondingly). The only country that did no bailout is Finland.

The second column shows a number of bailouts in our sample banks. A total number of bailouts in the sample banks are 58. The banks in Denmark, the UK, Greece, Germany and Italy have relatively large number of bailouts (11, 9, 7, 6 and 6, correspondingly). The number of bailouts is relatively small in the Netherlands, Austria, Belgium, France, Ireland and Portugal. There was no bailout in the sample banks in Finland, Luxembourg, Spain and Sweden.

Next three columns illustrate the amounts of gross bailout, gross repay, and net bailout in the sample banks. The amounts of gross bailout are relatively large in the UK, Germany and Belgium (600, 247 and 124 bil.EUR, correspondingly). Although banks in these countries have repaid significant part of bailout money, their net bailout debt as of 31st December 2010 was still large.

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increase our sample by another 20 banks delisted during 2005-2010. The sample of delisted banks satisfies selection criteria used for a sample of listed banks.

[69] We describe our sampling procedure in Chapter 6.

[70] We use data on banking bailouts from *Public Support Measures in Europe and in the United States (updated at as 15 November 2011)*, available on the web site of *Mediobanca.*

[71] The first column provides statistics for all banks in a country, while other columns provide statistics for our sample banks only.

Table 5.1 Bailout and repay across countries and legal origins.

Country	*Country Bailout*	*Number of bailouts*	*Gross Bailout*	*Gross Repay*	*Net Bailout (2010)*
Austria	33.00	3	18.70	0	18.70
Belgium	137.50	3	124.44	-65.01	59.43
Denmark	40.24	11	8.88	-0.89	7.99
Finland	0	0	0	0	0
France	25.80	3	10.70	-5.60	5.10
Germany	417.50	6	247.14	-15.00	232.14
Greece	3.40	7	3.26	0	3.26
Ireland	157.70	3	16.60	0	16.60
Italy	4.10	6	10.05	-6.00	4.05
Luxembourg	2.66	0	0	0	0
Netherlands	143.00	4	37.90	-7.00	30.90
Portugal	6.20	3	3.55	0	3.55
Spain	19.70	0	0	0	0
Sweden	0.50	0	0	0	0
United Kingdom	1106.25	9	600.34	-90.97	509.37
Total:	2097.55	58	1081.56	-190.47	891.09
Legal origin					
English	883.63	12	616.94	-90.97	525.97
French	26.23	26	189.90	-83.61	106.29
German	255.23	9	265.84	-15.00	250.84
Scand	25.47	11	8.88	-0.89	7.99

Next, we compare characteristics for banks that have received a bailout and for banks that have not, both before and after bailout. In order to save space, we observe banks on the level of legal origins only. We consider the effect of bailout over three years. For the bailed banks in our sample, the period *after* bailout includes the year when the bailout occurs,[72] and following two years. For the non-bailed banks in our sample, the period *after* bailout includes the year when national regulator starts bailouts in a country, and following two years.[73] For the countries where no bailout takes place, the period *after* bailout includes the year when European regulators start bailouts in their countries, and following two years (i.e., 2008, 2009, and 2010).

[72] The bailout event precedes the reporting date (end-year).

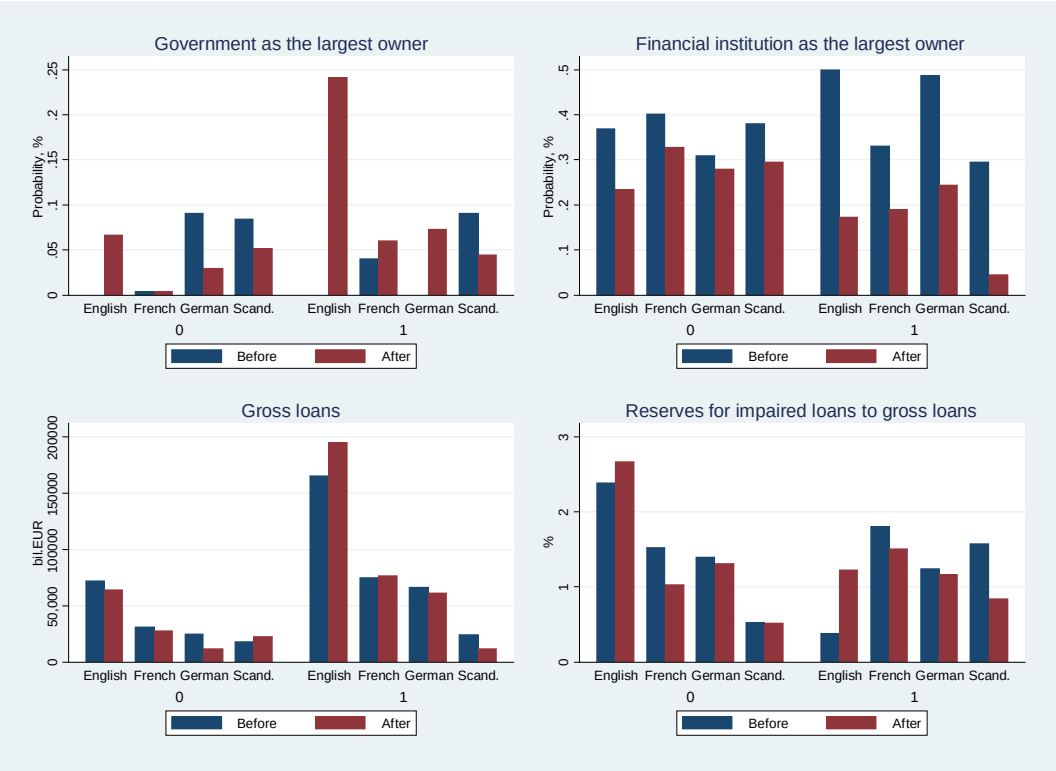
[73] The exception is the UK, where the only bailout in 2007 was followed by a series of bailouts during 2008, 2009 and 2010. Therefore, we assume the period *after* bailout includes the years 2008, 2009 and 2010 for non-bailed banks in the UK.

We observe such characteristics as ownership structure, board composition, management compensation structure, CEO turnover, gross lending and dividend payout.

Figures 5.1-5.3 compare these characteristics before and after government bailout for non-bailed (0) and bailed (1) banks. Looking at Figure 5.1, we find that government ownership increases in bailed banks (the exception is a group of Scandinavian countries) and decreases in non-bailed banks (the exception is a group of English origin countries) following the bailout. Financial institution ownership decreases in bailed and non-bailed banks following the bailout, although it decreases more strongly in bailed banks. We conclude that government bailout during 2007-2010 caused strong changes in ownership structure of bailed banks.

The amount of gross loans decreases in non-bailed banks following the bailout (the exception is a group of Scandinavian countries). However, there is no common trend in gross loans between bailed banks: gross loans increase in English and French origin countries, and decrease in German and Scandinavian countries. The percentage of reserves for impaired loans to gross loans decreases in bailed and non-bailed banks after bailout (the exception is a group of English origin countries).

Figure 5.1: Ownership structure and lending by non-bailed (0) and bailed (1) banks before and after government bailout, by legal origins.



Figures 5.2 and 5.3 focus on several managerial disciplining measures implemented by government during 2007-2010. Figure 5.2 analyzes the restriction on dividends, assignment of state representative on the board, and CEO replacement.

We observe that dividend payout ratios drop down following the bailout in bailed and non-bailed banks, although the decrease is significantly stronger in bailed banks. Next, we find an increased probability of state representation on the boards of bailed banks in English and French origin countries, and non-bailed banks in French origin countries. Finally, we observe an increased probability of CEO turnover in bailed banks (the exception is a group of Scandinavian countries), and a decreased probability of CEO turnover in non-bailed banks following bailout. However, the probability of forced CEO turnover increases in both bailed and non-bailed banks after bailout (the exception is a group of Scandinavian countries). We assume that forced CEO turnovers in bailed banks do not seem to be government-driven.

Figure 5.2: Managerial disciplining measures in non-bailed (0) and bailed (1) banks before and after government bailout, by legal origins.

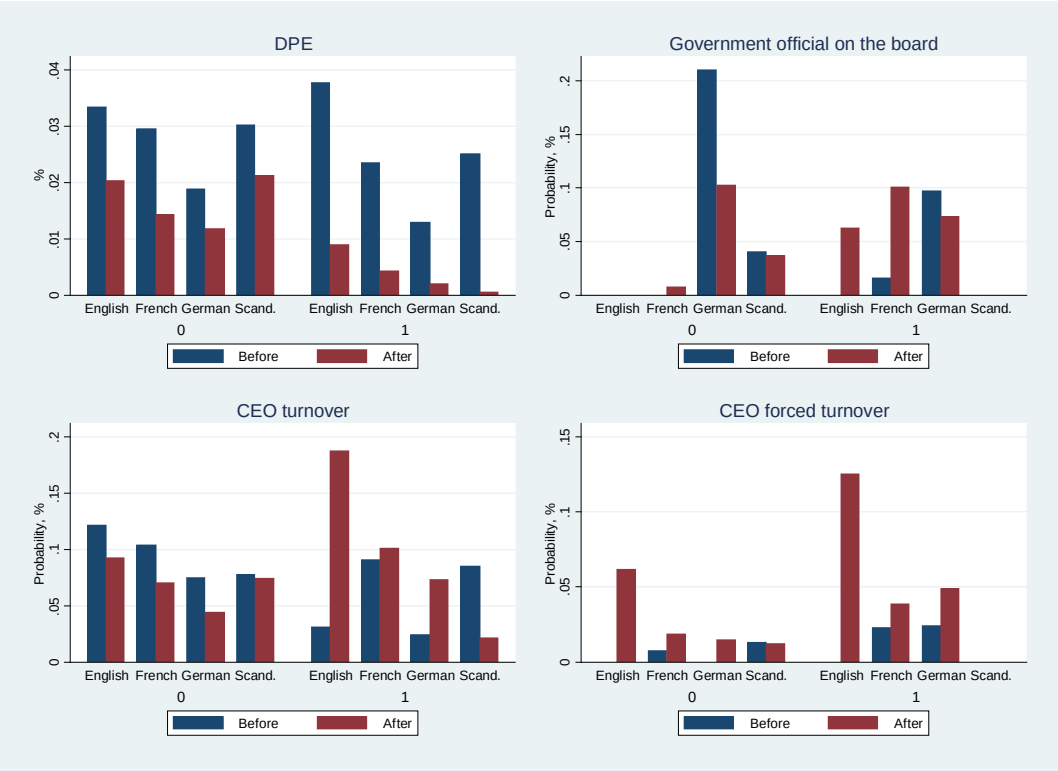
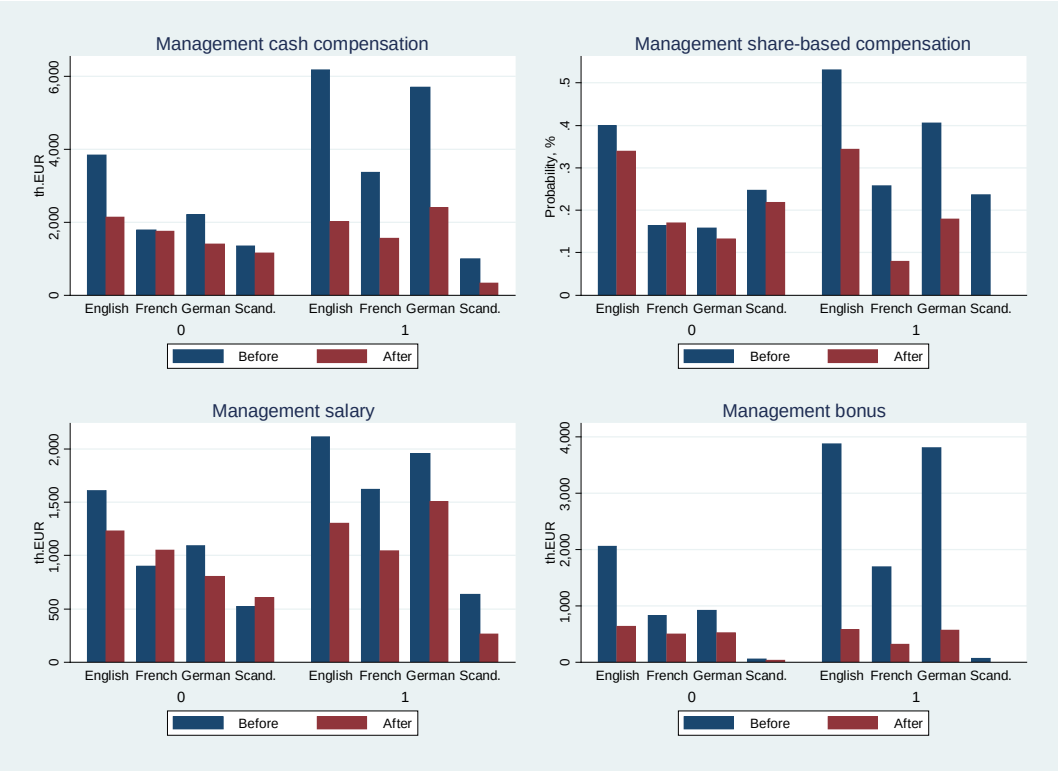


Figure 5.3 analyzes the dynamics of management compensation in bailed and non-bailed banks. We observe that managers of bailed banks have higher cash and share-based compensation before government intervention, than managers of non-bailed banks.

Management cash compensation decreases in bailed and non-bailed banks following the bailout. The decrease in management cash compensation is mostly driven by the decrease in management bonuses, and is significantly stronger in bailed banks. Management salary drops down in bailed banks after bailout. For English and German legal origin countries, management salary in non-bailed banks decreases, however, for French and Scandinavian origin countries, it increases.

Management share-based compensation decreases in bailed and non-bailed banks (the exception is a group of non-bailed banks in French origin countries). The decrease is significantly stronger in bailed banks. We conclude that an overall effect of government restrictions on management compensation is stronger in bailed banks than in non-bailed banks.

Figure 5.3: Management compensation in non-bailed (0) and bailed (1) banks before and after government bailout, by legal origins.



We distinguish a group of delisted banks for analyzing the effectiveness of government bailout measures for saving troubled institutions from delisting. Figure 5.4 compares the number of bailouts and the amount of gross bailout across listed banks and banks that were delisted during 2007-2010.[74] The only bailout takes place in 2007. Most bailouts occur during 2008 and 2009 (18 and 31 bailouts, correspondingly). The number of bailouts during 2010 is relatively small (8 bailouts). The amounts of gross bailout are large during 2008 and 2009, and relatively small during 2007 and 2010.

The only bank that received bailout money during the first year of the crisis – 2007 was delisted consequently. During 2008, almost one half of bailout money was assigned to banks that were further delisted. These evidences show low effectiveness of government bailout measures during 2007-2008 for saving the troubled banks. The effectiveness of bailouts increases during 2009: around 80% of bailout money helps the banks to avoid delisting. This result shows also that assignment of bailout money was preceded by better analysis of

[74] Overall, 36% of observation for listed banks and 20% of observations for banks delisted during 2005-2010 correspond to bailed banks.

troubled banks during 2009. During 2010, the amount of gross bailout was relatively small. However, this bailout money helped all entitled banks to avoid further delisting.

Figure 5.4: Government bailouts across listed and delisted banks, by years.

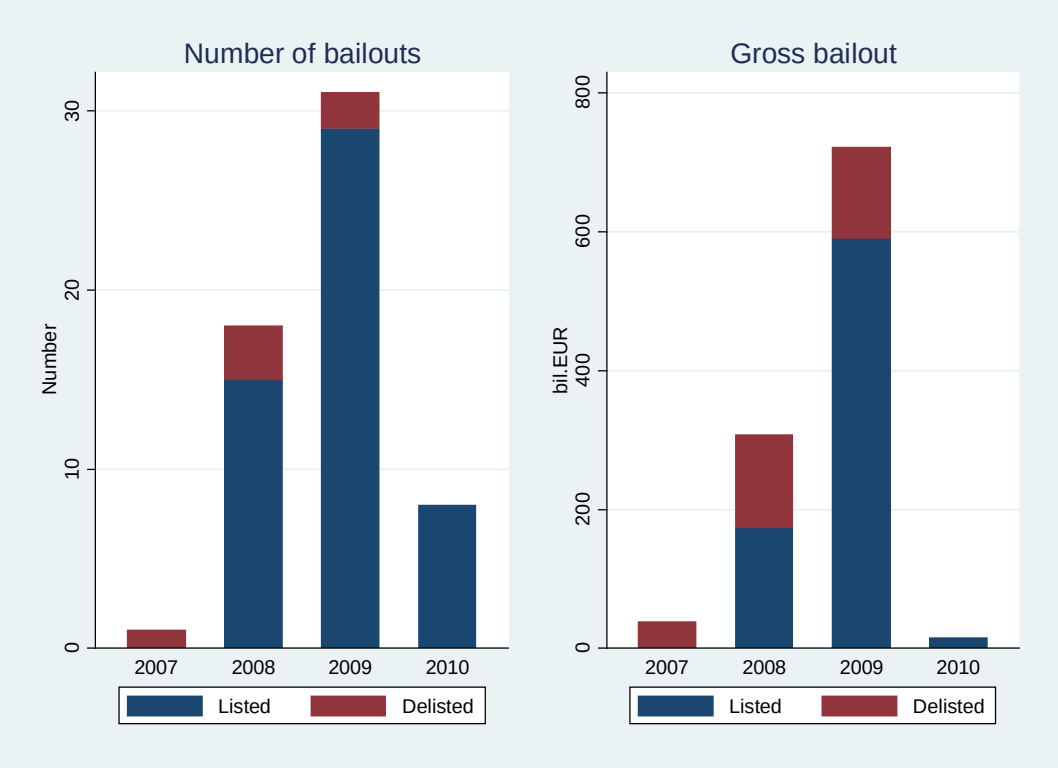


Figure 5.5 compares the number of bailouts and the amount of gross bailout across 15 EU countries. The number of bailouts is large in Denmark (11 bailout events), followed by the UK, Greece, Germany and Italy (9, 7, 6 and 6 bailout events, correspondingly). There was no bailout in the sample banks in Finland, Luxembourg, Spain and Sweden. Most bailouts helped the banks to avoid delisting. However, some bailed banks in Denmark, Germany and the UK were delisted consequently.

The UK government distributed the largest amount of gross bailout money. Large part of this money was assigned to banks that were further delisted. Germany distributed large amount of bailout money, too. Most part of German government money was assigned to a bank that consequently was delisted: Hypo Real Estate Holding AG was bailed out by other German banks in October 2008 in the midst of the global financial crisis, before approving a complete nationalization year later. The banks in Belgium and the Netherlands have also

received significant government help. All banks in these countries were listed during the entire period of observations.

Figure 5.5: Government bailouts across listed and delisted banks, by countries.

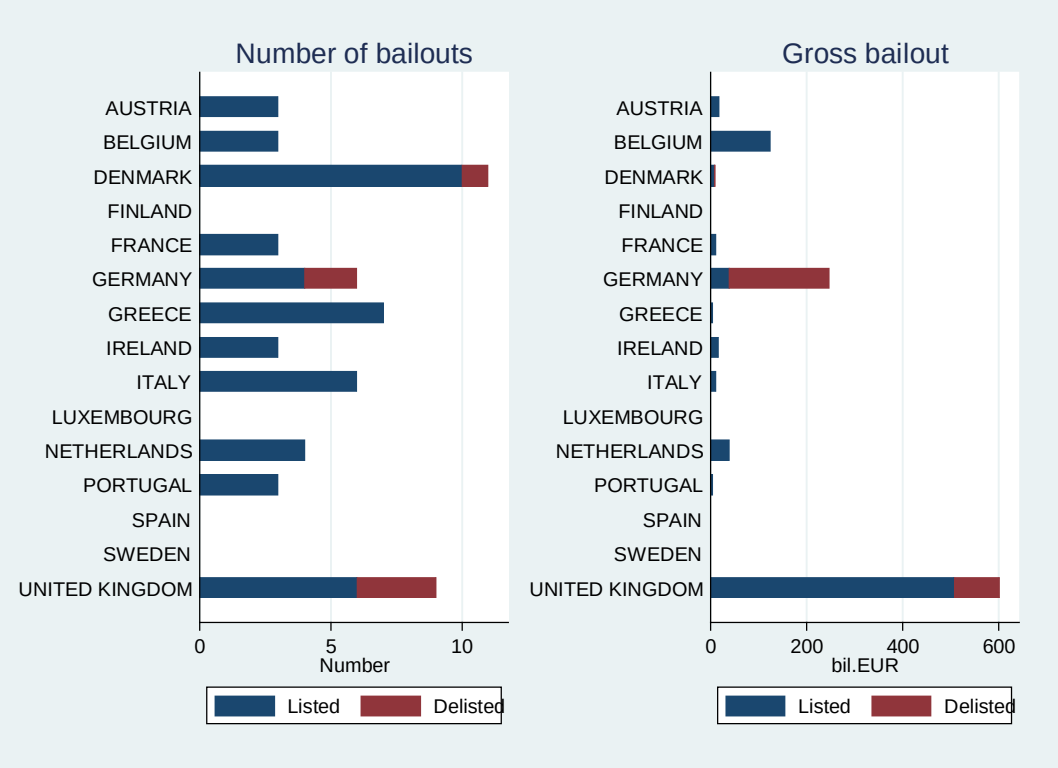


Figure 5.6 Panel A illustrates the differences in gross bailout, gross repay and net bailout across listed (0) and delisted (1) banks. The amount of gross bailout in listed banks significantly exceeds the amount of gross bailout in delisted banks during 2008, 2009 and 2010. Not surprisingly, the amount of gross repay is also higher in listed banks. Although, the dynamics of gross repay are very different in listed and delisted banks. Delisted banks start repaying earlier – in 2008, but make no repayment in 2009 and 2010. In the contrary, no listed bank makes repayment during 2008. Listed banks start to repay bailout money in 2009 and make large repayment during 2010.

Figure 5.6: Gross and average bailout and repay across listed (0) and delisted (1) banks, by years.

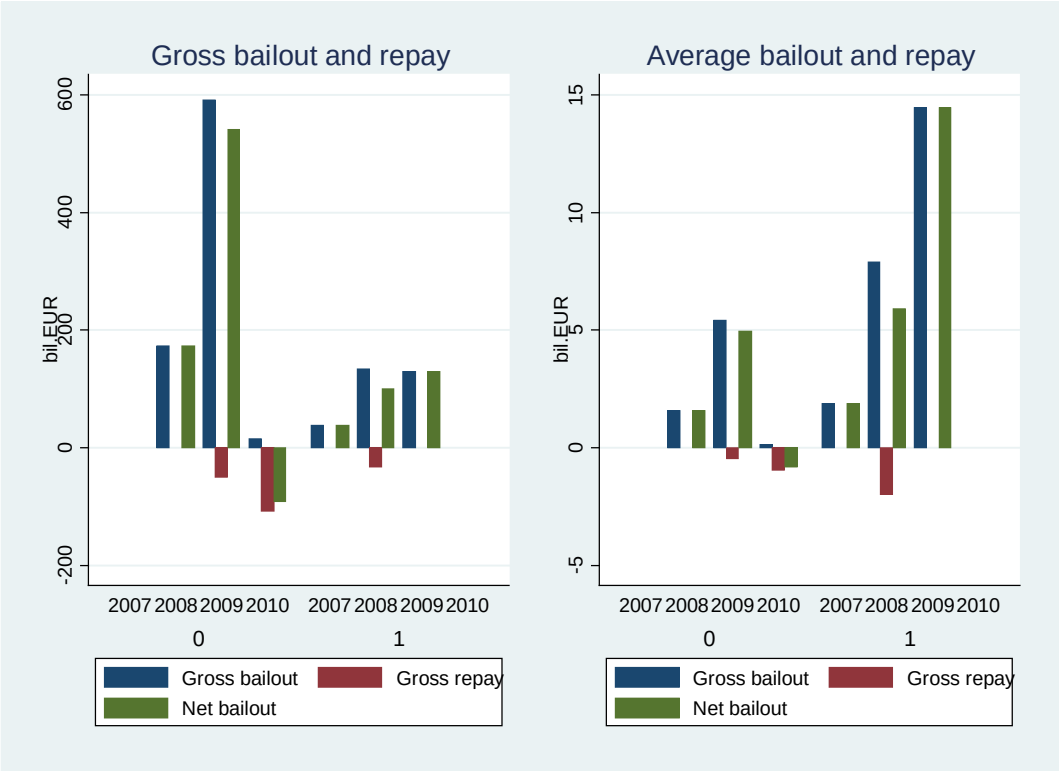


Figure 5.6 Panel B compares average bailout and average repay per bank across listed (0) and delisted (1) banks. We observe that in average one delisted bank receives more bailout money than one listed bank. This result shows that, on the one hand, more troubled banks receive more bailout money and, on the other hand, assignment of bailout money does not help resolving problems in delisted banks. This result provides evidence for inefficiency of bailout money assignment procedure.

CHAPTER 6

Did government money discipline bank managers?
The consequences of government bailout in European banking[75]

In this chapter, we test several hypotheses on potential outcomes of government bailout in European banking. First, we analyze whether bailed banks benefited from government bailout measures using a Helping Hand hypothesis. Second, we analyze whether government support was followed by increased control over the management of bailed banks using a Managerial Disciplining hypothesis.

6.1 Introduction

The literature on banking bailout focuses on the reasons of the financial crisis (Faccio et al. (2006); Vallascas and Hagendorff (2012)) and compares government bailout measures used in different countries (Petrovic and Tutsch (2009); Ferrarini and Ungureanu (2011)). However, the literature on the consequences of government bailout in banking is rather scarce.

Did government bailout help troubled banks? Were bailout measures accompanied by an increased government control over bailed institutions?

In this paper, we test two hypotheses on potential outcomes of government bailout in banking. We use the first hypothesis – Helping Hand hypothesis – for analyzing whether bailed banks benefited from government intervention. The literature finds different types of

[75] This chapter was developed in collaboration with Prof. Onali (Bangor University, Xi'an Jiaotong-Liverpool University (XJTLU)).

the interaction between government and firm (Cheung et al. (2009); Frye and Iwasaki (2011); La Porta et al. (2002)). We focus on a typology by Cheung et al. (2009), in particular on the 'helping hand' hypothesis, which is efficient for describing the government-bank interaction that took place during and after the crisis.

Cheung et al. (2009) test two alternative hypotheses on government-firm interaction. According to the 'helping hand' hypothesis, firm benefits from a connection with government. The alternative hypothesis – the 'grabbing hand' hypothesis – implies that government expropriates minority shareholders. Cheung et al. (2009) find that connection to central government performs as a helping hand, while connection to local government works as a grabbing hand. The literature on non-financial firms finds that connection to central government benefits a firm, although is associated with poor firm performance (Miwa and Ramseyer (2005); Cheung et al. (2009)). The 'managerial discipline' ideal type of business-state relationships of Frye and Iwasaki (2011) complements the 'helping hand' hypothesis: when internal corporate governance is weak, government intervention helps to save the troubled institution from a failure. Frye and Iwasaki (2011) analyze three types of business-state relationships.[76] In the 'managerial discipline' ideal type government intervenes into poor performing firm for constraining firm managers from looting the firm.

The second hypothesis we test is the Managerial Disciplining hypothesis. We use it for analyzing whether government support was followed by increased control over the management of bailed banks. The literature analyzes different regulatory measures used for managerial disciplining. Wilson and Wu (2012) analyze the restrictions on executives' compensation in TARP recipient banks, and find that these restrictions are the main reason for the banks' early exit from the program. Frye and Iwasaki (2011) analyze such managerial disciplining measure as putting government representative on the board.[77] The literature on takeovers finds that takeovers are associated with restrictions on firm dividends (Francis et al. (2011)).

We test the Helping Hand hypothesis and the Managerial Disciplining hypothesis using a new hand-collected dataset on corporate governance, ownership structure and compensation

[76] Alternative ideal types are 'rent-seeking' and 'collusion' ideal types. In the 'rent-seeking' ideal type government seeks its own interests by supporting the firms at the expense of society. In the 'collusion' ideal type government supports the firms that provide important goods or services for the state (Frye and Iwasaki (2011)).
[77] This is consistent with the 'managerial discipline' ideal type of business-state relationships.

structure for 129 listed banks[78] from EU-15 countries. We combine this dataset with data collected from *Mediobanca* on government bailouts, and data collected from *Bankscope* on bank financials and other variables that are believed to be relevant for our research.

We home in on the relation between government bailout and corporate governance of EU-15 (i.e. Western Europe) banks for several reasons. First, the consequences of government bailout on European banking are an under-researched topic. Evaluating government bailout measures in banks has drawn attention from both academics and policy makers, because poor governance of bailouts exacerbated financial and corporate governance problems in banks.[79] However, the empirical literature was often limited to U.S. banks, because of a lack of corporate governance data for European banks. Second, we focus on EU-15 banks because of the heterogeneity in banking regulation and government intervention across different countries (Petrovic and Tutsch (2009)). This heterogeneity offers a good background for investigating the impact of government intervention for national banking and provides more opportunity for generalizing our findings for other countries.

By way of preview, our findings can be summarized as follows.

First, we find that state ownership increases in bailed banks following government bailout. This finding is consistent with the Helping Hand hypothesis: government support during 2007-2010 helps to overcome capitalization problems in bailed banks. In addition, we find that ownership by a widely-held financial institution decreases in bailed banks after government bailout. The literature reports that institutional owners require high risk-taking and high stock returns from bank managers, while state owner seeks for long-term stability in all banks in a country (Mülbert (2010)). Our results demonstrate the character of changes in ownership structure of bailed banks after government bailout.

Second, despite an overall drop in the lending market, gross loans in bailed banks experience no significant changes following bailout. This result is also consistent with the Helping Hand hypothesis: government bailout helps to keep lending by bailed banks at the pre-crisis level. However, we find no significant improvement of the quality of new loans in bailed banks after bailout. Therefore, our results only partly confirm the efficiency of government bailout measures for lending by bailed banks.

[78] This number includes 109 listed banks and 20 banks delisted during 2005-2010.
[79] The bailed banks were criticized for spending bailout money on distributing high dividends (Acharya et al. (2011)) and high executive compensation (Bebchuk et al. (2010)).

Third, we provide robust evidence for increased control over the banks that receive government money. Government appoints its representatives as 'watchdogs' on the boards of bailed institutions after bailout. Government implements restrictions on dividends, and managerial bonuses and share-based compensation for bailed banks following bailout. These evidences are consistent with the Managerial Disciplining hypothesis, which argues that state increases control over the management of bailed firm to constrain firm managers from looting the firm. However, we find no significant effect of government bailout on forced CEO turnover. This result is consistent with the literature that finds no support for regulators-driven executives' turnover in banks (Schaeck et al. (2012)).

We structure the rest of the paper as follows. Section 6.2 reviews the literature and develops the hypotheses. Section 6.3 describes the methodology and the data set. Section 6.4 reports the results and robustness checks. Section 6.5 summarizes and concludes.

6.2 Literature review and hypotheses

The financial crisis of 2007-2008 revealed weaknesses of national banking systems worldwide. European regulators responded to the crisis by using different emergency measures, such as deposit guarantees, state guarantee schemes, recapitalization measures, loans to banks, acquisition of impaired assets, and nationalization of banks.[80] On the one hand, government bailout of troubled banks helped to avoid high social cost associated with banking failure. On the other hand, government intervention could result in increased moral hazard problem in bailed banks. The literature finds that government safety nets decrease capital solvency of a bank (Nier and Baumann (2006)). According to Ianotta et al. (2013), government ownership decreases the risk of default but increases operating risk of banks.

Implementation of government bailout was often followed by increased control over the bailed institution. The literature shows that, in the absence of such control, bailout moneys can be spent on top executives' compensation (i.e., managerial looting) or dividend payouts (e.g., 'risk shifting') (Acharya et al. (2009)).

[80] For details, see Petrovic and Tutsch (2009).

We use two hypotheses for testing the effect of government bailout on banking. First, we analyze whether bailed banks benefited from government support measures using the Helping Hand hypothesis. Next, we analyze whether government support was followed by increased control over the bailed banks' management using the Managerial Disciplining hypothesis.

6.2.1 Helping Hand hypothesis

The Helping Hand hypothesis implies that connection to central government works as a 'helping hand' since firm benefits from the presence of government shareholders (Cheung et al. (2009)). Government support performs two important functions in a bailed bank. First, government financing helps a bank to overcome capital deficiency problem. Second, state ownership aims to limit excessive risk-taking in a bank: state owner is interested in long-term stability of all banks in a country, while private and institutional owners require high risk-taking and high stock returns (Mülbert (2010)).

The literature finds that large share ownership changes occur after economic shocks and firm restructuring (Denis and Sarin (1999)). Accordingly, ownership structure of European banking changes after the crisis: such government bailout measures, as capital injection and nationalization, increase government share ownership in bailed banks.[81] State becomes full owner of several banks as a result of nationalization.[82] We analyze the changes in state ownership in bailed banks following government bailout by testing Hypothesis 1.

H1: The probability of the largest state ownership in bailed banks increases following government bailout.

In addition, we test whether institutional ownership decreases in bailed banks after bailout. The literature finds that institutional investors decrease their shareholdings in troubled firms (Parrino et al. (2003)). Parrino et al. (2003) use four potential explanations for this finding. First, some institutional investors are momentum traders: they sell stocks that recently performed poorly. Second, institutional investors favor securities of dividend-paying firms ('prudent securities'). Third, institutions are better informed and sell shares of troubled firm in anticipation of negative abnormal returns. Since institutions have larger holdings, they have

[81] Government capital injection (or recapitalizations) implies that a bank issues common or preferred stocks for state owner; while nationalization considers that state acquires the majority of equity stakes in a bank (Calderon and Schaeck (2012)).
[82] For example, Northern Rock, Bradford & Bingley plc, and Fortis Bank Nederland Holding.

greater incentives to monitor a firm. Finally, some institutions sell the shares if influencing board decisions becomes too costly (for example, in case of forced CEO turnover and appointment of new outside CEO). Since government bailout during the crisis was associated with poor banking performance, restriction on dividends, negative abnormal returns, and sometimes CEO changes, we expect that institutional ownership decreases in bailed banks after bailout.

Since most banks in our sample are owned by widely-held financial institutions,[83] we use a dummy for largest financial institution ownership for testing changes in the banks' institutional ownership.

H2: The probability of the largest financial institution ownership in bailed banks decreases following government bailout.

Next, we test whether government bailout helped to keep lending by bailed banks at the pre-crisis level. The 'helping hand' of national regulators intended to avoid possible recession in the economy caused by the banking crisis. Thus, keeping the amounts of bank lending at the pre-crisis level was of crucial interest. We analyze whether the lending by bailed banks experiences significant changes following the bailout by testing Hypothesis 3.

H3: Gross loans do not change significantly in bailed banks following government bailout.

The literature finds that bailed banks did not reduce the riskiness of their new lending more than non-bailed banks in response to government bailout (Brei and Gadanecz (2012)). Brei and Gadanecz (2012) estimate the riskiness of new lending by a ratio of impaired loans to gross loans. Calderon and Schaeck (2012) also employ a similar measure – loan impairment charge to loans. We analyze the improvement of new loans' quality in bailed banks after bailout using Hypothesis 4.

H4: In bailed banks the ratio of reserves for impaired loans to gross loans increases following government bailout.

[83] A widely-held financial firm is the largest shareholder in 72% of our bank-year observations.

6.2.2 Managerial Disciplining hypothesis

State financial support alone is not enough for enhancing financial and corporate governance improvements in bailed banks. Control mechanisms should ensure the appropriate use of bailout money. Such mechanisms include representation of government on the board, and restrictions on dividends, executives' bonuses and share-based compensation in bailed banks.

The literature finds that the government sends its directors to poor performing firms (Miwa and Ramseyer (2005); Frye and Iwasaki (2011)). According to 'managerial discipline' ideal type of business-state relations of Frye and Iwasaki (2011), government directors constrain firm managers from looting the firm. We expect that relations of bailed banks with government will follow the 'managerial discipline' ideal type described by Frye and Iwasaki (2011): government appoints its representatives as 'watchdogs' in some banks that received the money. We test whether the probability of government representation on the board of bailed bank increases following bailout, using Hypothesis 5.

H5: The probability of state representation on the boards of bailed banks increases after government bailout.

Bank executives' compensation was one of the most discussed topics during the financial crisis. Literature and media sources criticized the excess compensation for executives, short-term orientation of remuneration programs and guaranteed bonuses for top-management of troubled banks (Bebchuk et al. (2010)).

Government intervention was accompanied by the adoption of restrictions on compensation of executives in bailed banks. Primarily, these restrictions considered managerial bonuses and equity-based compensation.[84] Banking regulation in different European countries followed a similar trajectory: it initially focused on management compensation at bailed institutions and only then extended across national banking sector (Ferrarini and Ungureanu (2011)). The literature finds that, although bailed banks had a higher probability of equity-based compensation than non-bailed banks both before and after the crisis, they decreased share-based compensation during 2009, while non-bailed banks did not (Ferrarini and Ungureanu (2011)).

[84] For example, no cash bonuses were paid in Lloyds Bank and Royal Bank of Scotland after bailout (Ferrarini and Ungureanu (2011)).

Moreover, some literature suggests that government intervention serves as a substitute for banking corporate governance: in the presence of powerful regulator the level of overall compensation and performance-based compensation for bank top-management decreases (Mülbert (2010)). Considering the arguments above, we expect that bailed banks will demonstrate significantly lower levels of bonuses and share-based compensation after bailout.[85]

H6: Management bonuses in bailed banks decrease following government bailout (while management salary in bailed banks experiences small or no changes).

H7: Management share-based compensation in bailed banks decreases following government bailout.

Government bailout was accompanied by the restriction on dividends in bailed banks. These restrictions aimed to limit such moral hazard problem as risk-shifting[86] in banks that received bailout money. Restriction on dividends in bailed banks is consistent with the 'managerial discipline' ideal type of business-state relations described by Frye and Iwasaki (2011): firms that have a connection to government distribute fewer dividends.

The literature finds negative effect of bailout on dividends. Francis et al. (2011) show that dividend payout ratios and propensities drop down following takeovers. However, Avkiran and Goto (2011) identify inefficiency of bailout moneys' use on the level of dividends. We expect that bailed banks will demonstrate significantly lower levels of dividend payout after bailout.

H8: Dividend payout in bailed banks decreases following government bailout.

[85] We control for the effect of banking compensation regulation on bailed banks. During the crisis, the Financial Stability Board principles and the Capital Requirements Directive were main documents in executives' compensation regulations. In September 2009, the Financial Stability Board (FSB) prepared the principles of Sound Compensation Practices aimed to improve poor compensation practices in banks (Mülbert (2010); Ferrarini and Ungureanu (2011)). The same year the Committee on European Banking Supervisors (CEBS) developed principles on remuneration policies applicable across financial institutions. One year later the Commission issues the principles through a directive, including them in the revised Capital Requirements Directive (CRD III). The CRD III even went beyond the FSB Principles and introduces more rigidity in pay structures in Europe (Ferrarini and Ungureanu (2011)). We control for the effect of regulation of management compensation by using the dummies for years when the FSB standards and the CRD III were issued (years 2009 and 2010, correspondingly).

[86] Risk-shifting is characterized by the situation when poor performing firms shift risks from owners to creditors by distributing large dividends (Acharya et al. (2010); Onali (2012)).

Finally, we test whether managerial disciplining measures increase the probability of forced CEO replacement. The literature finds no support for regulators-driven executives' turnover in banks (Schaeck et al. (2012)). Moreover, Schaeck et al. (2012) show that executives' replacement does not improve firm performance. We expect that government bailout will not increase the probability of forced CEO turnover.

H9: The probability of forced CEO turnover does not change significantly in bailed banks following government bailout.

6.3 Methodology and data

This section describes the methodology and data set. Section 6.3.1 describes the econometric framework and the main variables of our models. Section 6.3.2 describes the data set.

6.3.1 Methodology

We compare treated banks, i.e., banks which receive treatment (here: government bailout) with banks in a control group both before and after the treatment. The control group consists of banks that did not receive a treatment (i.e., non-bailed banks) (Bertrand et al. (2003)).

The baseline regression model to test H1 is as follows:

$$Government\ as\ the\ Largest\ Owner_{i,t} = f(Treat_{i,t}, Post_{i,t}, Post*Treat_{i,t}, C_{i,t}, Year_t) \quad [1]$$

Where = 1,2,…, N labels panel units (banks), and t = 1,2,…, T_i labels time periods (years). *Treat* is a dummy that equals one for the banks affected by the treatment, and zero otherwise. *Post* equals one if the observation is in the post-treatment period, and zero otherwise.[87] *Post-Treat* is a dummy that equals one if treated bank is observed in the post-treatment period, and zero otherwise. *Post*Treat* equals zero if a non-treated bank is observed in the pre- and post-

[87] For the treated banks in our sample, *Post* equals one for the period when the treatment occurs and following two years. *Post* equals one for the first year of the treatment since the event of treatment precedes the reporting date (end-year). We consider the effect of treatment over three years. For the non-treated banks in our sample, *Post* equals one for the year when national regulator starts bailouts, and following two years (The exception is the UK, where the only bailout in 2007 was followed by a series of bailouts during 2008, 2009 and 2010. Therefore, we assume *Post* equals one for the years 2008, 2009 and 2010 for non-treated banks in the UK). For the countries where no bailout takes place, *Post* equals one for the year when European regulators start bailouts in their countries, and following two years (i.e., 2008, 2009, and 2010).

treatment period. The slope of *Post-Treat* provides information about the effect of treatment. A positive coefficient suggests an increase in the outcome variable, while a negative coefficient signals a decrease. $C_{i,t}$ is a vector of control variables to account for bank-level and country-level characteristics.

Our bank-level control variables are: *Bank Size, Tier1 Capital,* and *Profitability*. We proxy for *Bank Size* using the natural logarithm of book value of total bank assets. Banking literature refers to bank size as one of major banking characteristics. The variable *Tier1 Capital* proxies for the impact of capital requirements deriving from the Basle Accord (1988 and subsequent revisions). It is constructed as a ratio of Tier 1 capital to risk-weighted assets. We proxy for bank *Profitability* using a ratio of net income to average total assets (Fama and French (2001)). Finally, we use *GDP per Capita* (natural logarithm of country GDP her head) to account for differences in time-varying country-level economic conditions.[88]

The panel structure of our data permits inclusion of time (*Year*) and bank (*Bank*) dummy variables to capture year and bank fixed effects, correspondingly. The year fixed effects account for unobservable, time-varying effects for the European banking industry (trends), which are assumed to have the same impact on treatment and control group banks. The bank fixed effects account for unobservable time-invariant bank-specific factors.

To test H2-H9 we change the dependent variable in equation [1] according to the hypotheses tested.

We use difference-in-difference (DID) estimations for our main analysis. This technique compares treated banks with banks in a control group both before and after the treatment. DID is a 'quasi-experimental technique used to understand the effect of a sharp change in the economic environment or government policy' (Roberts (1996)). DID estimates the following:

$$y_{i,t} = b_0 + b_1 I(Treat_{i,t}) + b_2 I(Post_{i,t}) + b_3 I(Treat_{i,t}) * I(Post_{i,t}) + e_{i,t} \qquad [2]$$

We use a full panel of banks consisting of bailed ($I(Treat) = 1$), and non-bailed ($I(Treat) = 0$) banks observed before ($I(Post) = 0$) and after ($I(Post) = 1$) initiation of government bailout. b_3 is the parameter of our interest (i.e., the DID estimator).

[88] We cannot employ country dummies, since their coefficients would be unidentified in fixed-effect regressions.

DID approach computes the conditional expectations and, then, the difference over time in average outcome for the treatment group minus the difference over time in average outcome for the control group gives the difference-in-difference estimator (Roberts (1996)).

$$\{E(y_{i,t} \mid I(Treat_{i,t}) = 1, I(Post_{i,t}) = 1) - E(y_{i,t} \mid I(Treat_{i,t}) = 1, I(Post_{i,t}) = 0)\} -$$

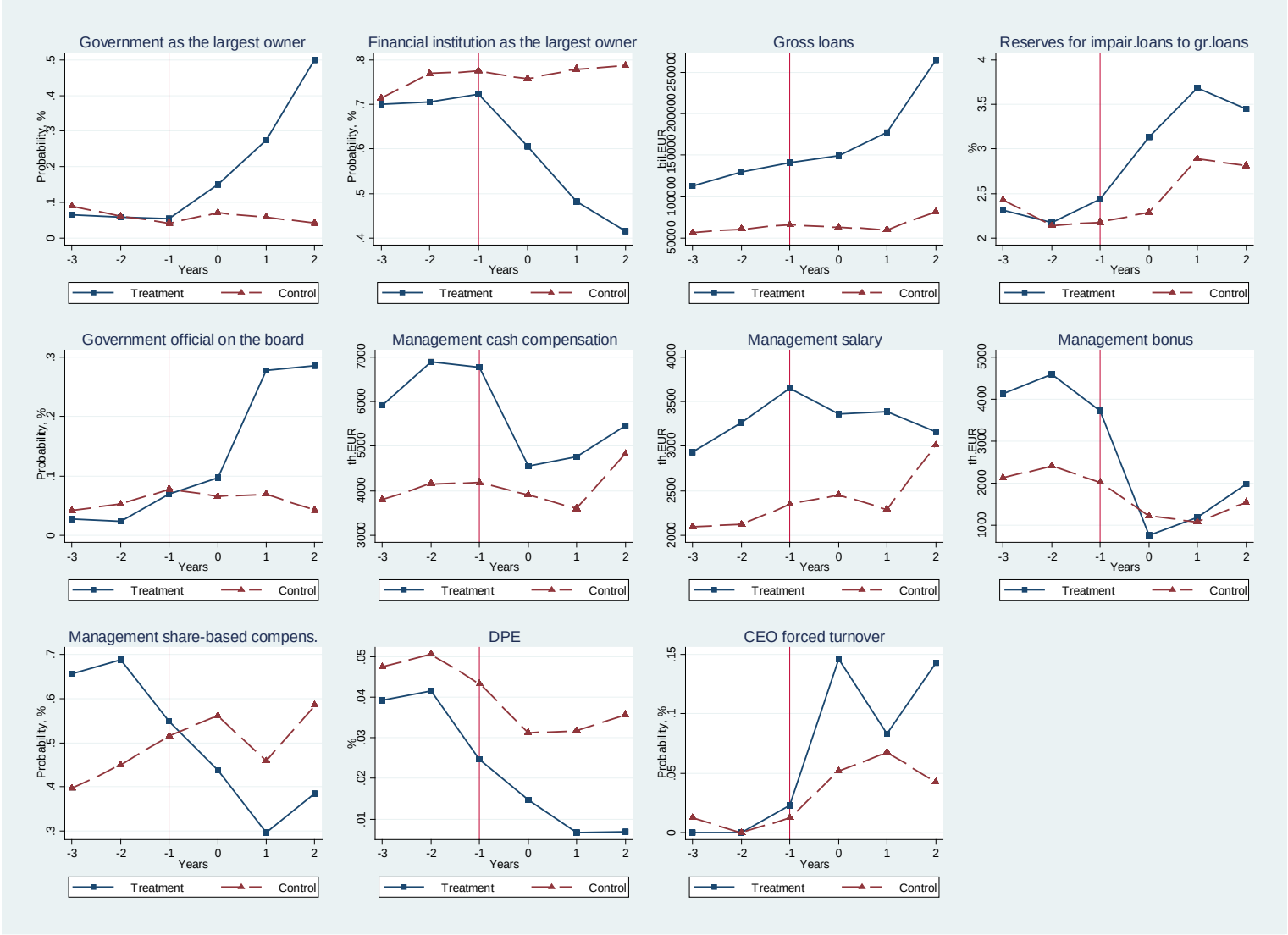
$$\{E(y_{i,t} \mid I(Treat_{i,t}) = 0, I(Post_{i,t}) = 1) - E(y_{i,t} \mid I(Treat_{i,t}) = 0, I(Post_{i,t}) = 0)\} = b_3. \qquad [3]$$

DID estimations require a key assumption. The average change in the response variable has to be the same for both the treatment and control groups in the absence of treatment (the so called 'parallel trends' assumption) (Calderon and Schaeck (2012); Roberts (1996)).

We examine the parallel trends assumption, focusing on corporate governance characteristics in the three years prior to the treatment. The assumption requires that we observe similar changes in corporate governance characteristics between banks affected by the treatment and those in the control group. Importantly, this assumption does not require identical levels of the outcome variable for the two groups of banks in the pre-treatment period.

Figure 6.1 illustrates similar patterns that support the existence of parallel trends. All panels show similar trends in corporate governance characteristics from year three to year one prior to intervention except for the panel for *Management Share-Based Compensation*. Right after the treatment, sharp changes in most analyzed variables occur for the treatment group, while no or relatively small changes occur for the control group.

Figure 6.1: Parallel trends between treatment and control groups.



6.3.2 Data and descriptive statistics

We build a new hand-collected data set with information on board composition and ownership structure for 129 listed banks (commercial banks, bank holding companies, and cooperative banks)[89] located in 15 EU countries for the period 2005-2010.[90]

We start with the universe of European publicly quoted banks listed on *Bankscope* (EU-15). For the sake of comparability, we focus on banks that use International Financial Reporting Standards (IFRS) as accounting standards. We home in on institutions classified as: commercial banks, cooperative banks, and bank holdings and holding companies. A total number of 127 banks satisfy these selection criteria. Next, we exclude institutions for which data on gross loans is unavailable (6, resulting in 121 remaining banks).[91] Then, to allow hand-collection of information on corporate governance and ownership structure, we stipulate that there is at least one annual report (available on the bank's web site)[92] for the period 2005–2010. These criteria result in a sample of 109 listed banks.

Analyzing the effect of bailout measures on banking requires taking into account the banks delisted during the period of observations. Therefore, we increase our sample by another 20 banks delisted during 2005-2010. These banks satisfy the selection criteria used for listed banks.

Table 6.1 presents the main steps of our sample construction. A total number of banks in our sample are 129, which includes 109 listed banks, and 20 banks delisted during 2005-2010. Our final sample is an unbalanced panel with 744 bank-year observations.[93] Table 6.2 provides a breakdown of the number of banks per country and type of bank, and the sample representativeness relative to the population of listed banks in the EU-15 countries over the sample period.

[89] All cooperative banks in our sample are publicly traded and, therefore, are partly owned by non-members. In Section 6.4.2, we offer robustness tests excluding cooperative banks from the sample.
[90] We collect information from different sources: bank annual reports (including notes to financial statements), corporate governance reports, and other documents available from the web sites of the banks, banking regulators and authorities, and other publicly available sources.
[91] Our purpose is to exclude firms that are not in the lending business, as in Fahlenbrach and Stulz (2011).
[92] The data is collected on an annual basis.
[93] We use bank-year observations since data on bank corporate governance, remuneration policy, and ownership structure is available on a yearly basis.

Table 6.1 Steps of sample construction.

	Search criterion	*Number of banks*
Step 1	Listed banks	2,454
Step 2	World region: European Union (15)	255
Step 3	Accounting standards: IFRS	187
Step 4	Specialization: Commercial banks, Cooperative banks, Bank holdings & Holding companies	127
Step 5	Information availability: gross loans	121
Step 6	Information availability (annual reports on the banks' web sites and market capitalization)	109
Step 1	Delisted banks	1366
Step 2	World region: European Union (15)	245
Step 3	Accounting standards: IFRS	117
Step 4	Specialization: Commercial banks, Cooperative banks, Bank holdings & Holding companies	68
Step 5	Information availability: gross loans	64
Step 6	Delisted date: 1/1/2005 – 31/12/2010	25
Step 7	Information availability (annual reports on the banks' web sites and market capitalization)	20
	Final sample:	129

Table 6.2 Sample composition and representativeness.

Country	*Banks*	*Sample %*	*Observations*	*Sample %*
Austria	8	6%	46	6%
Belgium	3	2%	18	2%
Denmark	14	11%	82	11%
Finland	4	3%	24	3%
France	8	6%	48	6%
Germany	10	8%	63	8%
Greece	10	8%	66	9%
Ireland	4	3%	23	3%
Italy	26	20%	145	19%
Luxembourg	2	2%	12	2%
Netherlands	6	5%	34	5%
Portugal	5	4%	30	4%
Spain	9	7%	54	7%
Sweden	4	3%	24	3%
United Kingdom	14	11%	75	11%
Total:	129	100%	744	100%

		BHC	*Commercial*	*Cooperative*	*Total:*
Total Bankscope sample in 2010 (listed banks, and banks delisted during 2005-2010, EU-15)					
1	N of banks	41	121	31	193
2	Sample %	21.24	62.70	16.06	100.00
Analyzed sample					
3	N of banks	35	81	13	129
4	Sample composition, %	27.13	62.79	10.08	100.00
5	Sample representativeness, % (3:1)	85.37	66.94	41.94	66.84

Our measure of intervention *Bailout* is a dummy that equals one for the observations when the treatment was assigned to banks, and zero otherwise. We collect data on government bailout from *Public Support Measures in Europe and in the United States (updated at as 15 November 2011)* available on the web site of *Mediobanca*.

Figure 6.2 shows the distribution of *Bailout* across years and different countries. There is only one bailout event in 2007. Most bailouts take place during 2008 and 2009 (18 and 31 bailouts, correspondingly). The number of bailouts is relatively small during 2010 (only 8 bailouts). Denmark, the UK, Greece, Germany and Italy have relatively large number of bailouts (11, 9, 7, 6 and 6 bailout events, correspondingly). There was no bailout event in our sample banks in Finland, Luxembourg, Spain and Sweden.

Figure 6.2: Distribution of government bailouts across years and countries.

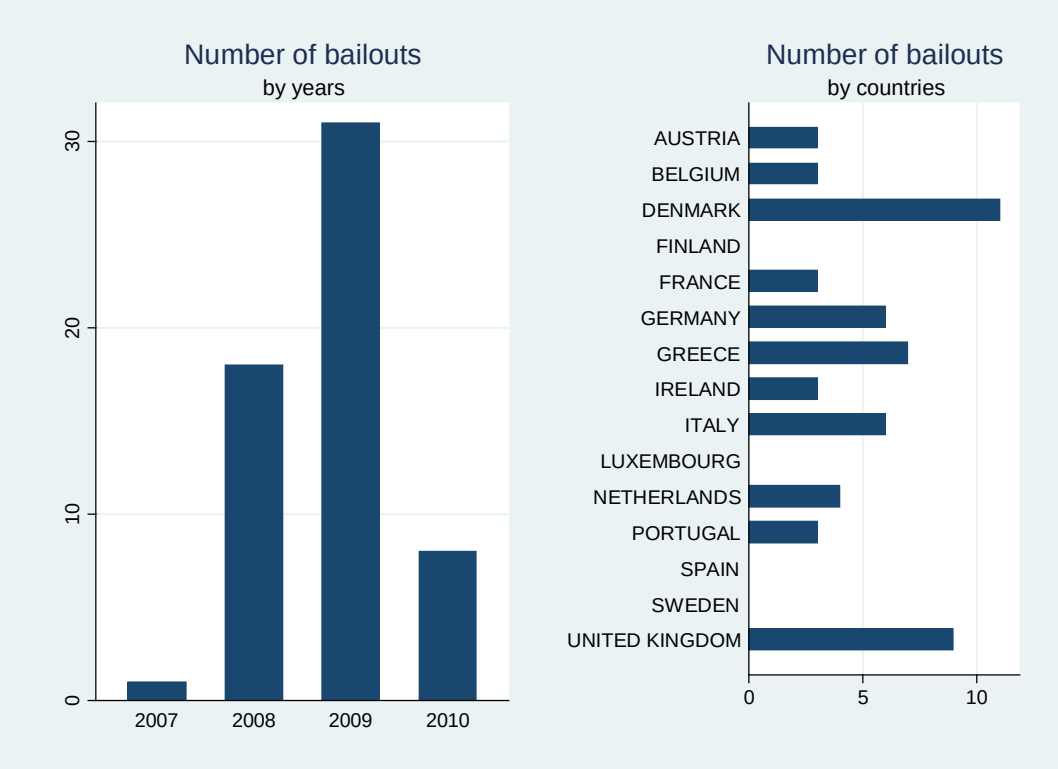


Table 6.3 reports statistics for the variables that we use to test H1-H9. We reduce the effect of outliers by winsorizing all continuous variables at the 5th and 95th percentile.

We report the statistics for the variables before (Panel A) and after (Panel B) excluding observations for which data on the control variables are missing. For Panel A, the number of observations (banks) on independent variables ranges from 343 (83) to 720 (128). For Panel B, the number of observations on independent variables is between 307 and 640, depending on the specification. The sample characteristics do not change substantially from Panel A to Panel B. This suggests that sample selection bias due to lack of data for the control variables is unlikely to bear an influence on our findings.

Table 6.3 Summary statistics (all continuous variables are winsorized at the 5th and 95th percentile).

		Observations		*Banks*		*Mean*		*Standard deviation*		*Minimum*		*Maximum*	
	Panel	*A*	*B*	*A*	*B*	*A*	*B*	*A*	*B*	*A*	*B*	*A*	*B*
Bailout	Dummy variable: 1 if treatment is assigned to a bank, and 0 otherwise	744	656	129	119	0.078	0.087	0.268	0.282	0	0	1.000	1.000
Government as the Largest Owner	Dummy variable: 1 if the government is the largest shareholder, and 0 otherwise	581	517	115	105	0.086	0.083	0.281	0.276	0	0	1.000	1.000
Financial Institution as the Largest Owner	Dummy variable: 1 if a widely-held financial institution is the largest shareholder, and 0 otherwise	581	517	115	105	0.719	0.727	0.450	0.446	0	0	1.000	1.000
Gross Loans	Natural logarithm of gross loans (bil.EUR)	713	645	129	119	16.562	16.799	2.368	2.260	12.023	12.023	19.999	19.999
Reserves for Impaired Loans	Percentage of reserves for impaired loans to gross loans	612	570	123	113	2.590	2.599	1.885	1.802	0.350	0.350	7.780	7.780
Government Official on the Board	Dummy variable: 1 if there is government official on the board, and 0 otherwise	675	608	128	119	0.076	0.079	0.264	0.270	0	0	1.000	1.000
Management Cash Compensation	Natural logarithm of management cash compensation (th.EUR)	586	532	113	105	7.950	7.927	1.002	1.013	6.129	6.129	9.642	9.642
Management Salary	Natural logarithm of management salary (th.EUR)	488	446	100	93	7.580	7.606	0.815	0.827	6.023	6.023	8.901	8.901
Management Bonus	Natural logarithm of management bonus (th.EUR)	343	307	83	77	7.025	7.016	1.790	1.859	-1.204	-1.204	9.274	9.274
Management Share-Based Compensation	Dummy variable: 1 if there is a share-based management compensation, and 0 otherwise	547	494	103	95	0.490	0.460	0.500	0.499	0	0	1.000	1.000
DPE	Dividends for a given year divided by bank equity	684	616	126	117	0.035	0.034	0.032	0.032	0	0	0.112	0.112
CEO Forced Turnover	Dummy variable: 1 if there is a forced CEO turnover (see definition in the Appendix 3), and 0 otherwise	709	631	128	118	0.041	0.041	0.198	0.199	0	0	1.000	1.000

Panel A: All available observations. Panel B: only observations for which data on the control variables is available.

A widely-held financial institution is the largest owner of sample banks in around 72% of observations, while the state is the largest owner of the banks in less than 9% of observations. The average reserves for impaired loans are around 2.6% of the sample banks' gross loans. Government officials[94] are present on the boards of the banks in around 8% of observations. Management receives share-based compensation in no less than 46% of observations. The average DPE of sample banks is around 3.5%. Finally, the average percentage of forced CEO turnovers[95] is only 4%.

6.4 Results

In this section, we report the results of the tests of H1-H9. Section 6.4.1 reports the main results achieved using the econometric procedure described in Section 6.3.1. Section 6.4.2 reports the results when we employ propensity score matching method based on the Nearest Neighbor Matching estimator, and provides a battery of robustness checks.

6.4.1 Main results

Table 6.4 reports the results for nine DID regressions, run according to equation [1]. Equations [1]-[4] test the Helping Hand hypothesis, while equations [5]-[11] test the Managerial Disciplining hypothesis. All regressions include $Post*Treat_{i,t}$, controls, and year dummies and bank dummies.[96]

[94] In the Appendix 3 (Section A3.1.1), we give a more detailed definition of the variable *Government Official on the Board*.
[95] In the Appendix 3 (Section A3.1.2), we give a more detailed explanation of how we distinguish between forced and unforced CEO turnovers.
[96] $Treat_{i,t}$ is dropped from the regressions since the difference between the banks in treatment and control groups is already fixed by bank dummies.

Table 6.4 Difference-in-difference regressions: The effect of government bailout on banking corporate governance and ownership structure.

VARIABLES	(1) *Government as the Largest Owner*	(2) *Financial Institution as the Largest Owner*	(3) *Gross Loans*	(4) *Reserves for Impaired Loans*	(5) *Government Official on the Board*	(6) *Management Cash Compensation*	(7) *Management Salary*	(8) *Management Bonus*	(9) *Management Share-Based Compensation*	(10) *DPE*	(11) *CEO Forced Turnover*
*Post*Treat*	0.177**	-0.224***	0.048	0.220	0.128**	-0.312***	-0.126	-0.486*	-0.282***	-0.009*	0.070
	(0.074)	(0.081)	(0.039)	(0.216)	(0.050)	(0.117)	(0.096)	(0.263)	(0.096)	(0.005)	(0.044)
Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Bank dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	517	517	645	570	608	532	446	307	494	616	631
R-squared	0.656	0.839	0.996	0.829	0.758	0.901	0.901	0.906	0.651	0.720	0.205
Number of banks	105	105	119	113	119	105	93	77	95	117	118

The regressions are run using a difference-in-difference model for assessing of the effect of government bailout on bank corporate governance variables. The dependent variables are reported in the first row. All specifications include time dummies, bank dummies and the following control variables: *Size* (log of total assets of the bank), *Tier1 Capital* (ratio of Tier 1 capital to risk-weighted assets), *Profitability* (return on average asset), *GDP per Capita* (natural logarithm of GDP per capita). The exception is *Gross Loans*: we do not use *Size* as control in the regression due to high correlation between gross loans and total assets. The continuous variables are winsorized at the 5^{th} and 95^{th} percentile. Cluster-robust standard errors are reported in parentheses. The superscripts ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

In Table 6.4, the effect of *Post*Treat* on *Government as the Largest Owner* is positive and highly significant: the probability of state largest ownership increases by 18% in bailed banks following bailout. The effect of *Post*Treat* on *Financial Institution as the Largest Owner* is negative and highly significant: the probability of the largest ownership by a financial institution decreases by 22% in bailed banks after bailout. These results support H1 and H2 and the Helping Hand hypothesis. Despite overall significant drop in the lending market, lending by bailed banks does not change significantly: the coefficient of *Post*Treat* in the regression for *Gross Loans* is positive but not significant. The effect of government bailout on *Reserves for Impaired Loans* of bailed banks is also not significant. These results support H3 and reject H4 and only partly confirm the efficiency of government bailout measures for lending by bailed banks.

The equations [5]-[11] test the hypotheses [5]-[9], which analyze the Managerial Disciplining hypothesis. The effect of *Post*Treat* on *Government Official on the Board* is positive and highly significant: the probability of state representation on the boards on bailed banks increases by 13% following bailout. Although in bailed banks managerial salary does not change significantly after bailout, managerial bonuses and share-based compensation drop down: the coefficient of *Post*Treat* in the regressions for *Management Bonus* and *Management Share-Based Compensation* is negative and highly significant. The effect of *Post*Treat* on *DPE* is also negative and highly significant. Despite a significant increase in the probability of forced CEO turnover in all observed banks, in bailed banks the probability of forced CEO turnover does not change significantly: the coefficient of *Post*Treat* is positive but not significant in the regressions for *CEO Forced Turnover*.

6.4.2 Robustness checks

We use propensity score matching method based on the Nearest Neighbor Matching estimator to allow for the possibility that the two groups of banks (bailed and non-bailed banks) differ in the probability of receiving the treatment.

The propensity score matching (PSM) method constructs a control group of banks that have a similar probability of receiving treatment but no treatment occurs (Rosenbaum and Rubin (1983). The propensity score is defined as the probability of being subject to government bailout conditional on pre-treatment characteristics. It is calculated based on probit models with bailout event as a dependent variable. The pre-treatment variables used for

calculating the propensity score include the control variables used above (Grilli and Rampichini (2011)).[97]

Then, the predicted probabilities from the probit models are used to match each bank-year observation to observations from the control group of banks with similar characteristics based on the absolute value of the difference between the propensity scores. The Nearest Neighbor Matching (NNM) estimator restricts the set of matches to those whose propensity scores are the closest to the treated bank's propensity score, and then computes the difference between the outcome of the treated banks and the outcome of the matched control banks (Grilli and Rampichini (2011)). By averaging these differences, we obtain the average treatment effect on the treated (ATT).

ATT is useful for explicitly evaluating the effect of the treatment on those for whom the treatment was actually intended:

$$ATT = E[Y(1) - Y(0) \mid Treat = 1] \qquad [4]$$

Then, we check balancing of the variables before and after matching. We use *t*-tests for equality of means in the treated and non-treated groups, both before and after matching: for good balancing, *t*-tests are not significant after matching (Grilli and Rampichini (2011)). We consider the standardized median bias before and after matching as another measure of balancing: it should be less than 10% after matching. These tests include the control variables used before.[98]

Our propensity score matching results in Table 6.5 confirm the main results. That is, after taking into account the non-random assignment of the treatment, banks that received government support show increased probability of government representation and state ownership, and reduced probability of financial institution ownership, dividends, managerial share-based compensation and bonuses. The overall matching performance is good: after matching the median absolute bias is less than 10% for all variables.

[97] When we exclude *GDP per Capita* from the probit model in order to avoid an over-parameterization problem, the results remain qualitatively the same. *GDP per Capita* is not significant in the propensity score specification model. Although its inclusion does not bias the propensity score estimates or make them inconsistent, it can increase their variance.

[98] This is consistent with Calderon and Schaeck (2012), who use the same set of controls for their DID and PSM analysis.

Table 6.5 Robustness check: Propensity score matching method based on the Nearest Neighbor Matching estimator.

VARIABLES	(1) *Government as the Largest Owner*	(2) *Financial Institution as the Largest Owner*	(3) *Gross Loans*	(4) *Reserves for Impaired Loans*	(5) *Government Official on the Board*	(6) *Management Cash Compensation*	(7) *Management Salary*	(8) *Management Bonus*	(9) *Management Share-Based Compensation*	(10) *DPE*	(11) *CEO Forced Turnover*
ATT	0.176***	-0.297***	-3402.325	0.798***	0.143***	-1627.781**	47.96	-2042.889***	-0.250***	-0.021***	0.055
Difference											
	(0.060)	(0.073)	(25750209)	(0.288)	(0.048)	(723.053)	(328.454)	(557.506)	(0.081)	(0.003)	(0.043)
z-stat	(-2.669)	(-3.719)	(1.262)	(-2.524)	(-2.716)	(-1.962)	(1.179)	(-3.432)	(-2.848)	(-3.719)	(-0.8253)
Observations	517	517	645	570	608	532	446	419	494	616	631
R-squared	0.066	0.034	0.063	0.037	0.034	0.001	0.019	0.016	0.005	0.097	0.027
Absolute bias (median):	3.7	3.7	9.2	8.4	9.4	7.6	7.3	7.6	7.8	6.6	6.3
Pstest:	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

The regressions are run using a Propensity score matching model for assessing of the effect of government bailout on bank corporate governance variables. The dependent variables are reported in the first row. We calculate propensity score using the following control variables: *Size* (log of total assets of the bank), *Tier1 Capital* (ratio of Tier 1 capital to risk-weighted assets), *Profitability* (return on average asset), *GDP per Capita* (natural logarithm of GDP per capita). The exception is *Gross Loans*: we do not use *Size* as control in the regression due to high correlation between gross loans and total assets. We use the same controls for propensity score test (pstest). The continuous variables are winsorized at the 5^{th} and 95^{th} percentile. Standard errors are reported in parentheses. The superscripts ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

We perform several additional robustness tests to check the sensitivity of our results to the specification of our models. The results of these tests are not reported, but are available upon request from the authors.

First, we repeat our DID analysis using different measures for independent variables. We use percentage of state ownership instead of the dummy for the largest state ownerships, and percentage of financial institution ownership instead of the dummy for the largest financial institution ownership. We employ different measure for banking *Gross Loans* also: the ratio of gross loans to total assets. We use several substitutes for the loans' quality measure: the ratio of non-performing loans to gross loans, and the natural logarithm of loan loss provision. We employ management fixed compensation and performance-related compensation measures as alternatives for *Management Salary* and *Management Bonuses*, correspondingly. Next, we split *Management Share-based Compensation* into two different variables: dummy for management option grant and dummy for management stock grant. The dummies are equal one for observations when corresponding type of share-based compensation takes place, and zero otherwise. Further, we use dividend dummy, which equals one for observations of positive dividend, and zero otherwise, instead of *DPE*. Finally, we substitute *CEO Forced Turnover* with the measure for CEO turnover. When we repeat our analysis using the substitute measures listed above the results of DID analysis reported in Table 6.4 remain virtually the same.

Second, we investigate the effect of being delisted on the outcome variables. Following Boyallian and Ruiz-Verdu (2012) we distinguish troubled and delisted banks. We include a dummy variable, *Delist*, which equals one if a bank is delisted during observed year, and zero otherwise. The dummy is insignificant in most cases. The coefficients on the outcome variables remain virtually the same as those reported in Table 6.4.

Third, we exclude from the sample Italian banks, which are the most numerous in the sample, and the results remain qualitatively the same as those reported in Table 6.4. Similarly, when we exclude from the sample the thirteen cooperative banks, the results remain substantially the same as those reported in Tables 6.4.

6.5 Conclusions

In this study, we have tested whether bailed banks benefited from government bailouts during 2007-2010 using the Helping Hand hypothesis. Government financial support alone is not enough for enhancing financial and corporate governance improvements in bailed banks. We have tested also whether government support was followed by increased control over the bailed banks using the Managerial Disciplining hypothesis.

We have taken advantage of a unique and painstakingly hand-collected data set with information on corporate governance, ownership structure and compensation structure for 129 European listed banks for the period 2005-2010. This data set has been merged with data from *Mediobanca* on government bailouts, and data from *Bankscope* on bank financials and other variables relevant for our research.

We have provided robust evidence for the increased state ownership in bailed banks following government bailout. Moreover, we have found that ownership by a widely-held financial institution decreases in bailed banks after government bailout. These findings are consistent with the Helping Hand hypothesis: government ownership helped to overcome capitalization problems in bailed banks, while institutional investors tried to get rid of shares of troubled banks.

National regulators tried to avoid possible recession in the economy caused by the banking crisis. Thus, keeping bank lending at the pre-crisis level was of crucial interest. We find that government financial support helped to keep gross loans in bailed banks at the pre-crisis level, although it did not enhance significant improvement of the new loans' quality. We conclude that government bailout measures had limited efficiency for lending by bailed banks.

We have also provided robust evidence for the increased control over banks that receive bailout money. Government appointed its representatives as 'watchdogs' on the boards of bailed banks and implemented restrictions on dividends and managerial compensation in bailed institutions following bailout. This evidence is consistent with the Managerial Disciplining hypothesis. However, we did not find a significant effect of government bailout on forces CEO turnover. This result is consistent the literature, which finds no support for regulators-driven executives' turnover in banks. We conclude that governance of public bailouts in European countries had high quality.

CHAPTER 7

Conclusions

In this dissertation, we investigated corporate governance and dividend policy in banking. First, we generalized the main achievements of the study on banking dividend policy using the meta-analysis approach. Next, we analyzed the effect of banking corporate governance on dividend payout using the managerial entrenchment theory. Finally, we investigated the effect of government bailout during 2007-2010 on corporate governance, dividend policy and other key characteristics of European banking.

The core of the dissertation was constituted by three papers: the meta-analysis paper, and two empirical papers that investigated corporate governance and dividend in the context of the European banking sector.

The first study investigated the relationship between dividend policy and value in a bank. Using the approach of meta-analysis we grouped and analyzed the relevant empirical studies developed during the last twenty years according to precise research questions and similar constructs used for value and dividend policy in a bank. By summarizing the results of relevant empirical papers, we confirmed that distributing dividends increases bank value. Thus, the study supported the ideas of the positive theorists' school, who predict positive effect of paying dividends on firm value, and provided momentum for resolving the conflict between two opposite schools. Next, we confirmed a negative relationship between the bank's market-to-book ratio and dividends per share. This result serves as an important practical guidance for equity investors. Finally, we confirmed a negative and significant effect of cutting dividends on market value of large banks. This result supported the Too-Big-To-Fail argument, implying higher stability and reliance on regulatory help for large banks. This

result showed also that Too-Big-To-Fail problem should be seriously analyzed and addressed by implementation of adequate regulatory measures.

The second study analyzed the relationship between CEO power and dividend policy in European banking using the entrenchment hypothesis. We discriminated between the 'monitoring' and the 'expropriation' perspectives on managerial entrenchment and employed two different proxies for CEO power: CEO ownership, and board duality. We investigated the role of CEO power on bank dividend policy using a new hand-collected data set for a sample of 109 listed European banks for the period 2005-2010. We employed a Within-Group model as our main model. The second study provided evidence that CEO power is associated with lower dividend payout ratios: external monitoring from a widely-held financial institution has a positive effect on payout ratios, while internal monitoring from independent directors decreases payout ratios. We found also that when the government is the largest owner or there is a government official on the board, dividend payout ratios are lower. These results supported the view that banking regulators are prevalently concerned about the safety of the bank, and powerful bank CEOs can afford to distribute low payout ratios, at the expense of minority shareholders. Our results were found robust to different econometric techniques, including fixed-effect panel data estimators, and a combination of difference-in-differences with matching techniques.

Finally, the third study investigated the effect of government bailout on banking. We analyzed whether bailed banks benefited from government support measures implemented during 2007-2010 using the Helping Hand hypothesis. Then, we investigated whether government support was accompanied by increased control over the management of bailed banks using Managerial Disciplining hypothesis. We used a unique hand-collected data set with information on corporate governance, ownership structure and compensation structure for a sample of 129 European listed banks for the period 2005-2010. We used difference-in-difference technique for our main analysis. We found that government bailout helped to overcome capitalization problems in bailed banks and to keep the lending by bailed banks at the pre-crisis level. However, we found no significant improvement of the new loans' quality in bailed banks following bailout. Next, we provided robust evidence for increased control over the banks that received government money: government implemented restrictions on dividend payouts and managerial compensation, and appointed its representatives as 'watchdogs' on the boards of bailed banks following bailout. These results are consistent with

the Helping Hand and the Managerial Disciplining hypotheses. Our results were found robust to different econometric techniques, including propensity score matching method based on the Nearest Neighbor Matching estimator.

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APPENDIXES

Appendix 1. Data description

We build a new hand-collected data set with information on corporate governance and government bailout for listed banks (commercial banks, bank holding companies, and cooperative banks) located in 15 EU countries for the period 2005-2010.

The primary data source for accounting data is the *Bankscope* electronic database. This database contains financial data for over 8000 European banks.

In addition, we hand collect part of missing accounting data from the banks' annual reports. Such hand data collecting resulted in an increase of the number of observations on total capital ratio and Tier 1 capital ratio by 10.28% and 9.36%, correspondingly.

We hand collect data on bank corporate governance, remuneration policy, bank ownership structure, and some bank-specific and country-specific characteristics from different sources. They are: bank annual reports, notes to bank annual reports, corporate governance reports, remuneration reports and other reports and documents available from the banks' corporate web sites, web sites of bank regulators and authorities, open information web sites, and other sources.

We collect data on government bailouts from *Public Support Measures in Europe and in the United States (updated at as 15 November 2011)* available on the web site of *Mediobanca*.

Table A1 provides a description of our data variables.

Table A1 Description of data and variables.

This table provides information on our data variables. The table uses several abbreviations for our data sources: B – *Bankscope*, AR – Annual reports, CWS – Corporative web sites, OOS – Other open sources for particular information, and M – Public Support Measures in Europe and in the United States (updated at as 15 November 2011) available on the web site of *Mediobanca*.

Variable	*Description*	*Data source*	*Procedure*	*References*
		IDENTIFICATION		
Bank	109 listed banks for the second paper. 129 banks for the third paper (includes 109 listed banks, 19 banks delisted during 2007-2010, and Northern Rock)	B	Final number of banks according to our *Bankscope* sample selection procedure	
Year	Dummies for years 2005-2010	B		
Country	Dummies for: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom	B	EU-15 countries according to our *Bankscope* sample selection procedure	
Specialization	Dummies for Commercial bank (*Commbank*), Cooperative bank (*Coopbank*), and Bank Holding and Holding Companies (*Bhc*)	B	*Bankscope* sample selection procedure	Onali (2010)
Bank founding year	Year the bank was founded	AR, CWS and OOS	Hand collected. We define *Bank founding year* as reported by a bank.	Laeven and Levine (2009), Hu and Kumar (2004)
Bank history from	Year the bank history goes back to	AR, CWS and OOS	Hand collected. *Bank history from* equals *Bank founding year* if no data on bank's earlier history is available. *Bank history from* precedes *Bank founding year* if a bank reports as a founding year the year of M&A, reorganization or restructuration (usually followed by bank name change).	
Founder on the	Dummy equals 1 if the	AR and	Hand collected. We	Laeven and

board	founder or the descendents of the founder are on the board or management board.	CWS	define *Founder on the board* as reported by a bank. It equals 0 if no such data are available.	Levine (2009)
Bankscope independence index	*Bankscope* independence index, takes values from A to D, with U for unknown indexes (line variable).	B	Downloaded from *Bankscope*	
Employees	Weighted average number of bank employees	AR and CWS	Hand collected. When weighted average data is not available we use data on a number of employees at the end of the year.	
OWNERSHIP STRUCTURE				
Widely held	Dummy equals 1 if there is no owner with more than 10% of bank share rights (first large owner).[99]	AR and CWS	Hand collected. The dummy was generated based on information on bank's major shareholders (name, type and percentage of shares held).	Caprio et al. (2004)
Family owned	Dummy equals 1 if an individual or family is the controlling shareholder.	AR and CWS	(as above)	Caprio et al. (2004)
Government owned	Dummy equals 1 if the state (or foreign state) is the controlling shareholder.	AR and CWS	(as above)	Caprio et al. (2004)
Owned by a widely held financial institution	Dummy equals 1 if a widely held financial institution is the controlling shareholder.	AR and CWS	(as above)	Caprio et al. (2004)
Owned by a widely held non-financial institution	Dummy equals 1 if a widely held non-financial institution is the controlling shareholder.	AR and CWS	(as above)	Caprio et al. (2004)
Owned by other type of shareholder	Dummy equals 1 if the controlling owner is a trust, related fund, foundation (including employee foundation, charity foundation), etc.	AR and CWS	(as above)	Caprio et al. (2004)
First largest share ownership	Percentage of the share rights of the first *largest* shareholder	AR and CWS	Hand collected	Laeven and Levine (2009)

[99] Here and below we use 'First large owner' and 'Second large owner' for the shareholders with more than 10% of bank share rights, while 'First largest owner' and 'Second largest owner' do not necessarily have 10% or more share stake.

First largest shareholder type	Line variable for the first *largest* ownership type: family, state, financial company, non-financial company, or other type.	AR and CWS	Hand collected
First largest owner	Dummy equals 1 if the first *largest* shareholder owns more than 10% of bank share rights (first large owner).	AR and CWS	The dummy was generated based on information on *First largest share ownership*.
Family as the first largest owner	Dummy equals 1 if an individual or family is the first *largest* owner.	AR and CWS	The dummy was generated based on information on *First largest share ownership* and *First largest shareholder type*.
Government as the first largest owner	Dummy equals 1 if the state (or foreign state) is the first *largest* owner.	AR and CWS	(as above)
Widely held financial institution as the first largest owner	Dummy equals 1 if a widely held financial institution is the first *largest* owner.	AR and CWS	(as above)
Widely held non-financial institution as the first largest owner	Dummy equals 1 if a widely held non-financial institution is the first *largest* owner.	AR and CWS	(as above)
Other type of the first largest owner	Dummy equals 1 if the first *largest* owner is a trust, related fund, foundation (including employee foundation, charity foundation), etc.	AR and CWS	(as above)
Second largest share ownership	Percentage of the share rights of the second *largest* shareholder	AR and CWS	Hand collected
Second largest shareholder type	Line variable for the second *largest* ownership type: family, state, financial company, non-financial company, or other type.	AR and CWS	Hand collected
Second largest owner	Dummy equals 1 if the second *largest* shareholder owns more than 10% of bank share rights (second large owner).	AR and CWS	The dummy was generated based on information on *Second largest share ownership*.
Family as the second largest owner	Dummy equals 1 if an individual or family is the second *largest* owner.	AR and CWS	The dummy was generated based on information on *Second*

			largest share ownership and *Second largest shareholder type.*	
Government as the second largest owner	Dummy equals 1 if the state (or foreign state) is the second *largest* owner.	AR and CWS	(as above)	
Widely held financial institution as the second largest owner	Dummy equals 1 if a widely held financial institution is the second *largest* owner.	AR and CWS	(as above)	
Widely held non-financial institution as the second largest owner	Dummy equals 1 if a widely held non-financial institution is the second *largest* owner.	AR and CWS	(as above)	
Other type of the second largest owner	Dummy equals 1 if the second *largest* owner is a trust, related fund, foundation (including employee foundation, charity foundation), etc.	AR and CWS	(as above)	
Large owner on the management board	Dummy equals 1 if the first and/or the second *largest* owners have seats on the management board.	AR and CWS	Hand collected. The dummy was generated based on information on individual management board members' share ownership.	Laeven and Levine (2009)
Large owner on the board	Dummy equals 1 if the first and/or the second *larges*t owners have seats on the BoD.	AR and CWS	Hand collected. The dummy was generated based on information on individual board members' share ownership.	
Free float	Percentage of free floating share rights	AR and CWS	Hand collected	
Preference shares	Dummy equals 1 if there are preference shares in the bank.	AR and CWS	Hand collected. *Preference shares* equals 1 if bank reports data on shares other than ordinary shares, common shares, or A type shares, and 0 otherwise.	
BOARD CHARACTERISTICS				
One-tier board	Dummy equals 1 if bank has one-tier governance structure (one-tier board)	AR	Hand collected. Bank has one-tier governance structure if board performs both executive and supervisory	

			functions (i.e. comprises executive directors or CEO).	
Two-tier board	Dummy equals 1 if bank has two-tier governance structure (two-tier board)	AR	Hand collected. Bank has two-tier governance structure if there are two different boards for supervisory and executive functions (i.e. non-executive Board of Directors/supervisory Board and management board).	
BoD size	Number of board members (executive and non-executive) for one-tier board, and number of supervisory board members for two-tier board.	AR and CWS	Hand collected. This number does not include employee and government representatives (consistent with usual practice of reporting in banks).	Pathan (2009)
Full BoD size	Full board size. Total board size (including number of employee and government representatives)[100]	AR and CWS	Hand collected. This number includes also employee representatives and government representatives.	
Management board size	Number of executive directors for one-tier boards, and number of management board members for two-tier board.	AR and CWS	Hand collected. We use full number of management board members if ownership and compensation data is also available for them. Otherwise, we use a number of chief executives for which such data is available.[101]	
Full management board size	Full management board size. Number of executive committee members for one-tier boards, and number of management board members (or broader management committee members) for two-tier board.	AR and CWS	Hand collected	
Executive	Number of executive	AR and	Hand collected.	

[100] We distinguish board size with and without representatives, because some sample banks include them in the total number of the BoD members, while other banks do not.

[101] Some banks in our sample have management boards consisting of chief executives only (for example, Chief Executive and Deputy Chief Executives, or CEO, CFO and COO). In these banks, a broader management committee (executive committee) comprises a large number of subordinated officers also.

directors	directors on the board (excluding number of employee and government representatives)	CWS	*Executive directors* equals number of executive directors on the board as reported by a bank. It equals 0 if bank does not report this information and has two-tier board (all supervisory board members are considered non-executive if other is not reported).	
Independent directors	Number of independent directors on the BoD (including number of employee and government representatives)	AR and CWS	Hand collected. *Independent directors* equals number of independent directors on the board as reported by a bank. It equals total number of supervisory board members if bank does not report this information and has a tier two-tier board (all supervisory board members are considered independent).	Pathan (2009)
Board duality	Dummy equals 1 if CEO chairs the BoD (board duality)	AR and CWS	Hand collected. The dummy was generated based on information on bank CEO (name) and BoD chairman (name).	Pathan (2009)
CEO on the BoD	Dummy equals 1 if CEO is present on the BoD	AR and CWS	Hand collected	
Supervisory board	Dummy equals 1 if there is a supervisory board in a bank	AR and CWS	Hand collected.	
Remuneration committee	Dummy equals 1 if there is remuneration committee in a bank	AR and CWS	Hand collected. Setting up remuneration committee was one of regulatory requirement in European banking starting from 2008.	
REPRESENTATIVES ON BOARD				
Government representative	Dummy equals 1 it there is at least one government representative on the board.	AR and CWS	Hand collected	
Number of government representatives	Number of government representatives on the board	AR and CWS	Hand collected	
Employee	Dummy equals 1 it there is at	AR and	Hand collected	

representative	least one employee representative[102] on the board.	CWS		
Number of employee representatives	Number of employee representatives on the board	AR and CWS	Hand collected	
	GENDER STRUCTURE			
Females on the BoD	Number of women on the board (excluding number of employee and government representatives)	AR, CWS and OOS	Hand collected	
Females on full BoD	Number of women on full board (including number of employee and government representatives)	AR, CWS and OOS	Hand collected	
Females on management board	Number of women on the management board (excluding number of employee and government representatives)	AR, CWS and OOS	Hand collected	
Females on full management board	Number of women on full management board (including number of employee and government representatives)	AR, CWS and OOS	Hand collected	
Female CEO	Dummy equals 1 for female CEO	AR, CWS and OOS	Hand collected	
	INTERNAL OWNERSHIP			
BoD ownership	Percentage of BoD members' share ownership	AR and CWS	Hand collected. An aggregate percentage of BoD share ownership was used if available from bank reports. Otherwise, *BoD ownership* was calculated as a sum of shares hold by individual BoD members divided by a weighted average number of shares for a given year.	Pathan (2009)
Number of directors holding shares	Number of individual BoD members holding shares	AR and CWS	Hand collected	

[102] We qualify a board member as an employee representative any person who is described in the annual report of the bank by one of the following combination of words: 'Employee representative', 'Employee representative member', [member] 'delegated by the Staff Council', [member] 'elected by the employees', [member] 'elected by the staff'.

CEO ownership	Percentage of CEO share ownership	AR and CWS	Hand collected. An aggregate percentage of CEO share ownership was used if available from the reports. Otherwise, the percentage was calculated as a sum of shares hold by CEO divided by a weighted average number of shares for a given year.	Pathan (2009), Hu and Kumar (2004)
CEO as the largest owner	Dummy equals 1 if CEO is the largest owner.		Generated based on *CEO ownership*.	Hu and Kumar (2004)
Management board ownership	Percentage of management board members' share ownership (including CEO)	AR and CWS	Hand collected. An aggregate percentage of management board share ownership was used if available from the reports. Otherwise, the percentage was calculated as a sum of shares hold by individual management board members divided by a weighted average number of shares for a given year. When no data on *Management board ownership* was available, we used data on *CEO ownership*.	Laeven and Levine (2009)
Number of managers holding shares	Number of individual management board members holding shares	AR and CWS	Hand collected	
Non-executive directors' ownership	Percentage of non-executive BoD members' share ownership	AR and CWS	Hand collected. This variable is important when large values of BoD shareholdings are driven by large share ownership of CEO or other executives who have seats on the BoD.	
Number of non-executive directors holding shares	Number of the non-executive BoD members holding shares	AR and CWS	Hand collected	
CEO CHARACTERISTICS				
CEO birth	Year of CEO birth	AR, CWS and OOS	Hand collected	

CEO age	CEO age, number of full years	AR, CWS and OOS	Hand collected	
CEO since	CEO appointment year	AR and CWS	Hand collected. *CEO since* equals 1 if a new CEO was appointed from the 1st January till the 31st December (including) of a given year.	
CEO tenure	CEO service length, in years (CEO tenure).	AR and CWS	Hand collected. We indicate the year when CEO was appointed as the first year of his service, and the year preceding his retirement as the last year of his service.	
Towards retirement	Number of years towards CEO retirement	AR, CWS and OOS	Hand collected	Hu and Kumar (2004)
CEO turnover	Dummy equals 1 if CEO change took place in a given year	AR and CWS	Hand collected. We indicate a year of CEO change as a year when old CEO stepped down from the position.[103]	
CEO forced turnover	Dummy equals 1 if forced CEO turnover took place in a given year	AR and CWS	Hand collected. We indicate a year of forced CEO turnover as a year when old CEO stepped down from the position. In order to distinguish between forced and non-forced turnover we employ the procedure described by Schaeck et al. (2009).	
Founder CEO	Dummy equals 1 if CEO is also a founder of the bank	AR, CWS and OOS	Hand collected	
CEO previous career in the same bank	Dummy equals 1 if CEO has previous experience in the same bank	AR, CWS and OOS	Hand collected	
CEO Ph.D. degree	Dummy equals 1 if CEO holds Ph.D. degree	AR, CWS and OOS	Hand collected	
CEO COMPENSATION				
CEO cash compensation	Total cash compensation of CEO, th.EUR.	AR	Hand collected. *CEO cash compensation* was calculated as a sum of	Hu and Kumar (2004)

[103] However, when old CEO retired on the 31st of December 2007, and new CEO took on the position starting from the 1st of January 2008, we indicate 2008 as a year of CEO change.

			CEO salary, CEO bonus, and other CEO cash compensation. For this and following CEO compensation variables: all values in currency other than EUR were converted into EUR using year-end exchange rates.
CEO salary	CEO cash salary, th.EUR.	AR	Hand collected. *CEO salary* equals amount of CEO cash salary or fixed cash compensation.
CEO bonus	CEO cash bonus, th.EUR.	AR	Hand collected. *CEO bonus* equals amount of CEO cash bonus, variable or performance-related cash compensation.
CEO stock compensation	Dummy equals 1 if CEO stock grant took place	AR	Hand collected
CEO stock compensation value	Estimated value of CEO stock grant, th.EUR.	AR	Hand collected. *CEO stock compensation value* equals amount of stocks granted to CEO in a given year.
CEO option compensation	Dummy equals 1 if CEO option grant took place	AR	Hand collected
CEO option compensation value	Estimated value of CEO option grant, th.EUR.	AR	Hand collected. *CEO option compensation value* equals amount of options granted to CEO in a given year.
CEO pension	CEO pension or post-retirement benefits, th.EUR.	AR	Hand collected. Note: most bank in our sample do not report data on CEO post-retirement benefits.
CEO other compensation	Other CEO compensation, th.EUR.	AR	Hand collected. Note: most banks in our sample do not report this data. Although, where possible we collected data on additional CEO benefits.
CEO fixed compensation	CEO fixed compensation, th.EUR.	AR	Hand collected. We distinguish this variable from CEO cash salary since CEO fixed

			compensation could include non-cash compensation also.	
CEO performance-related compensation	CEO performance-related compensation, th.EUR.	AR	Hand collected. We distinguish this variable from CEO cash bonus since CEO performance-related compensation could include non-cash compensation also.	
MANAGEMENT BOARD COMPENSATION				
Management board cash compensation	Total cash compensation of management board,[104] th.EUR.	AR	Hand collected. *Management board cash compensation* was calculated as a sum of management board salary, bonus, and other cash compensation. For this and following management board compensation variables: all values in currency other than EUR were converted into EUR using year-end exchange rates.	
Management board salary	Management board cash salary, th.EUR.	AR	Hand collected. *Management board salary* equals amount of management board cash salary or fixed cash compensation.	
Management board bonus	Management board cash bonus, th.EUR.	AR	Hand collected. *Management board bonus* equals amount of management board cash bonus, variable or performance-related cash compensation.	
Management board stock compensation	Dummy equals 1 if management board stock grant took place	AR	Hand collected	
Management board stock compensation value	Management board stock grant, estimated value, th.EUR.	AR	Hand collected. *Management board stock compensation value* equals amount of stocks granted to management board in a	Hu and Kumar (2004)

[104] Data refers to the compensation of the management board members for two-tier boards, and executive members of BoD for one-tier boards.

			given year.
Management board option compensation	Dummy equals 1 if management board option grant took place	AR	Hand collected
Management board option compensation value	Management board option grant, estimated value, th.EUR.	AR	Hand collected. *Management board option compensation value* equals amount of options granted to management in a given year.
Management board pension	Management board pension or post-retirement benefits, th.EUR.	AR	Hand collected. Note: most bank in our sample do not report data on management post-retirement benefits.
Management board other compensation	Other management board compensation, th.EUR.	AR	Hand collected. Note: most banks in our sample do not report this data. Although, where possible we collected data on additional CEO benefits.
Management board fixed compensation	Management board fixed compensation, th.EUR.	AR	Hand collected. We distinguish this variable from management board cash salary since management board fixed compensation could include non-cash compensation also.
Management board performance-related compensation	Management board performance-related compensation, th.EUR.	AR	Hand collected. We distinguish this variable from management board cash bonus since management board performance-related compensation could include non-cash compensation also.
BoD compensation	BoD[105] compensation, th.EUR.	AR	Hand collected. *BoD compensation* includes compensation to all BoD members except employee and government representatives. All values in currency other than EUR were

[105] Data refers to the compensation of all BoD members for two-tier boards, and non-executive members of BoD for one-tier boards.

			converted into EUR using year-end exchange rates.	
DIVIDEND POLICY				
Dividends paid for	Dividends paid *for* a given year. *Dividends paid for* includes interim dividends for a given year (paid out during the analyzed year) and final dividends for a given year (proposed to be paid during the following year/years).	AR and CWS	Hand collected. We distinguish dividends paid for a given year from dividends paid during the year. We think that the former one should have stronger relationship with bank financials and corporate governance during analyzed year.	
Dividends paid fact	Dividends paid *during* a given year. *Dividends paid fact* includes interim dividends for a given year, and final dividends for the former year/years which were distributed during the analyzed year.	AR and CWS	Hand collected	
DPE for	Dividends for a given year to equity, %	AR and CWS	Hand collected. We calculate *DPE for* as *Dividends paid for* divided by bank equity.	
DPE fact	Dividends during a given year to equity, %	AR and CWS	Hand collected. We calculate *DPE fact* as *Dividends paid fact* divided by bank equity.	Onali (2010), Acharya et al. (2009)
Share repurchase	Amount of share repurchases, th.EUR	AR and CWS	Hand collected	
Shares outstanding	Weighted average number of shares outstanding	B and AR	We hand collect data on *Shares outstanding* from bank annual reports. When data is not available we download data on number of shares outstanding at the end of analyzed year from *Bankscope*.	
Market capitalization	Market capitalization, bil.EUR	B and AR	We download data on *Market capitalization* from *Bankscope*. For missing data we collect additional data from bank annual reports.	

BAILOUT			
Gross bailout	Gross Bailout, bil.EUR	M	Hand collected
Gross bailout cumulative	Gross Bailout Cumulative (sum of previous bailouts), bil.EUR	M	Hand collected
Gross repay	Gross Repay (some banks repay the State), bil.EUR	M	Hand collected
Gross pay cumulative	Gross Repay Cumulative (sum of previous repayments), bil.EUR	M	Hand collected
Nbail	Net Bailout=*Gbail-Grpay*, bil.EUR	M	Hand collected
Nbailc	Net Bailout Cumulative, bil.EUR	M	Hand collected
Total country bailout	Total Country Bailouts by Country and by Year, bil.EUR	M	Hand collected
Gross bailout share	Gross Bailout as a % of Country *Bailouts=Gbail/Tot_C_bail*, %	M	Calculated based on data on *Gross bailout* and *Total country bailout*.
Gross bailout cumulative share	Gross Bailout Cumulative as a % of Country Bailouts, %	M	Calculated based on data on *Gross bailout cumulative* and *Total country bailout.*
Gross repay share	Gross Repay as a % of Country Bailouts, %	M	Calculated based on data on *Gross repay* and *Total country bailout.*
Gross repay cumulative share	Gross Repay Cumulative as a % of Country Bailouts, %	M	Calculated based on data on *Gross repay cumulative* and *Total country bailout.*
Net bailout share	Net Bailout as a % of Country Bailouts, %	M	Calculated based on data on *Net bailout* and *Total country bailout.*
Net bailout cumulative share	Net Bailout Cumulative as a % of Country Bailouts, %	M	Calculated based on data on *Net bailout cumulative* and *Total country bailout*.
CONTROLS			
Size	Bank size as a natural logarithm of total assets	B	
Tier 1 capital	Tier 1 capital to risk weighted assets (Tier 1 capital ratio)	B, AR and CWS	
Market-to-book	Market value of bank equity divided by book value of	B	

	bank equity (Market-to-Book)			
Profitability	Ratio of net income to average total assets of bank (Return of average assets)	B		
GDP per capita	Natural logarithm of country GDP per head constant growth rate	B		
Deposit insurance	Deposit insurance coverage, th.EUR	Report to the Financial Stability Board (2010), European Commission web site, Deposit Guarantee funds' web sites, and OOS.	Following Cariboni et al. (2010) we assume 200 thousand euro for unlimited level of deposit coverage.	Cariboni et al. (2010)
Legal origin	Line variables for legal origins: English, French, German and Scandinavian	La Porta et al. (1998)	Generated based on data on *Country*	Beck et al. (2006), La Porta et al. (1998)

Appendix 2. Chapter 4

A2.1 CEO ownership, agency costs, and expropriation

We define agency costs as the costs incurred by the CEO as a result of divergences between the incentives of the CEO and those of shareholders. We define expropriation benefits as the net benefits to the CEO deriving from projects that do not maximize shareholder wealth (i.e. any project with NPV<0), but increase CEO's individual utility, for instance because they are related to perquisite consumption or empire building. Since the CEO is also a shareholder, any project that does not maximize shareholder wealth (i.e. any project with NPV<0) will decrease the CEO's individual utility – that is, expropriation has an opportunity cost for the CEO that is positively related to CEO ownership.

Assume that CEO ownership influences agency costs, ϕ, according to the quadratic function:

$$\phi = \alpha_1 + \alpha_2 CEO\ Ownership + \alpha_3 \left(CEO\ Ownership\right)^2 \qquad [A1]$$

where $\alpha_1 > 0$, $\alpha_2 < 0$, and $\alpha_3 > 0$, i.e. ϕ is convex in *CEO Ownership*. We name α_2 *propensity to reduce agency costs*. For low levels of *CEO Ownership* agency costs and *CEO Ownership* are negatively related. However, after a critical level of ownership, the CEO becomes entrenched and agency costs increase with ownership (monitoring perspective).

On the other hand, net benefits from expropriating shareholders, ψ, are concave in *CEO Ownership*:

$$\psi = \beta_1 + \beta_2 CEO\ Ownership + \beta_3 \left(CEO\ Ownership\right)^2 \qquad [A2]$$

where $\beta_1 > 0$, $\beta_2 > 0$, and $\beta_3 < 0$. We call β_2 *propensity to expropriate shareholders*. For low levels of *CEO Ownership*, the net benefits from expropriation and *CEO Ownership* are negatively related. However, after a critical level of ownership, the marginal opportunity cost

of expropriation is larger than the marginal benefit, and therefore the net benefits from expropriation decrease (expropriation perspective).

Assume that dividend payout ratios depend on *CEO Ownership* because of the impact that *CEO Ownership* bears on agency costs and on the benefits from expropriation. Since agency costs should decrease as *DPE* increases, *CEO Ownership* and dividends are substitute monitoring devices. However, this substitution effect disappears after a critical level for ϕ is reached (H1a). For this reason, $\alpha_2 < 0$ and $\alpha_3 > 0$ of the agency costs function maintain their respective sign in the *DPE* function.

What about expropriation (net) benefits? As *CEO Ownership* increase, the net benefits from expropriation by *reducing* dividends increase. After a minimum critical level for ψ, the net benefits from expropriation by *reducing* dividends decrease (H1b). Since expropriation occurs by *decreasing* dividends, the coefficients $\beta_2 > 0$, and $\beta_3 < 0$ should have an opposite sign in the regressions on *DPE*. This can be formalized as follows:

$$DPE = \gamma_1 + (\alpha_2 - \beta_2)CEO\ Ownership + (\alpha_3 - \beta_3)\left(CEO\ Ownership\right)^2 \qquad [A3]$$

where $\gamma_1 > 0$. It is clear that, since $\alpha_2 < 0$ and $\beta_2 > 0$, $(\alpha_2 - \beta_2 < 0)$, while $\alpha_3 > 0$ and $\beta_3 < 0$ results in $(\alpha_3 - \beta_3 > 0)$. Therefore, *DPE* is always convex in *CEO Ownership*.

A.2 Definition of government officials, board members, independent directors, and forced and unforced CEO turnovers

In this section, we briefly describe the criteria employed to determine whether there is a government official on the BoD, whether a member of the BoD is 'independent', and whether CEO turnover is 'forced'.

A2.2.1 Government Officials

We qualify a board member as a government representative any person who is described in the annual report of the bank by one of the following combination of words: 'Government commissioner', 'Government representative', 'State commissioner', 'Representatives of the Regulatory Authority', 'State commissioner', and 'Deputy state commissioner'. In certain cases, the government official is identified by a combination of words that include the name of the state/country. For instance, for Lloyds Banking Group Plc, the government official is

identified by the words ‘Board Representative for Scotland’, while for Alpha Bank AE, the government official is identified by the words ‘representative of the Hellenic Republic’. For 13 banks in our sample, the variable *Government Official on the Board* is equal to one in at least one year during the sample period, for a total of 39 bank-year observations (as reported in Table 4.3, for which 7% of the total available observations for *Government Official on the Board* (554) take on the value one). Out of these 39 observations, 31 refer to the period 2008-2010, suggesting that in most cases government officials were appointed as a result of the financial crisis and the recent sovereign debt crisis in the EU. The countries for which the dummy variable is equal to one in at least one year are: Austria, Belgium, Greece, Sweden, and the UK.

A2.2.2 Board members

EU banks can have a one-tier or a two-tier corporate governance structure (or board structure). Two-tier corporate governance structure is a corporate structure with two boards of directors. The management and monitoring function are performed by the two boards in a separate fashion in the two-tier case, and by different members of the board in the one-tier case (Arnaboldi and Casu (2011)).

The definitions of one-tier and two-tier structure change according to the country. For banks in our sample, the management function is performed by a board usually named ‘management board’ or ‘executive board’, while the monitoring function is performed by a board usually named ‘Board of Directors’, or ‘non-executive supervisory board’.

For banks with a two-tier board structure, we use the following keywords to identify members of the ‘management board’: ‘Management board’, ‘Executive board’, ‘Executive management’, ‘Executive team’, ‘Executive committee’, ‘Board of Directors’, ‘CEO & CFO’, ‘Managing director’, and ‘General manager’. For banks a with one-tier board structure, we use the following keywords to identify members of the ‘management board’: ‘Executive committee’, ‘Management committee’, ‘Delegated committee’, ‘Executive board’, Management board’, ‘General management’, ‘General manager’, ‘Management’, ‘General directors’, ‘Group executive management’, and ‘Group executive committee’.

For banks with a two-tier board structure, we use the following keywords to identify members of the ‘supervisory board’: ‘Supervisory board’, ‘Board of Directors’, ‘Advisory

board'. As explained in section A.2.3, we consider all members of the 'supervisory board' as 'independent directors' for banks with a two-tier board structure.

For banks with a one-tier board structure, we use the criteria set out in section A.2.3 to identify 'independent directors', i.e. directors with a monitoring role.

A2.2.3 Independent directors

We define 'independent directors' as reported in a bank's annual report. A member of the BoD is deemed to be independent if such person does not have any business or personal relations with the company or its management board, and these relations would constitute a conflict of interests. In many cases, banks self-report the degree of board independence of their own BoD. This is usually defined as the number of independent directors divided by the number of BoD members *excluding* employee representatives and government representatives. We use the same approach for board independence calculation for comparability of the results across different banks. For example, in the annual report of Nordea Bank, independent directors are defined as '[…] the number of Board members who are independent in relation to the Company and its executive management as well as independent in relation to the Company's major shareholders.' For banks with a two-tier corporate governance structure, we consider as independent directors the members of the supervisory board. For banks with a one-tier board structure, we define independent directors according to the criteria listed above.

In Table A2, we report the average board size and the average level of board independence (percentage of independent directors on the board) for each country, as well as the proportion of banks with a one-tier or two-tier structure. All sample banks in Austria, Denmark, Finland, Germany, Netherland have a two-tier board structure. All sample banks in Belgium, Greece, Ireland, Luxembourg, Spain, Sweden, and the UK have a one-tier board structure. For France, Italy, and Portugal, we find that both the one-tier and the two-tier board structure are used. All banks in a country from 'English origin' (La Porta et al. (1998)) have a one-tier system, while all those in a country from 'German origin' have a two-tier system.

A2.2.4 Forced and unforced CEO turnovers

To collect data on CEO turnovers, we use LEXIS/NEXIS, and employ a key-word search procedure based on Schaeck et al. (2012) to discern between forced and unforced CEO

turnovers during 2005-2010. After collecting data on the year of the CEO turnover and the CEO name, we look for CEO turnovers based on the following keywords: 'management change', 'forced resignation', 'turnover', 'separation', 'ousted', 'early retirement', 'step down', 'mandatory separation', 'voluntary separation', 'fired', 'made redundant', 'departure', 'management succession', 'executive change' and 'tenure'. These data are matched with the bank name.

Following Schaeck et al. (2012), we classify a turnover as 'forced' if the CEO is reported to have been dismissed, forced to resign or to have left the bank due to undisclosed policy differences. We define all remaining CEO turnovers as unforced, unless they meet at least one of the following criteria (Schaeck et al. (2012)):

a) the reason for the CEO turnover is declared *not* to be: death, poor health, or acceptance of a position either elsewhere or within the bank;
b) it is reported that the reason for the CEO turnover is retirement, but retirement is not announced until at least six months prior to succession.

Moreover, if a reason for the CEO turnover is not provided, we assume that the turnover is forced due to disciplining actions or due to company policy disputes.

Following criteria listed above, we classify 82 CEO turnovers, of which 18 CEO turnovers are forced (which occurred mainly in the period 2008-2010). We classify the remaining 64 CEO turnovers as unforced.

Table A2 Board characteristics: Country comparison.

Country	*Average size of BoD*	*Average Board Independence*	*One-tier board*	*Two-tier board*
Austria	14.20	99.16%	0%	100.00%
Belgium	18.81	32.96%	100.00%	0%
Denmark	6.51	84.09%	0%	100.00%
Finland	8.25	68.04%	20.00%	80.00%
France	13.00	48.11%	50.00%	50.00%
Germany	9.44	92.45%	0%	100.00%
Greece	13.27	26.20%	100.00%	0%
Ireland	15.00	70.76%	100.00%	0%
Italy	14.61	51.40%	87.00%	13.00%
Luxembourg	12.33	28.00%	100.00%	0%
Netherlands	8.04	93.75%	0%	100.00%
Portugal	19.00	58.49%	74.00%	26.00%
Spain	14.26	50.63%	100.00%	0%
Sweden	11.18	70.18%	100.00%	0%
United Kingdom	13.96	51.81%	100.00%	0%
Legal origin				
English	14.15	55.31%	100.00%	0%
French	14.17	50.20%	77.38%	22.62%
German	11.36	95.10%	0%	100.00%
Scandinavian	7.84	78.60%	25.96%	74.04%

Appendix 3. Chapter 6

A3.1 Definition of government officials, and forced and unforced CEO turnovers

A3.1.1 Government Officials

We described the criteria employed to determine whether there is a government official on the BoD in Appendix 2 (Section A2.2.1).

For 17 banks in our sample, the variable *Government Official on the Board* is equal to one in at least one year during the sample period, for a total of 51 bank-year observations (as reported in Table 6.3, for which around 8% of the total available observations for *Government Official on the Board* (675) take on the value one). Out of these 51 observations, 37 refer to the period 2008-2010, suggesting that in most cases government officials were appointed as a result of the financial crisis and the recent sovereign debt crisis in the EU. The countries for which the dummy variable is equal to one in at least one year are: Austria, Belgium, Germany, Greece, Sweden, and the UK.

A3.1.2 Forced and unforced CEO turnovers

We described the criteria employed to determine whether CEO turnover is 'forced' in Appendix 2 (Section A2.2.4).

Following the criteria, we classify 122 CEO turnovers, of which 29 CEO turnovers are forced (which occurred mainly in the period 2008-2010). We classify the remaining 93 CEO turnovers as unforced.