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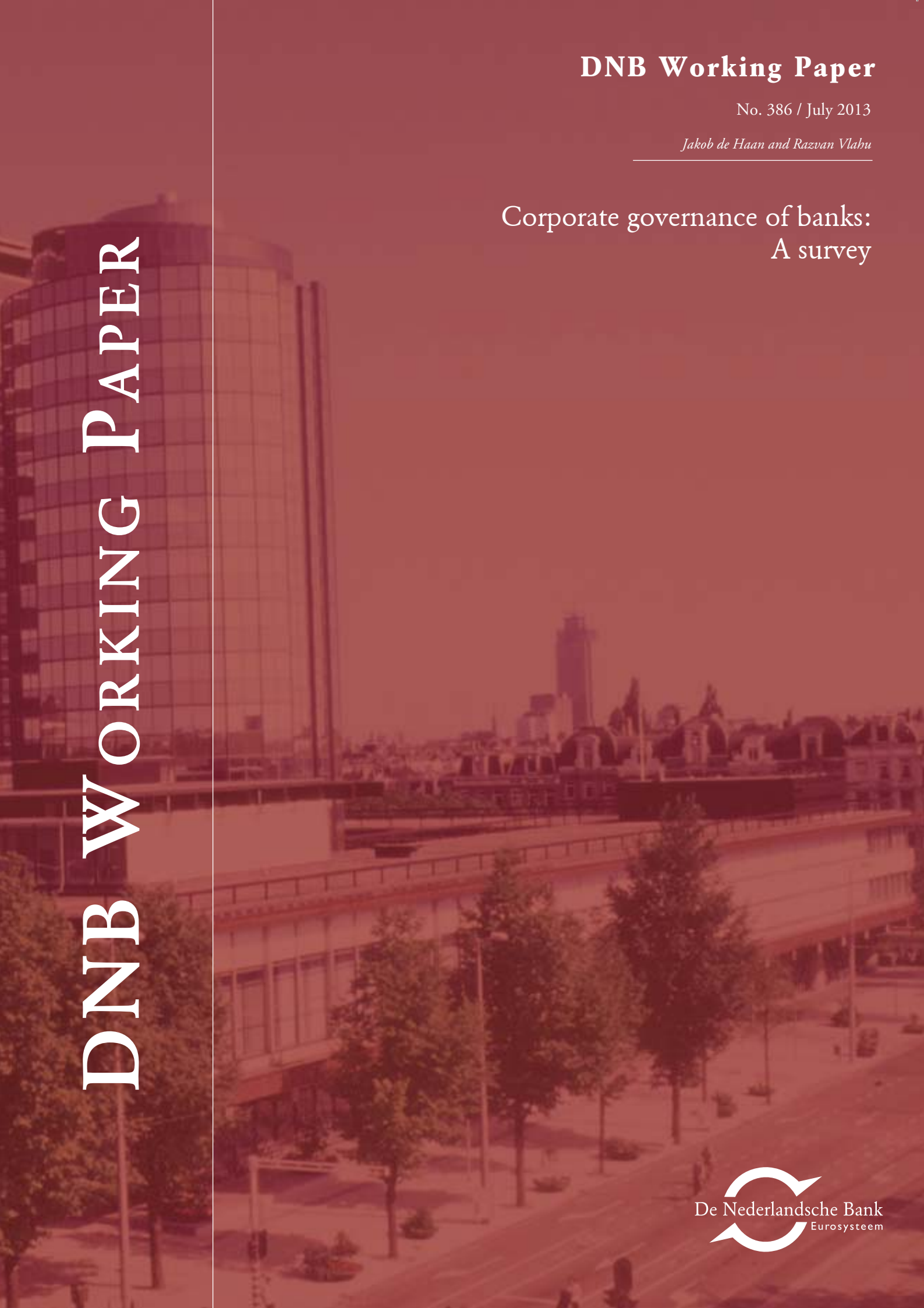

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* Views expressed are those of the authors and do not necessarily reflect official positions of De Nederlandsche Bank.

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Corporate governance of banks: A survey

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Abstract

This paper reviews the empirical literature on the corporate governance of banks. We start by highlighting the main differences between banks and non-financial firms and focus on three characteristics which make banks special: (i) regulation, (ii) the capital structure of banks, and (iii) the complexity and opacity of their business and structure. Next, we discuss the characteristics of corporate governance in banks and how they differ from the governance of non-financial firms. We then review the evidence on three governance mechanisms: (i) boards, (ii) ownership structures, and (iii) executive compensation. Our review suggests that some of the empirical regularities found in the literature on corporate governance of non-financial institutions, such as the positive (negative) association between board independence (size) and performance, do not hold for banks. Also, existing work provides less than conclusive results regarding the relation between different governance mechanisms and various measures for banks' performance. We discuss potential explanations for these mixed results.

JEL classification: G21, G34, G35

Keywords: banking; governance; boards; bank ownership; executive remuneration

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"Most studies of board effectiveness exclude financial firms from their samples. As a result, we know very little about the effectiveness of banking firm governance." (Adams and Mehran, 2012, p. 243).

1. Introduction

The banking sector has been severely criticized for its role in the recent financial crisis. Notably, the weak governance of banks is frequently identified as a major cause of the crisis (Kirkpatrick, 2009).[1] In the UK, Sir David Walker was commissioned to recommend measures to improve board-level governance at banks to the government (Walker, 2009). The commission's recommendations served as the basis for the 2010 UK Governance Code. In several other countries codes of conduct for banks have been introduced as well. For instance, the Netherlands Bankers' Association agreed on a Banking Code that came into effect at January 1, 2010 containing several guidelines for the composition and expertise of board members, assessment of their functioning, and their remuneration. According to the Code, "Complementarity, a collegial board, independence and diversity are preconditions for the supervisory board to perform its tasks properly."

Due to the special nature of financial services, most academic papers on corporate governance exclude financial firms from their data and focus on non-financial firms.[2] Still, and in contrast to the claim by Adams and Mehran (2012), there is quite some research on the governance of financial institutions. But this research is scattered; papers have been published in very diverse journals and cross-references are often lacking. Nevertheless, this research is important. Better knowledge on how financial institutions, and especially banks, are governed and whether and how their governance differs from the governance of other firms is crucial in order to evaluate the recent changes in banking firms' governance structures.[3] It is equally important to know how the corporate governance of banks affects their performance. And as we will argue, focusing on shareholder value only and ignoring regulatory distortions—as is

[1] If anything, the empirical evidence point in a different direction. For instance, using a large sample of data on non-financial and financial firms for the period 1996-2007, Adams (2012) reports that governance of US financial firms is not obviously worse than governance of non-financial firms. Comparing eight governance characteristics (board size, independence, number of directorships, fraction of directors with attendance problems at board meetings, fraction of female directors, total CEO compensation, fraction equity-based pay for the CEO and director compensation) of financial and non-financial firms, it turns out that while financial firm governance is worse in some dimensions, it appears better in others. Similarly, Beltratti and Stultz (2012) and Erkens *et al.* (2012) find no evidence that better governance of financial firms led to better performance during the crisis.

[2] We refer to Shleifer and Vishny (1997) and Adams *et al.* (2010) for excellent reviews of corporate governance in non-financial companies.

[3] See Mülbert (2010) and Sauerzopf (2008) for overviews of recent reforms in the area of corporate governance of banks.

common in most research on the corporate governance of non-financial firms—has limited applicability in research on the corporate governance of banks (see also Laeven, 2012).

This paper takes stock of current knowledge by offering a survey of empirical research on corporate governance of banks, focusing on (1) board effectiveness (Section 3), (2) bank ownership (Section 4), and (3) remuneration of bank executives (Section 5).[4] Throughout the paper we use terms banks and financial institutions interchangeably. Although the survey will focus on banks, occasionally relevant evidence on other financial institutions will be discussed. Before turning to the state of the art on research on corporate governance of banks, we first discuss to what extent corporate governance issues differ among financial and non-financial firms.

2. How do financial firms differ from non-financial firms?

Principal-agent theory predicts that the managers of a firm (i.e., the agents) may not always act in the best interest of the owners of the firm (i.e., the principals) (Jensen and Meckling, 1976). Investors (the outsiders) cannot perfectly monitor managers acting on their behalf since managers (the insiders) have superior information about the performance of the company. So there is a need for certain mechanisms that prevent the insiders of a company using the profits of the firm for their own benefit rather than returning the money to the outside investors.

Investors can use several tools to ensure that the management of a firm act in their interest, such as (1) the size and composition of the board, (2) concentrated ownership, (3) management compensation schemes, and (4) the market for corporate control.[5] In the following we will discuss these mechanisms in turn and assess to what extent they are different for banks. It will be shown that crucial differences between financial and non-financial firms affecting the effectiveness of these tools are largely caused by a) regulation, b) the capital structure of banks (i.e., funding through deposits and high leverage), and c) the complexity and opacity of their business and structure.[6]

[4] Our study complements previous overviews of corporate governance of banks; see Prowse (1997), Caprio and Levine (2002), Adams and Mehran (2003), Levine (2003), Macey and O'Hara (2003), Mülbert (2010), Becht *et al.* (2012), and Laeven (2012).

[5] We abstract here from the issue of regulatory disclosure and transparency in banking industry. There is a growing literature pointing to the connection between disclosure and corporate governance of banks. For an excellent review on the role of information for bank governance see Mehran and Mollineaux (2012).

[6] See Caprio and Levine (2002), Macey and O'Hara (2003), Mullineux (2006), Mülbert (2010), and Marinc and Vlahu (2011) for overviews of the features which distinguish banks from non-financial firms.

Board of directors

By appointing the board of directors[7], shareholders have an instrument to control managers and ensure that the firm is run in their interest. The two most important roles of a board of directors are monitoring and advising. As a monitor the board supervises the managers so as to ensure that their behavior is in line with the interests of the shareholders, while as an advisor the board provides opinions and directions to managers for key strategic business decisions. In the corporate governance literature several features are identified as "good governance". For instance, a large board is considered not to be in the interest of shareholders (Aebi *et al*., 2012), as large boards reduce the value of a firm because of free-rider problems (Mehran *et al*., 2011). Likewise, a strong representation in the board of directors without social or business connections to management (independent directors) is considered another element of "good governance". As argued by Adams and Mehran (2012), outsiders may be more effective monitors of management because they are in theory less beholden to management, while they may also bring a different perspective to bear on problems the management faces, which may be particularly important in complex firms.[8]

According to agency theory, managers prefer less risk than desired by shareholders because they enjoy private benefits of control and also because of their non-diversifiable human capital investment in the companies they manage (Faleye and Krishnan, 2010). In addition, managers can lose their invested wealth in the firm if it goes bankrupt (Devriese *et al.*, 2004). Hence, a board seeking to maximize shareholder wealth would encourage greater risk-taking, thereby also increasing the chance of failure.

Financial firms are different than non-financial firms in several dimensions. First, their failure may have more serious consequences due to their unique position in financial intermediation and the payment system. Thus excessive risk-taking by banks can create significant negative externalities and systemic risk which is one of the reasons that the financial sector is more heavily regulated than non-financial sectors (Flannery, 1998). As pointed out by Laeven (2012), the owners of banks do not internalize the risks that the failure of their bank will pose on the rest of the financial system, even though such systemic risk can

[7] There are two main types of board of directors. Firms in the UK and the US have a so-called one-tier board, which consists of a mix of outside (non-executive) directors and inside (executive) directors, who are the top executives of the firm. The role of management is to implement the business policies that the board has determined. Continental European countries mostly apply the two-tier board system with a supervisory board and a management board. The supervisory board is the controlling body and elected by the shareholders (and sometimes also by the employees). The management board is appointed by the supervisory board.

[8] The organizational structure of banks affects their board composition. In the US, most publicly traded banks are organized as a Bank Holding Company (BHC) in which each subsidiary is chartered and has its own board. Often, directors of the parent BHC will sit on the board of the subsidiaries. This differs from most non-financial firms which are organized along divisional lines and whose subsidiaries often do not have separate legal identities (Adams, 2010).

pose significant threats to the broader economy.[9] Paradoxically, their systemic importance creates incentives for large financial firms to take even more risk. As a consequence, failure of a large bank is supposedly more feared by supervisors than the failure of a small bank, since the former is more likely to result in macroeconomic externalities (Boyd and Runkle, 1993). Banks that are 'too big to fail' receive a *de facto* government guarantee, which will be reflected in their riskiness as perceived by creditors.[10]

Second, banks rely on depositors for their funding and this creates an incentive to take too many risks. This is because high-risk investments may bring in more revenues that accrue to the intermediary, while if it fails a substantial part of the costs will be borne by the depositors. As pointed out by Shleifer and Vishny (1997), debtholders have power as their loans typically have a short maturity so that borrowers (i.e., the banks) have to come back at regular, short intervals for more funds. However, as banks have diffuse debt in the form of many small depositors debt renegotiation are difficult, weakening this mechanism (Laeven, 2012). In addition, depositors do not have good incentives to monitor bank managers due to high information asymmetry and coordination costs (Demirgüç-Kunt and Detragiache, 2002).[11] Depositors are therefore generally protected by some deposit-insurance system, but this provides the intermediary with an even stronger incentive for risky behaviour (Merton, 1977). As depositors are protected, they are less sensitive to bank risk than other investors (i.e., uninsured creditors) and hence do not demand adequate compensation for bank risk-taking which makes debt a cheap source of funds and biases banks toward it (Mehran *et al*., 2011). Financial firms are therefore much more leveraged than non-financial firms (Acharya *et al*., 2009). According to Laeven (2012), the typical leverage ratio of a bank is about 10, which is much higher than that of most non-financial firms.

In sum: even though non-financial corporations are also prone to excessive risk-taking, especially if they are weakly capitalized, the agency problems of banks are exacerbated by the presence of government guarantees and deposit insurance, which distort bankers' incentives and encourage risk-taking. In addition, the special role of banks and the negative externalities of their failure make banks' agency problems costlier for the economy at large.

[9] According to Laeven and Valencia (2012), the fiscal costs of resolving banking crises average about 13% of GDP across 147 banking crises since the 1970s.

[10] Several studies have examined the relationship between size and riskiness of banks and there is some evidence for the 'too big to fail' point of view (see Poghosyan and De Haan, 2012, and De Haan and Poghosyan, 2012, and references cited therein). However, recently, some studies have pointed out that banks may also be 'too big to be rescued'. If governments are fiscally constrained, they may have insufficient means to bail out a failing large bank. Demirgüç-Kunt and Huizinga (2010) find evidence for this as the governments' fiscal position affects banks' CDS spreads during times of financial upheaval.

[11] Evidence suggests that these asymmetries are larger with financial institutions (Furfine, 2001), mainly due to higher opacity of banks' assets and to banks' ability to quickly change the risk profile of their investments.

In view of the foregoing analysis, corporate governance of banks that align the manager's interests with those of the equity holders may deviate substantially from those features that maximize firm value. In other words, corporate governance of banks should be designed so as to align the manager with the interests of the debtholders (including depositors) as well (Acharya *et al*., 2009).

Another stakeholder is the regulator. Regulators expect boards to ensure the safety and soundness of the financial institution, an objective that may not necessarily be in the shareholders' best interest (Adams and Mehran, 2003). To enforce this objective, regulators have several instruments available (Demsetz and Lehn, 1985). In most countries, regulators have, for instance, the authority to restrict the type of activities that banks may engage in and to require sufficient regulatory capital.

Theoretically, the impact of regulation on the effectiveness of corporate governance is not clear. On the one hand, if regulation restricts managerial discretion and its scope to adversely affect shareholder wealth, shareholders may need fewer mechanisms to monitor managers. In other words, regulation may act as a substitute for monitoring by boards. On the other hand, strict regulatory environments may promote firm-level governance that is effective in controlling for agency cost so that a complementary relationship exists between governance and regulation (Hagendorff *et al*., 2010). Either way, the presence of regulation will affect the design of internal governance mechanisms and their impact on firm performance.[12]

The foregoing analysis implies that cross-country studies on corporate governance of financial institutions have to take differences in national regulations into account. In addition, differences in country-level governance should be included. The country-level governance mechanisms include a country's laws, its culture and norms, and the institutions that enforce the laws (Aggarwal *et al*., 2011; La Porta et al., 1997; 1998; 2002b). The importance of national governance is illustrated by Bruno and Claessen (2010). These authors report that companies with good governance practices operating in stringent legal environments show a valuation discount relative to similar companies operating in flexible legal environments. Likewise, Yeh *et al*. (2011) report that the presence of independent directors on risk and

[12] There is some evidence on this. Laeven and Levine (2009) report that stricter regulation decreases bank risk when a bank is widely held but increases it when it has a large controlling shareholder. Hagendorff *et al.* (2010) analyze the effectiveness of several corporate governance mechanisms in preventing underperforming merger strategies. Using data on bank mergers between 1996 and 2004 in the US and 12 European countries, they find that under strict banking regulation regimes board independence and diversity improve acquisition performance, but in less strict regulatory environments, corporate governance is virtually irrelevant in improving the performance outcomes of merger activities.

auditing committees helps most in civil law countries, which have poor shareholder protection practice.

In Section 3 we will discuss recent empirical research on the relationship between board characteristics and performance (and risk-taking) of financial firms to see to what extent other than shareholders' interest plays a role.

Ownership

A second mechanism to control management is concentrated ownership. In atomistic markets, individual shareholders do not have strong incentives to monitor management due to the lack of monitoring expertise, poor shareholder protection and the free-rider problem generated by costly monitoring. The problem of free riding that occurs due to diffuse shareholders may be less acute in the case of large, concentrated ownership. Large shareholders are also more likely to be well informed and to make better use of their voting rights. However, controlling shareholders, conditional on the regulatory and legal environment, may exploit their private benefits of control by diverting assets and profits out of the firm (Johnson *et al.*, 2000). Furthermore, large equity owners may stimulate the firm to undertake higher-risk activities since shareholders benefit on the upside, while debtholders share the costs of failure.[13]

In some countries, notably in continental Europe, ownership of firms is very concentrated (Becht and Roëll, 1999). Compared to European financial firms, US firms tend to have higher institutional ownership and are less likely to have a large shareholder (Erkens *et al.*, 2012). However, Adams and Mehran (2003) report that in the US institutional ownership in banks is significantly lower than in non-financial firms.[14]

Adams and Mehran (2003) also find that bank CEOs have lower ownership than CEOs of non-financial firms. As pointed out by Cornett *et al*. (2010b), similar to executive equity-based compensation (see below), equity ownership of executives can help in aligning managers' interests with those of shareholders. If managers have larger equity stakes, they arguably behave more like principals and less like agents. However, as pointed out above, that may not necessarily be in line with the interests of debtholders and supervisors.

In Section 4 we will review recent research on the relationship between ownership and performance (and risk-taking) of banks.

[13] Referring to blockholders of banks, such as investment funds, Mehran and Mollineaux (2012, p. 17) argue that "there is no economic framework suggesting that owners of these investment funds should care about safety, soundness, and default-related costs. Why should they be concerned with downside risk?".

[14] Barth *et al.* (2004) argue that one of the main reasons for this are the restrictions imposed in many countries on the percentage of bank capital owned by a single entity. According to Caprio and Levine (2002), bank ownership limits are in place in about 40 percent of countries around the world.

Executive compensation

A third method of ensuring that managers pursue the interests of shareholders is to structure executive compensation appropriately. By making managers' compensation dependent on the firm's performance, shareholders—either directly, by exercising their voting rights, or indirectly, via the board of directors—can provide incentives for the management of the firm. Examples include direct ownership of shares, stock options, and bonuses or other contingent compensation mechanisms (i.e., making compensation dependent on the share price or other metrics). However, contingent compensation may also have a less desirable effect. If the managers' compensation is sensitive to the performance of the firm, they will have an incentive to take excessive risks as they benefit greatly from good performance, while the penalties for poor performance are limited (Allen and Gale, 2000). This undesirable effect can be mitigated if a large part of managers' wealth is concentrated in the firm (Spong and Sullivan, 2007), or if the performance compensation scheme achieves the alignment of managers' and shareholders' interests from a long-term perspective, thus avoiding short-term performance objectives.

Compensation structure might also be affected by another important difference between financial and non-financial firms with respect to the resolution of financial distress or outright insolvency (Adams and Mehran, 2003). For non-financial firms, financial distress generally leads to reorganization and often management is given the opportunity to turn the corporation around. In contrast, in the banking industry distress often leads to liquidation and the incumbent executive is removed from management. Thus management of financial firms can be expected to demand that these differences are reflected in their compensation schemes.

Other differences between financial and non-financial firms may also impact the structure of management compensation schemes. According to agency theory, stockholders want management to be compensated with stock options because they increase management pay-performance sensitivity. However, Adams and Mehran (2003) argue that stock-based compensation contracts will tend to be less important in homogenous industries such as banking, where relative performance measures are more precise and therefore it is less important to make compensation dependent on firm performance. In addition, banks are highly leveraged institutions and they may therefore want to limit their use of stock options as it could affect their cost of issuing debt.

In Section 5 we will review recent research on executive compensation in financial firms.

Market for corporate control

A final mechanism to control management is the market for corporate control that can operate in several ways, such as proxy contests, friendly mergers and takeovers, and hostile takeovers. A hostile takeover is potentially the most important device in the market for corporate control forcing managers to behave in accordance with the interests of shareholders. If a firm does not exploit all of its growth potential, some outsiders may consider the firm an attractive takeover target. Acquiring outsiders may decide to replace the incumbent management. This threat gives managers the right incentives to behave in the interest of current shareholders (Jensen, 1988).

There is an extensive literature on bank mergers and acquisitions (M&As). However, most of this literature deals with financial determinants of M&As with a particular focus on the financial characteristics of target and acquirer. Issues such as price determination, impact of realized synergies and economies of scale on profit efficiency and diversification of risks, impact on banks' customers, or the systemic consequences of mergers and acquisitions are examined.

Prowse (1997) and Adams and Mehran (2003) argue that the market for corporate control is largely absent in the case of banks, notably due to the absence of the threat of hostile takeovers. Adams and Mehran (2003) point to several explanations for this based on regulation and capital structure. Most countries explicitly limit the possibility of hostile takeovers of banks. For example, mergers often require prior approval from the country's bank regulator (Cheng *et al.*, 1989; Mester, 1989; Laeven, 2012). Many countries also have strict regulations on entry, mergers and takeovers, which protect the incumbent management (Cheng *et al.*, 1989; Prowse, 1997). As to capital structure: the acquirer typically borrows the funds needed for the acquisition investment, but banks may be unwilling to borrow funds for acquisition purposes as they are already highly leveraged. Also their sheer size may shield large banks from the disciplinary forces of takeovers and shareholder activism (Acharya *et al.*, 2009).[15] In addition, bank managers may engage in mergers to protect their own interests or get a too-big-to-fail status (Penas and Unal, 2004), with managers at the bidding banks benefiting from higher prestige and increased remuneration packages after the merger (Bliss and Rosen, 2001). And when bank management is entrenched, M&As are more likely to lead to poor performance ex-post (Hughes *et al.*, 2003).

[15] In recent years, the most important activist players have been hedge funds which do not commonly seek to acquire the company themselves but try to affect the way in which the company is run or to get the company to be acquired by someone else. These hedge funds most commonly contact companies privately (Bebchuk and Weisbach, 2010).

Stimulated by deregulation, the financial services industry in several countries, notably the US, underwent an intense period of consolidation through M&A activity (Berger *et al.*, 1999).[16] In their review of studies on M&As which take this development into account, De Young *et al*. (2009, p. 100) come to a different conclusion on how well the market for corporate control works. As their review suggests that poorly performing banks are more likely to be acquired, these authors conclude: "Collectively, these studies suggest an efficient market for corporate control." Similar results are reported by Beccalli and Frantz (2013) in their sample of 777 European deals over the period 1991 to 2006. However, Laeven (2012) argues that apart from their apparent success in the US and the UK, hostile takeovers are virtually absent in the rest of the world.

According to De Young *et al.* (2009, p. 90-91): "The consensus view regarding event studies of bank M&As in the 1980s and 1990s is that, on average, target shareholders earned strong positive abnormal returns, bidder stockholders earned marginally negative returns, and the combined abnormal returns were statistically insignificant or economically trivial…… However, results from M&A performance studies published since 2000 diverge from this pre-2000 consensus. In general, the recent literature suggests that both North American and European bank mergers are efficiency improving, but only European bank deals have resulted in stockholder value enhancement."

As we have little to add to the excellent review of DeYoung *et al.* (2009), we have decided not to take the literature on the market for corporate control into account in this survey.

3. Board effectiveness

Commonly studied features of board structure are size, busyness and expertise of directors, and board independence. It may be argued that smaller boards are more effective because decision-making costs are lower in smaller groups, but it is not obvious what the optimal board size is. If directors hold more outside directorships, they may bring in more information but they may also become too busy and not attend meetings, thereby becoming less effective. Likewise, if they lack financial expertise they may not be good monitors. Section 3.1 reviews recent literature addressing these issues for financial firms.

[16] Most older evidence on consolidation in the banking industry is based upon within country data as cross-border mergers and acquisitions were less intense, a potential explanation for this being various national policies targeting the protection of domestic banks (Berger *et al.*, 2003). As DeYoung *et al.* (2009) point out, cross-border M&As are a more recent phenomenon. See DeYoung *et al*. (2009) for an in-depth discussion of recent studies on cross-border M&As.

Furthermore, it is commonly assumed that boards that are more independent (i.e., they contain more directors without social or business connections to management) are more effective from a shareholders' perspective. Although initial work on non-financial firms failed to find a link between board independence and higher firm value, there is a growing body of empirical research indicating that director independence is associated with improved board decisions (see Bebchuk and Weisbach, 2010 for a discussion). Section 3.2 reviews recent studies addressing this issue for financial firms.

In addition to these issues, we will deal with the pros and cons of diversity of boards drawing on the management literature, which developed quite independently from the banking and finance literature but has some interesting insights to offer, and discuss the scant empirical evidence on this issue for financial firms (Section 3.3).

Finally, Section 3.4 addresses CEO duality (i.e., the CEO is also the chairman of the board). We will highlight some of the benefits and disadvantages introduced by this dual function.

However, before we discuss the literature it is important to deal with two issues: board effectiveness and endogeneity. In the management literature, effective board functioning is generally associated with board members cooperating to exchange information, evaluating the merits of competing alternatives, and reaching well-reasoned decisions (Forbes and Milliken, 1999). In the literature surveyed here, most studies link board characteristics (and other corporate governance mechanisms) to different measures for either firm performance, such as ROE or Tobin's Q, or for risk taking, such as the Z-score, or both. In line with corporate governance studies on non-financial firms, effectiveness is generally defined (although often implicitly) as how well the board represents shareholders' interests (Mehran and Mollineaux, 2012). Nevertheless, as we argued above, there are good reasons to differentiate between "good governance" of non-financial firms and "good governance" of financial firms as the interests of shareholders of financial firms and those of other stakeholders, notably depositors and supervisors, do often not coincide.

This review focuses upon the relationship between board characteristics of financial firms and their performance. These board characteristics are generally treated in the literature reviewed here as exogenous variables. However, there are both theoretical arguments and empirical reasons suggesting that board structure is endogenous (Demsetz and Lehn, 1985; Adams *et al.*, 2010; Harris and Raviv, 2008). Several theoretical studies endogenize board structure by relating the costs and benefits associated with boards' monitoring and advising functions (see Adams *et al.*, 2010 for a survey). There is also some empirical support for endogeneity of boards of financial firms. Using a sample of 212 US BHCs monitored between

1997 and 2004, Pathan and Skully (2010) report that larger and more diversified banks have larger and more independent boards. In addition, banks in which managers' opportunities to consume private benefits are high have larger boards, while banks in which the cost of monitoring managers is low have more independent boards. Another interesting finding is that banks in which insiders' shareholding is high have smaller boards. Only a few of the studies surveyed here address the issue of endogeneity seriously, although focusing on one class of firms (banks) may, at least to some extent, make this issue less compelling if at least these banks face the same optimization problem and firm heterogeneity is controlled for.

Finally, most studies discussed here focus on a limited number of corporate governance mechanisms in isolation, but as pointed out by Adams *et al*. (2010) the governance structure is largely endogenous in its entirety. This has implications for the relationship between different dimensions of governance as the effectiveness of one dimension may be conditioned by another dimension. Although a few recent studies examine this interdependence of different dimensions of corporate governance (e.g. Hardwick *et al*., 2011), most studies ignore it. Likewise, only a few studies examine non-linearities even though there are good theoretical reasons to believe that relationships may be non-linear (Grove *et al*., 2011).

3.1 Board size, attendance and expertise

Size

According to the Walker Review, boards of listed UK banks were larger than those of other listed companies and this is considered problematic because of ''a widely-held view that the overall effectiveness of the board, outside a quite narrow range, tends to vary inversely with its size" (Walker, 2009, p. 41). There is evidence that this might be correct for non-financial firms (Hermalin and Weisbach, 2003), but does it also hold true for banks?

Several studies report that boards of BHCs in the US are bigger than boards of other firms.[17] BHCs may have larger boards as board size is positively correlated with firm size and BHCs are larger than manufacturing firms in terms of asset size. In addition, BHCs' boards may be larger because of their complex organizational structure (Adams and Mehran, 2003). Yet, from 1982 to 1999 there is evidence that the average board size of BHCs decreased over time (Adams and Mehran, 2012). Obtaining data on board size is more difficult for European

[17] For instance, comparing the 100 largest banks to the 100 largest industrial firms in 1999 in the US, Booth *et al*. (2002) report that banks have larger boards with a greater proportion of outsiders. Likewise, Adams and Mehran (2003) find in a sample of data on 35 BHCs in the US ending in 1999 that BHCs have larger boards, more independent directors and lower performance-based pay for CEOs than non-financial firms, while Adams (2012) reports that boards of banks are larger than boards of non-financial firms in the Riskmetrics database of S&P500 firms from 1996 to 2007.

banks. Based on our computations using data from the annual reports of seven European banks, Figure 1 shows that average board size is quite stable.

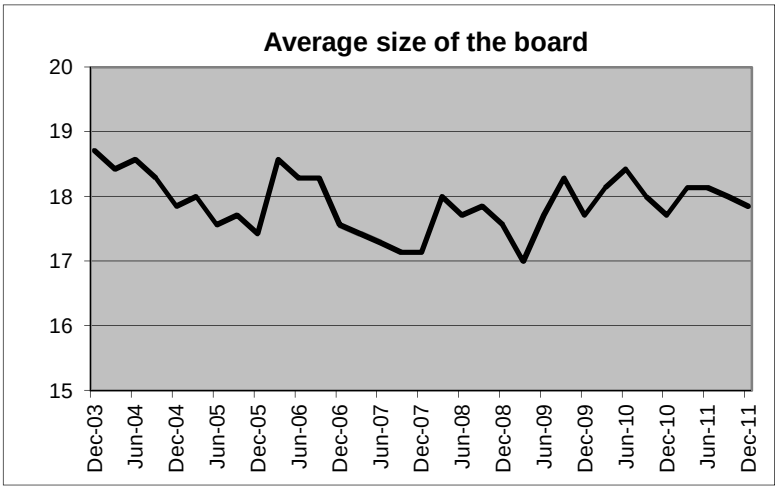

Figure 1. Average board size of seven European banks

The average is taken over seven European banks for which data is available for each year from 2003 to 2011. The banks are RBS, Barclays, HSBC, Lloyds, Credit Suisse, BNP Paribas, and Dexia.

However, there is a significant variation in the board size across European countries, both with respect to executive and supervisory boards. Using data for 91 banks from 19 countries, we find that in 2011 the average executive board had 4 members, while the supervisory board had on average 14 members. Figures 2 and 3 show the average distribution across countries for executive and supervisory boards, respectively.

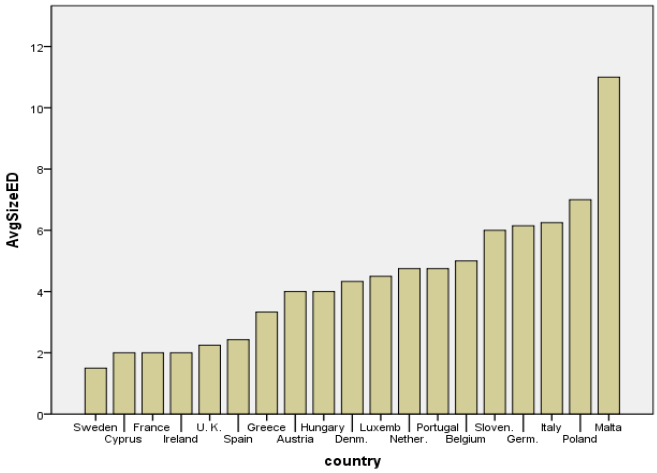

Figure 2. Size of executive board

Data is from BoardEx. The sample consists of 91 banks from 19 countries in 2011.

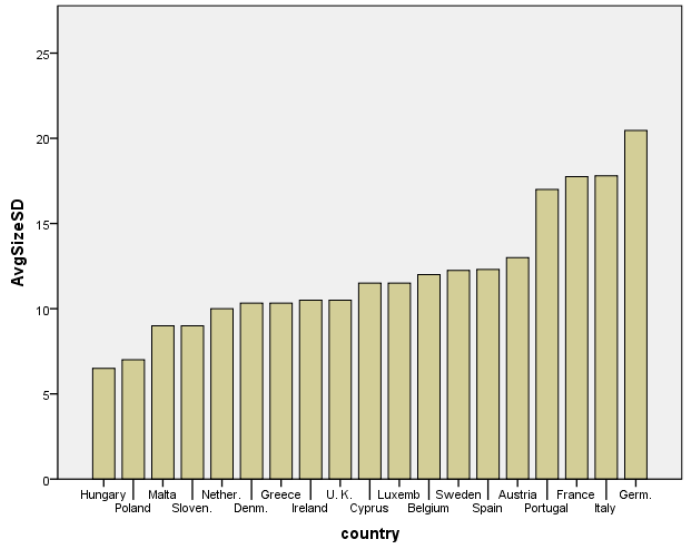

Figure 3: Size of supervisory board

Data is from BoardEx. The sample consists of 91 banks from 19 countries in 2011.

The question is to what extent board size matters for firm performance. As pointed out by Dalton *et al.* (1999), large boards may be beneficial because they increase the pool of expertise and resources available to the organization, notably so in firms with a complex business model. This may not only be relevant from the perspective of the advisory role of the board, but also from the perspective of its monitoring role. According to Upadhyay and Sriram (2011), a larger board has greater resources than a smaller board to monitor managerial performance. So directors would deliberate important corporate decisions more extensively and would demand that the managers disclose important issues to the stakeholders, leading to greater information transparency.

It is often assumed that in board discussions there is full disclosure of private information, rational updating, and convergence of individual beliefs. But the social psychology literature provides many reasons to doubt that this is an accurate representation of board decision-making, with possible implications for optimal board size.[18] For instance, individuals often fail to take full advantage of others' opinions and they also do not seem to fully share their own information with other group members. Problems associated with failure to exchange views are highlighted in Janis's (1983) famous analysis of "groupthink" in a series of case studies. According to Janis, certain circumstances (for instance, directive

[18] Some studies in economics also address this issue. For instance, Adams *et al.* (2010) discuss some economic models in which the choice of the firm's strategy is treated as a game of information transmission in which full disclosure may also not occur. Adams and Ferreira (2007) argue that also the CEO might not be willing to share information with the board in view of its dual role as advisor and monitor. Given this dual role, the CEO faces a trade-off in disclosing information to the board. If the CEO reveals information, he arguably receives better advice, but an informed board will also monitor the CEO more intensively and therefore the CEO may be reluctant to share information with it.

leadership) produce a concurrence-seeking tendency, excessive confidence of the group, closed mindedness, and pressures toward uniformity, which in turn lead to defective decision-making, including an incomplete survey of available options, a failure to assess the risks of the preferred option, and a selective bias in processing information. In addition, Bainbridge (2002, p. 28) points to social loafing, where some members choose not to actively participate in board decision making, and herd-type behaviour where a decision maker "imitates the actions of others while ignoring his/[her] own information and judgment with regard to the merits of the underlying decision." Likewise, Westphal and Bednar (2005) find that pluralistic ignorance can occur in boards (i.e., board members fail to express concerns based on others not expressing concern).

Even if a bigger board has more information and expertise, decision-making costs increase with board size. For instance, Jensen (1993) argues that large boards are less effective at monitoring management because of free-riding problems amongst directors and increased decision-making time. A larger board size may decrease the motivation to gather and/or interpret information when information acquisition is costly (Persico, 2004). Coordination losses are also more likely. These reasons are underlying the popular view that small boards are better from a shareholder's perspective.

Several studies examine the relationship between board size and various measures for firm performance (such as Tobin's Q, ROA or ROE[19]) and risk-taking for financial firms. Table 1 summarizes recent studies. In contrast to the findings for non-financial firms, quite a few (but not all) studies find that bank board size is positively related to performance and negatively related to risk-taking.

Using data on 35 BHCs from 1964 to 1985, Adams and Mehran (2012) find that the natural logarithm of board size is, on average, positively related to Tobin's Q. They argue that increases in board size due to additions of directors who also sit on subsidiary boards appear to be important. Although it is not the main focus of their paper, also Aebi *et al*. (2012) find that board size is positively related to their indicators of 372 US banks' performance (i.e., buy-and-hold returns and ROE) measured over the time period July 1, 2007 to December 31, 2008.

Beltratti and Stulz (2012) investigate the relation between corporate governance and bank performance during the credit crisis (July 2007 – December 2008) in an international sample of 164 large (i.e., with more than $50 billion of assets) banks. They find that banks

[19] A few studies have examined the relationship between board size and firm efficiency. The results are mixed. Wang *et al*. (2012) find a negative relationship between board size and efficiency, but Hardwick *et al*. (2011) find no significant link.

with more shareholder-friendly boards had lower buy-and-hold returns during the crisis. Beltratti and Stulz (2012, p. 16) conclude that "Either conventional wisdom is wrong….., or this evidence is consistent with the view that banks that grew more in sectors that turned out to perform poorly during the crisis were pursuing policies favoured by shareholders before the crisis as their boards were more shareholder-friendly but suffered more during the crisis when these risks led to unexpectedly large losses." However, for their international sample of financial institutions, Erkens *et al*. (2012) do not find that board size is related to bank performance during the crisis. Likewise, Berger *et al.* (2012a) argue that management structures of US commercial banks, including board size, were not decisive for banks' stability (i.e., propensity to default) during the recent financial crisis.

Adams (2012) compares US banks that were bailed out during the recent financial crisis and those that were not. Of the 89 banks in her sample, 56 received bailout funds in either 2008 or beginning of 2009. It turns out that banks that received TARP support have larger boards than banks that did not. Minton *et al*. (2010) report similar findings. These results can be interpreted differently. On the one hand, receiving TARP money may reflect poor performance. On the other hand, TARP funds could also be viewed as a unique opportunity for banks to raise relatively cheap funds at the height of the crisis (Minton *et al*., 2010). If more risky banks were the ones that were bailed out, this implies that banks with larger boards took more risk. However, this is not in line with the findings of Pathan (2009). Using a sample of 212 large US BHCs over 1997–2004 period and several indicators of bank risk, he finds that bank board size is negatively related to risk-taking. For their non-crisis period Minton *et al*. (2010) report similar results.

While most papers use statistical measures of bank risk, such as the standard deviation of equity returns, the variance of market model residuals, or market model betas, Faleye and Krishnan (2010) employ three measures of bank risk-taking in lending decisions, namely the borrower's long-term S&P credit rating, the inclusion of financial covenants in loan contracts, and the bank's decision to diversify its lending risk through syndication. Their sample includes 317 bank-years for 51 banks over 1994-2006. They find that banks with smaller boards provide fewer junk loans and are less likely to underwrite speculative loans. The inclusion of financial covenants is not related to board size.

The relationship between board size and firm performance may be non-linear. De Andres and Vallelado (2008) use data for 69 banks from 6 countries. Their results suggest a hump-shaped relationship between board size and board independence on the one hand and performance on the other. The point at which adding a new director reduces bank value is around 19 directors for the banks in the sample. Also Hardwick *et al*. (2011) test for a non-

linear relationship but find no support for it, while Grove *et al*. (2011) find some evidence for an inverted U-shaped relationship between ROA and board size.

Finally, an important caveat is in order: The causal relationship between board size and firm performance may run in the opposite direction. Indeed, for US non-financial firms Hermalin and Weisbach (1988) report that non-executive directors are often added to the boards of badly performing firms in an attempt to reverse poor financial results, but rarely with success. Most studies surveyed here do not carefully examine the potential problem of reverse causality.

Attendance

A related issue is directors' attendance at board meetings, which is emphasized in numerous codes of conduct for bank directors. Directors are supposed to obtain information and participate in decision-making through their attendance at board meetings. Arguably, board size will affect a director's attendance. The larger the board, the more free-riding behavior may occur. Using a sample of 5707 directorships from 35 large US BHCs over the years 1986–1999, Adams and Ferreira (2012) report that the frequency of BHCs directorships with severe attendance problems is much higher in their sample than in non-banking firms. They find that board size is positively and highly significantly related to attendance, which is consistent with the idea that BHCs boards are so large that free-riding problems are pervasive. Adams and Ferreira (2012) also report that a director's past attendance behavior has no influence on the likelihood that he leaves the board. So apparently directors are not disciplined for having attendance problems through retention decisions.

There is hardly any research on the relationship between board attendance and firm performance. One of the variables that Aebi *et al.* (2012) include is the percentage of directors who attend less than 75 percent of board meetings. They find that it is not significantly related to buy-and-hold returns.

Because directors who sit in multiple boards are potentially more distracted, they may not be effective monitors. However, it has also been argued that busy outside board members may possess knowledge and provide relevant, industry-specific expertise that will be beneficial to the bank (Grove *et al*., 2011). As Adams (2010) points out, directors of the parent BHC will often sit on the board of subsidiaries which may make them more effective monitors. Furthermore, busy directors may have been chosen to be on so many boards precisely because of their high ability, which may offset the effect of their lack of time (Adams *et al*., 2010). Theoretically the impact of busy directors is thus not clear (see Grove *et al*., 2011 for a further discussion).

Only a few studies have examined the relationship between busyness of directors and financial firms' performance, using different indicators. Fernandes and Fitch (2009) employ the average number of board seats in other publicly traded corporations currently held by all board members, while Aebi *et al*. (2012) use a dummy variable for whether a board is busy, classifying a board as busy if a majority of outside directors holds three or more directorships. Both studies do not find significant effects.

Muller-Kahle and Lewellyn (2011) examine whether the configurations of board of directors are related to heavy involvement in subprime lending. Using a matched-pair sample of firms in the financial industry from 1997–2005 and conducting panel data logistic regression analysis, they find that subprime lenders had boards that were busier. These findings are not consistent with the results of Grove *et al*. (2011) who report some (weak) evidence that their indicator of busyness is related to ROA but not to loan quality.

Expertise

Banks have become bigger, more complex and more opaque, making the job of boards more difficult (Mehran *et al*., 2011). Therefore, bank director expertise is an important policy concern, in particular from the perspective of the role played in risk management.[20] For instance, the Dutch Banking code states that: "Each member of the supervisory board shall be capable of assessing the main aspects of the bank's overall policy in order to form a balanced and independent opinion about the basic risks involved. Each member of the supervisory board shall also possess the specific expertise needed to perform his or her role in the supervisory board."

Using data for 91 banks from 19 European countries, we find that the average time on both executive and supervisory boards is roughly around 6 years. Figures 4 and 5 show the average distribution across countries for executive and supervisory boards, respectively.

The empirical evidence on the relationship between director experience and firm performance is mixed (see the second panel in Table 1). Aebi *et al*. (2012) include the percentage of directors with experience (present or past) as an executive officer in a bank or insurance company as explanatory variable. The coefficient of this variable is negative in all specifications and significant in two of them. This negative relation between the financial expertise of non-executive directors and bank performance in the crisis is consistent with the

[20] Ellul and Yerramilly (2012) measure the strength and independence of the risk management function at 72 US BHCs for the period 1995 to 2010. They conclude that board experience and their Risk Management Index seem to be substitutes as BHCs that have a larger fraction of independent directors with prior financial industry experience have lower RMI.

findings of Minton *et al*. (2010).[21] Their results suggest that financial expertise is negatively related to stock market performance and changes in overall firm value, while the probability of receiving TARP funds is not statistically related to the financial expertise among independent directors.

However, Fernandes and Fich (2009) report a significant positive (negative) relationship between financial expertise and stock performance (the amount of bailout funds that banks received). Minton *et al*. (2010) also find that in the run-up to the crisis, financial expertise is positively and significantly related to total firm risk (the standard deviation of daily stock returns) and stock performance, especially for large financial institutions.

Also studies for other countries than the US yield mixed results. Cuñat and Garicano (2010) report that Spanish *cajas,* which had a chairman without postgraduate education or without previous banking experience performed worse. Similarly, Hau and Thum (2009) report that lack of financial experience of board members in German banks was positively related to realized losses in 2007/08. Their analysis is based on a close examination of the biographical background of 592 supervisory board members in the 29 largest German banks. This lack of experience was much more present in public banks (Landesbanken). In contrast to these two studies, Erkens *et al*. (2012) do not find a significant relationship between financial experience of board members and firms' stock returns during the crisis.

One possible explanation for the mixed findings as discussed above is the time period under consideration. Minton *et al*. (2010, p. 5) conclude that in "stable times, the presence of external financial experts on the board is associated with higher risk-taking and performance. Since financial expertise on the board is related to more risk-taking, it is not surprising that these banks suffer larger stock losses during the crisis."

Another potential explanation is the use of different proxies for financial expertise. For instance, Minton *et al*. (2010) classify an independent director as a financial expert if he works within a banking institution, a non-bank financial institution, or has a finance-related role within a non-financial firm or academic institution, or is a professional investor. In contrast, Fernandes and Fitch (2009) proxy expertise as the average years of experience of the directors in the financial sector.

3.2. Board independence

Adams (2010) reports that controlling for size, bank boards in the US have on average fewer outside directorships per director than non-financial firms. From 1965 to 1999, the board

[21] These results do not imply causation as banks that want to take more risks may hire board members with more expertise (Mehran *et al*., 2011).

composition of US BHCs has been relatively stable, with the ratio of outside directors varying around 0.85 (Adams and Mehran, 2012). For European banks, this ratio is lower and the trend is different. Based on our computations on data from annual reports of seven European banks, we find a significant increase in the proportion of outside directors from 0.43 to almost 0.6. Figure 6 plots the average ratio of independent board members from 2003 to 2011. As shown in Figure 7, there is a significant variation in the proportion of outside directors across European countries, from a very low ratio in Germany, to an extremely high one in countries such as the UK and the Netherlands.

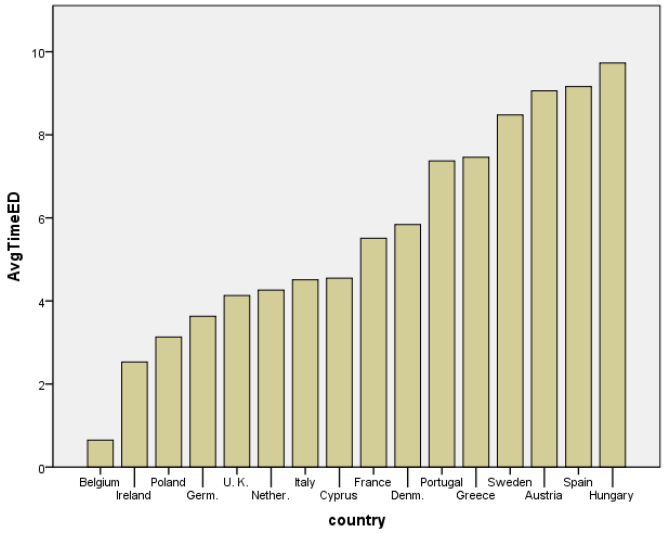

Figure 4: **Average time on executive board**

Data is from BoardEx. The sample consists of 91 banks from 19 countries in 2011.

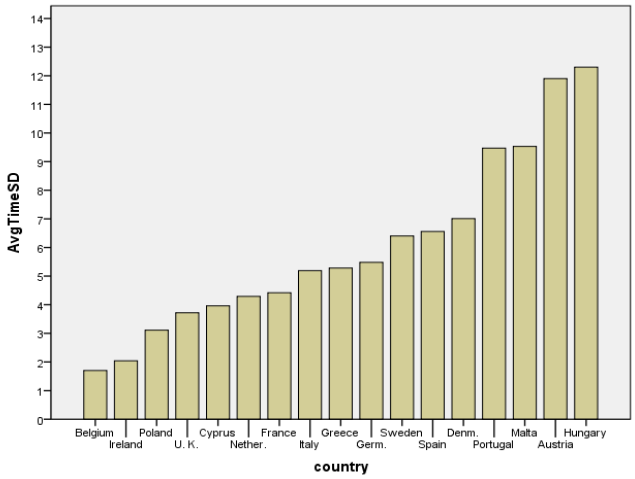

Figure 5: **Average time on supervisory board**

Data is from BoardEx. The sample consists of 91 banks from 19 countries in 2011.

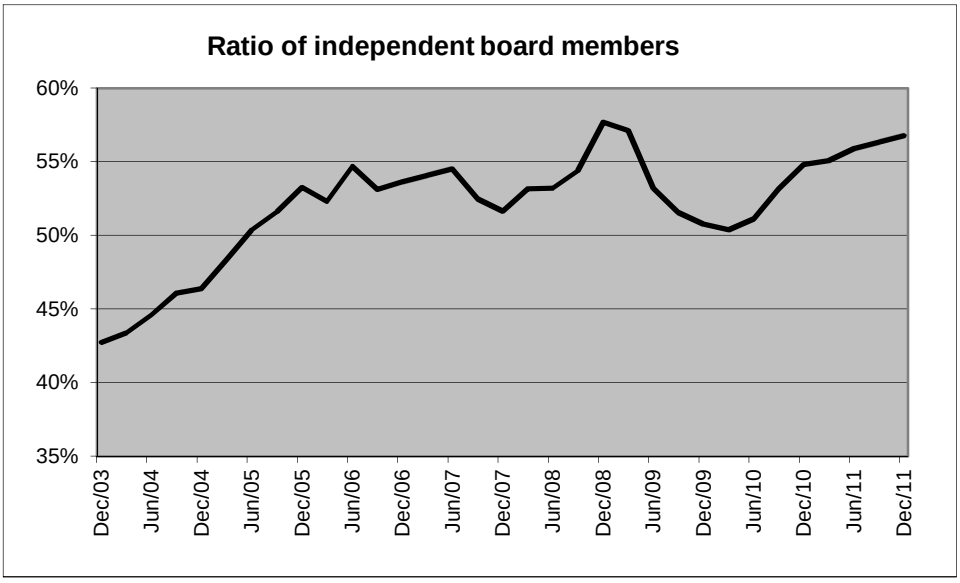

Figure 6: **Share of independent board members**

The average is taken over seven European banks for which data is available for each year from 2003 to 2011. The banks are RBS, Barclays, HSBC, Lloyds, Credit Suisse, BNP Paribas, and Dexia.

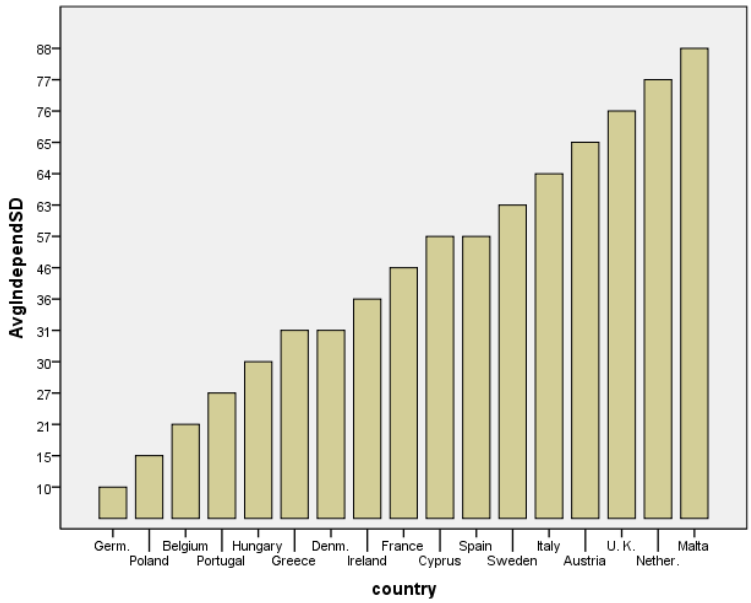

Figure 7: **Share of independent board members**

Data is from BoardEx. The sample consists of 91 banks from 19 countries in 2011.

A widely researched question is whether independent board members (i.e., directors who have no direct financial, family or interlock ties with management) affect firm performance. Devries *et al.* (2004) argue that from a creditors' (i.e., depositors and other debtholders) perspective, independent directors without ownership in the bank, are preferred to financially dependent directors, since the former are more likely to focus on proper

management monitoring, than on stock price (or other short-term objectives related with their compensation) movements. According to Fama and Jensen (1983), independent directors have incentives to scrutinize diligently, because they seek to protect their reputation as effective monitors of managerial discretion. There is a competitive directorship market in the banking industry causing independent directors to be concerned about their reputation (Pathan, 2009). Since they are in a better position to discipline management, independent directors are arguably more effective in prohibiting opportunistic behavior, thereby reducing potential agency conflicts.

However, Adams and Ferreira (2007) show theoretically that more independence reduces the board's information production, hurts its advisory role, and may also reduce its monitoring function. If independent directors have stronger monitoring incentives than dependent directors, the CEO responds to increased board independence by providing less information. A similar point has been made by Harris and Raviv (2008). They show that, except for situations in which agency costs are high, shareholders are better off with a board controlled by insiders.

In addition, the effectiveness of independent board members arguably depends on their competence. As pointed out by Wagner (2011), de facto CEO control can arise from lack of board competence, even if the board is independent. Although outside directors may be more effective monitors of management, they may lack in-depth knowledge of the internal workings of the banks on whose boards they sit (Adams, 2012). They may also lack the financial expertise to understand the complexity of innovative products and new activities (such as the securitization processes) banks were engaging in and the risks involved. Several studies report that outside directors of financial institutions often do not have any significant recent experience in the banking industry (Minton *et al*., 2010). Adams (2011) reports that banks receiving bailout money had relatively independent boards. She therefore concludes that board independence may not necessarily be beneficial for banks, as independent directors may not always have the expertise necessary to oversee complex banking firms.

Indeed, the evidence on the relationship between board independence and financial firm performance[22] does not provide much support that board independence is positively

[22] The studies on the impact of board independence on financial firm performance and risk-taking as surveyed in Table 2 do not consider reverse causality. However, in the model of Hermalin and Weisbach (1998) the causality runs from performance to independence. In their model, the board must decide whether to keep a CEO or to replace him. The board may obtain an additional, costly signal of the CEO's ability based on the firm's performance. The board's inclination to obtain this signal is, in turn, a function of its independence from the CEO. When the CEO has bargaining power—specifically, when the CEO has demonstrated that he performs exceptionally well—the board's independence declines. On the other hand, poor firm performance reduces a CEO's perceived ability increasing the likelihood that the board will replace him.

related to performance.[23] For instance, Minton *et al*. (2010), Fernandes and Fich (2009), and Adams and Mehran (2012) do not find a positive association between board independence and firm performance, while Aebi *et al*. (2012) find that the coefficient of the percentage of independent outside directors on the board of directors is even negative, although it is only significant in some regressions. An exception is the study by Cornett *et al*. (2010b) who investigate the relation between several corporate governance mechanisms and bank performance in the crisis in a sample of approximately 300 publicly traded US banks. They find that a more independent board is positively related to banks' performance during the crisis, while de Andres and Vallelado (2008) report a hump-shaped relationship between board independence and performance.

Erkens *et al*. (2012) investigate the relation between corporate governance and performance of financial firms during 2007-2008 using an international sample of 296 financial firms from 30 countries. In line with the findings of Beltratti and Stulz (2012), these authors report that firms with more independent boards experienced worse stock returns during the crisis. This is not caused by higher risk-taking, as board independence is not related to the expected default frequency and stock return volatility.[24]

There is, in fact, some evidence that board independence is negatively related to risk-taking. For instance, in his study on 212 large US BHCs over 1997–2004 period, Pathan (2009) reports that the coefficient of his proxy for board independence (i.e., the percentage of the total number of directors who are independent) is negative and statistically significantly related to all bank risk measures used, except for one. Similar results are reported by Minton *et al*. (2010). Likewise, Faleye and Krishnan (2010) find that board independence reduces riskiness measured as the borrower's long-term S&P credit rating and the inclusion of financial covenants in loan contracts, but it is not related to the bank's decision to diversify its lending risk through syndication.

An important issue when it comes to the effectiveness of external directors is their role. Yeh *et al*. (2011) examine whether the performance during the recent financial crisis is better for financial institutions with more independent directors on their board committees. Using data on financial institutions from the G8 countries, their results suggest that independence in auditing and risk committees helps in improving crisis performance. This effect is particularly significant for civil law countries, which are characterized by poor

[23] The two studies examining efficiency (Hardwick *et al*., 2011 and Wang *et al*., 2012) yield mixed results. Pi and Timme (1993) find that banks' performance in terms of cost efficiency and return on assets is unrelated with the proportion of outside directors.

[24] Instead, the authors argue that firms with more independent boards raised more equity capital, which led to a wealth transfer from shareholders to debtholders. The association between stock returns and board independence becomes insignificant once firms that raised equity capital during the crisis are excluded from the sample.

shareholder protection practices. In addition, these authors find that committee independence is related to better performance for those financial institutions having more excessive risk-taking behaviors.

Especially the role of external directors in risk management seems to be important. According to Mongiardino and Plath (2010), risk governance requires (1) a dedicated board-level risk committee, of which (2) a majority should be independent, and (3) that the CRO should be part of the bank's executive board. Based on a survey among 20 large banks, they find that only a small number of banks followed these guidelines in 2007. Most risk committees were not comprised of enough independent and financially knowledgeable members (see also Hau and Thum, 2009).

Ellul and Yerramilli (2012) investigate whether a strong and independent risk management is significantly related to bank risk-taking and performance in a sample of 74 large US BHCs over the period 1995 to 2010. They construct a Risk Management Index (RMI), which is based on five variables related to the strength of a bank's risk management. Their findings indicate that banks with a high RMI value in 2006 were less risky and performed better (lower tail risk, lower non-performing loans) while they also had better operating and stock return performance during the financial crisis years. Similarly, Aebi *et al*. (2012) find that banks in which the CRO reports directly to the board of directors performed significantly better in the credit crisis.

3.3 Diversity

Several countries promote board diversity. For instance, in Norway all listed companies must abide by a 40 percent gender quota for female directors since January 2008.[25] Diversity can have positive effects on group performance since it endows a group with flexibility, which can be valuable if the group's tasks change or become more complex (Hall, 1971). In addition, if individual private information is valuable and is not fully correlated across board members, it would thus seem that a more diverse board would collectively possess more information and therefore would have the potential to make better decisions.

In the organizational psychology literature, diversity has been widely debated. It is possible to distinguish between task-related diversity, such as education or functional background, and non task-related diversity, such as gender, age, race, or nationality. There are many studies on the relationship between (various types of) diversity and performance. If

[25] Using data of all non-financial firms listed on the Oslo Stock Exchange at year-end over the period 1989–2002, Bohren and Strom (2010) report that a firm creates more value for its owners when its directors have strong links to other boards and when gender diversity is low.

anything, the effect of diversity is complex and depends on context. On the basis of a meta-analysis, Webber and Donahue (2001) find no support for a relationship between various types of diversity and group cohesion or board performance. Likewise, Mathieu *et al*. (2008) conclude that most studies suggest that diversity—along various dimensions—is not positively related to board performance.

A recent line of literature has tried to rationalize potential negative effects of demographic diversity drawing on the notion of 'faultlines' (Lau and Murnighan, 1998). Faultlines divide a group on the basis of one or more characteristics, such as gender, age or race. Faultlines increase the likelihood of subgroup formation and conflict, which may reduce board effectiveness. Demographic faultlines are likely to be associated with in-group/out-group stereotyping (Li and Hambrick, 2005), which, in turn, can be expected to have disruptive consequences for board decision-making processes. Veltrop *et al.* (2012) argue that board members may not be independent actors, but representatives of stakeholder factions (like representatives of employers and employees in pension fund boards). When diversity aligns with such representative affiliations, diversity is likely to lead to social categorization processes, rather than informational differences in perspectives, making boards more susceptible to disruptive influences. Using data on 313 Dutch pension fund boards, they find that demographic factional faultlines are positively related to competitive conflict management and negatively related to cooperative conflict management.

Several studies focus on gender diversity, examining whether a stronger presence of women in the board affect board effectiveness and firm performance. A good example is the study by Nielsen and Huse (2010) on which we draw here. The literature on gender-based differences asserts that women and men are different in their leadership behaviour and these differences may affect board functioning. Nielsen and Huse (2010) argue that the impact of female board members depends on the nature of the tasks performed: the ratio of female directors has a positive direct relationship with board strategic control but no direct relationship with board operational control in their research among Norwegian firms. They also find that boards with high ratios of women are more likely to use board development activities and are less likely to have conflicts. Likewise, Adams and Ferreira (2009) provide evidence that boardroom gender diversity improves several important aspects of board behavior in their sample of 1939 US firms over the period 1996-2003, such as director attendance at board meetings. They also find evidence that more diverse boards are more likely to hold CEOs accountable for poor stock price performance as CEO turnover is more sensitive to stock return performance in firms with relatively more women on boards, suggesting that gender-diverse boards are tougher monitors. However, their results also

suggest that, on average, firms perform worse (based on Tobin's Q) the greater is the gender diversity of the board. The explanation given is that gender diversity only is beneficial when additional board monitoring would enhance firm value. Consistent with this view, Adams and Ferreira (2009) find that gender diversity has beneficial effects in companies with weak shareholder rights, but detrimental effects in companies with strong shareholder rights. The studies referred to above do not specifically focus on financial firms. The only studies that we are aware of focusing on the impact of gender diversity on financial firm performance are Muller-Kahle and Lewellyn (2011) and Berger *et al.* (2012b). These studies report opposing views: while the former finds that firms with more gender-diverse boards were less involved in sub-prime lending, the latter finds that a higher proportion of female board members is associated with an increase in risk-taking.

3.4 Split of the roles of the chairman and the CEO

CEO duality represents a situation in which the CEO (or an executive director) of a firm is also the chairman of the board of directors. The main disadvantages of CEO duality identified in the literature come from (a) the negative impact on board's monitoring activity (Jensen 1993; Lasfer 2006), and (b) increased managerial power to influence board decisions.[26] For instance, CEOs who also retain the position of chairman will tend to have a greater influence over the selection of board members than might otherwise be the case. In addition, they may try to appoint non-executive directors who are unlikely to question proposals and business decisions. The merging of the CEO/chairman positions could further restrict the dissemination of information to other board members (Hardwick *et al*., 2011).

On the other hand, a combined role of CEO and chairman may provide a single focal point for company leadership projecting a clear sense of direction (Anderson and Anthony, 1986). CEO duality may create stability for a firm (by reducing the likelihood of conflict between management and the board of directors) and thereby improve performance (Stoeberl and Sherony, 1985).

Recently, Dey *et al*. (2011) examined both views, to which they refer as the entrenchment theory (duality leads to increased agency costs since the board's ability to monitor the CEO is reduced) and the efficiency theory (board leadership is a response to the economic environment of the firm and its leadership requirements). Their analysis focuses on 281 firms that switched their leadership structure either away from or to a dual structure over

[26] There is some supporting evidence for this. For example, Franks *et al.* (2001) report that for non-financial firms the disciplinary role of UK boards increases when the roles of the CEO and the chairman are split and when the chairman is a non-executive director.

the period 2001 through 2009. Their results are generally consistent with efficiency-based explanations of board leadership choices.

Several studies on financial firms surveyed here also address the issue of the impact of CEO duality on risk-taking. Grove *et al.* (2011) show that CEO duality is negatively associated with bank performance and loan quality. Similarly, Faleye and Krishnan (2010) find that the probability of lending to high-risk borrowers increases with CEO-chair duality. However, the results of Pathan (2009) suggest that CEO duality may reduce bank risk. He finds that the coefficient of CEO power (measuring CEO's ability to control board decisions including CEO duality) is negative across all bank risk measures used and statistically significant in most regressions. Similarly, Simpson and Gleason (1999) find in their sample of 287 banks over the period 1989-1993 a lower probability of financial distress when the chairman of the board is also the CEO.

In their study on 112 US banks over the period 1987-1990, Pi and Timme (1993) show that during the late 1980s banks with non-duality outperformed banks with CEO duality in terms of cost efficiency and return on assets. Larcker *et al.* (2007) investigate a sample of 2106 financial and non-financial firms between 2002 and 2003 and use principal component analysis to develop 14 multi-indicator indices from 39 individual governance indicators, including CEO duality. CEO duality has a negative impact on performance. Wang *et al.* (2012) report a negative impact of CEO duality on efficiency.

In contrast, Aebi *et al.* (2012) do not find that CEO duality affects buy-and-hold returns in their sample of US banks. Berger *et al.* (2012a) examine the role of management structures in bank defaults during the recent financial crisis of 2007-2010. Distinguishing between 249 bank failures and 4021 non-default US commercial banks, they do not find that CEO duality influences bank default probabilities.

Hardwick *et al.* (2011) consider the interaction of CEO duality and other corporate governance characteristics, arguing that very often more than one control mechanism may suffice for the same purpose. For example, both non-executive directors and audit committees might be used simultaneously to control agency costs. Their evidence lends support to this view. The separation of the CEO and board chairman positions is found to have little effect on profit efficiency in their sample of UK life insurance companies. However, when there is no audit committee and there is a high level of non-executive directors, the separation of the CEO and board chairman positions appears to have a positive and marginally significant effect on profit efficiency.

4. Ownership

Ownership structures might influence the governance process and bank performance. Many countries have banking sectors with a mixture of ownership structures, such as private ownership, public ownership and mutual ownership (i.e., cooperative banks). In this section we will discuss existing research on the role played by insiders vs. outsiders and how they can affect bank performance, as well as the impact of government ownership in the banking industry.[27]

Private ownership

Evidence of Caprio *et al*. (2007) shows that on average banks are not widely held: 75 percent of the largest 244 banks across 44 countries around the world have a dominant shareholder with more than 10 percent of voting rights. Differences across regions exist though. At one extreme, in Canada, Ireland and the US more than 90 percent of the banks are widely held. At the other extreme, in 21 countries (including Austria, Finland, the Netherlands, and Sweden) there is not a single large bank that is widely held.

As pointed out in Section 2, concentrated ownership may overcome several agency problems. Some older studies lend support to this view. For instance, using a large sample of 1406 US BHCs in 1975 and 1976 Glassman and Rhoades (1980) document a positive and significant impact of concentrated ownership on profit, while Cole and Mehran (1998) provide evidence that firms in the thrift industry have higher stock returns if they have large shareholders.

However, more recent studies do not provide much support that concentrated ownership matters. For instance, Grove *et al*. (2011) only find a weak association between concentrated ownership and bank performance. Similarly, Aebi *et al.* (2012) find that large shareholders, such as institutional investors, do not seem to be able to provide effective monitoring with respect to the risks taken by banks, and as a consequence, to increase banks' performance. Erkens *et al.* (2012) show that financial firms with greater institutional ownership took more risk before the crisis and subsequently suffered larger losses over the period 2007-2008. Similar findings are reported by Beltratti and Stulz (2012). They document a strong relation between concentrated ownership and bank risk-taking during the recent mortgage crisis in US.

[27] We abstract here from the issue of foreign vs. domestic bank ownership. There is a growing literature assessing the costs and benefits of foreign bank ownership. For an excellent review we refer to Claessens and Van Horen (2013).

There is evidence suggesting that the impact of concentrated ownership depends on regulation and shareholder protection laws. Laeven and Levine (2009) find that bank risk (proxied by Z-scores) is generally higher in banks that have controlling shareholders with large stakes, but this effect is mitigated by the presence of strong shareholder protection laws. In addition, they report that the impact of regulation on bank risk depends on whether the bank has a large controlling shareholder. Stricter regulation decreases bank risk when a bank is widely held, but increases bank risk when the bank has a large controlling shareholder. Using data of 500 banks from more than 50 countries averaged over 2005–2007, Shezhad *et al*. (2010) report that concentrated ownership significantly reduces a bank's non-performing loans ratio, conditional on supervisory control and shareholders protection rights. Furthermore, ownership concentration improves the capital adequacy ratio conditional on the extent of shareholder protection. Caprio *et al.* (2007) assess the impact of ownership structure of banks and shareholders protection laws on bank valuation using data on 244 banks in 44 countries. They find that ownership structure is an important mechanism for governing banks as larger cash flow rights by the controlling owner boost valuation. Furthermore, they show that large cash flow rights can reduce the impact of legal protection on valuations.

Another issue researched with respect to ownership is the role of inside (i.e., CEO and directors) ownership. Booth *et al*. (2002) and Adams and Mehran (2003) report that CEO ownership in their sample of US BHCs is less than CEO ownership in manufacturing firms. They argue that such differences might be the result of regulation and of different investment strategies of the two types of firms, which ultimately affect the CEOs incentives structures.

Table 3 summarizes recent research on the relation between ownership of insiders and financial firm performance, highlighting the diverging views on this relationship. On the one hand, equity ownership may provide important incentives to bank CEOs to maximize bank value and limit the bank's risk exposure (Aebi *et al*., 2012). There is evidence that higher inside ownership reduces bank risk-taking. Chen et al. (1998) argue that as managerial ownership increases, the level of risk-taking decreases. Lee (2002) uses a sample of 65 US BHCs over the period 1987-1996 and finds evidence for a negative relationship between risk and shareholding of managers at banks with low probability of failure. Spong and Sullivan (2007) and Sullivan and Spong (2007) find evidence for an inverted U-shaped impact on US banks' performance. They use a sample of state-chartered banks in the Kansas City Federal Reserve District which allows them to distinguish between owner-controlled banks and banks with a hired manager. Similar evidence of a nonlinear relationship between different measures of efficiency and inside ownership are reported by DeYoung *et al*. (2001) in their sample of 266 small US banks over the years 1991-1994, and by Brewer and Saidenberg (1996) and

Cebenoyan *et al.* (1999) in their samples of publicly traded saving institutions over the period 1985-1989, and 1986-1995, respectively.

On the other hand, Jensen (1993) and Hermalin and Weisbach (1998) argue that CEO ownership may enable CEOs controlling the composition of the board and lessening its monitoring role. Indeed, for a sample of 1583 UK non-financial companies in 1996-97 Lasfer (2006) finds that managers use their ownership power to select a board that is unlikely to monitor. Firms that exhibit high managerial ownership are less likely to have an independent board, to separate the roles of the CEO and the chairman, and to appoint a non-executive director as a chairman. The opaque and complex nature of banking business increases the information asymmetries at banking firms and makes it easier for insiders to exploit outside investors, thus higher insider representation arguably worsens agency problems in banks (Grove *et al.*, 2011) and reduces firm value (Gorton and Rosen, 1995). There is some evidence that owner-controlled banks in the US take more risk than banks with diffused shareholding or banks controlled by managers with small shareholdings (Knopf and Teall, 1996). Similar findings are reported by Saunders *et al.* (1990), Anderson and Fraser (2000), Pathan (2009), Demsetz *et al.* (1997), and Pi and Timme (1993).

However, some other studies conclude that inside ownership is not correlated with firm's riskiness. Simpson and Gleason (1999) find in their sample of 287 banks over the period 1989-1993 that insiders' ownership does not affect the probability of financial distress. Similarly, using a sample of financial firms over the period 1990-2008, Cheng *et al.* (2012) report that inside ownership has little relationship with risk measures such as beta, return volatility or exposure to ABX.

Some recent studies examine the role of insider ownership during the financial crisis of 2007-2010. Berger *et al.* (2012a) report that high shareholdings of outside directors and chief officers, such as the CEO, imply a substantially lower probability of failure. In contrast, high shareholdings of lower-level management, such as vice presidents, increase default risk significantly. Fahlenbrach and Stulz (2011) find that banks which provide stronger incentives to CEOs performed worse during the crisis. Moreover, their results indicate that bank CEOs did not reduce their stock holdings in anticipation of the crisis, and that CEOs did not hedge their holdings. This suggests that banks CEOs did not anticipate the crisis and the resulting poor performance of their banks as they suffered huge losses themselves.

A potential explanation for the rather diverging results of the studies examining the impact of management and directors ownership on banks' performance and risk-taking is the interaction between ownership structure and banks' strategies. Westman (2011) finds that management ownership has a positive impact on profitability of non-traditional banks (i.e.,

main activities are securities trading, wealth management, and underwriting), while directors' ownership has a similar effect in traditional banks (i.e., main activities are deposit taking and loan granting). Her sample includes 867 bank-years for 477 European banks over 2000–2006. Also Gropp and Kohler (2010) show in a cross-country study that savings banks suffered larger losses during the crisis than cooperative or mutual banks.

Another possible explanation for the mixed evidence, as suggested previously in Section 3, is the endogeneity of ownership structure. Demsetz and Lehn (1985) argue that the extent to which a bank is exposed to risks will affect its ownership structure of the bank. As a result, greater concentration of ownership is desirable when management actions are harder to monitor and control.

Finally, a few recent studies examine whether institutional shareholding is significantly related to bank risk-taking and performance. The evidence is again not conclusive. On the one hand, Cheng *et al.* (2012) report a positive association between institutional ownership and risk-taking by banks in years before 2008. Likewise, using a data set of 249 European banks for 1999-2005, Barry *et al.* (2011) show that larger institutional ownership is associated with an increase in risk-taking strategies at privately held banks. However, for publicly traded banks, risk-taking is unaffected by ownership structure. On the other hand, Knopf and Teall (1996) and Cebenoyan *et al.* (1999) find that the presence of large institutional shareholders is negatively related with risk-taking in the thrift industry during the late 1980s. Similarly, Ellul and Yerramilli (2012) find in their sample of 74 large BHCs that banks with higher institutional ownership take less risk as measured by their Risk Management Index (RMI). However, in the presence of deposit insurance, the effect reverses, and a positive correlation between tail risk and institutional ownership is documented.

Government ownership

Caprio *et al*. (2007) and La Porta *et al.* (2002a) show that government ownership of banks was important in many countries even before the financial crisis. The fall-out of the financial crisis has led to an increase in government-owned financial firms (at least temporary), hence it is important to understand whether government ownership matters for bank behaviour and whether state-owned banks perform differently than private or mutual banks.

Most research on government ownership focuses on developing nations and nearly always finds unfavorable effects (see Barth *et al*., 2004; Beck *et al.*, 2004; Berger *et al.*, 2004; Micco *et al.*, 2007; Jia, 2009; Cornett *et al.*, 2010a). State-owned institutions have relatively low efficiency and high non-performing loans, with evidence from the credit crisis of 2007 supporting this view (see Hau and Thum, 2009, for an analysis of losses at German

Landesbanken). Likewise, large market shares for state-owned banks are associated with reduced access to credit, diminished financial system development, slow economic growth, and instability (La Porta *et al.*, 2002a). Berger *et al*. (2005) test for the effects of ownership on bank performance using data from Argentina from 1993 to 1999. They find that state-owned banks tend to have poorer long-term performance on average than domestically owned banks or foreign owned banks. Most striking are the very high non-performing loan ratios for state-owned banks. They also examine the dynamic effects of bank privatization and report better performance post-privatization. The beneficial effects of privatization on bank performance are documented for both emerging and transition economies (Beck *et al.*, 2005; Bonin *et al.*, 2005; Haber, 2005; Nguyen and Williams, 2005), as well as for developed economies (Verbrugge *et al.*, 2000).[28]

Some studies have examined government ownership of European banks. Iannotta *et al.* (2007) find that government-owned banks are less profitable than private-sector banks. They reach this conclusion by investigating the impact of different ownership structures on bank performance in a sample of 181 large European banks from 15 countries, over the period 1999-2004. Previously, Altunbas *et al.* (2001) found little evidence that state-owned banks perform less efficiently than private or cooperative banks. Using a sample of 1,195 commercial banks, 2,858 public savings banks, and 3,456 mutual cooperative bans from Germany over 1989-1996, they compare cost and profit characteristics of different bank ownership forms and conclude that private and mutual banks do not significantly outperform state-owned banks.

Interestingly, Shen *et al.* (2013) argue that the impact of government ownership depends on the type of acquisitions the government-owned banks engage in. These authors compare the performance of government-owned banks which were required to purchase other distressed banks (due to political pressure), with the performance of government-owned banks which acquired non-distressed banks or did no acquisitions. Their sample includes 329 government banks from 100 countries over 1993-2007. They find that only government-owned banks that were forced to acquire distressed banks underperform private banks, while the other two types of government-owned banks perform as well as private banks.

Finally, Borisova *et al*. (2012) examine the impact of government ownership on corporate governance using a sample of 373 companies (including banks) from 14 European Union countries during the period 2003–2008 of which 113 are government owned. They find that government ownership is associated with lower governance quality—proxied by

[28] Megginson (2005) and Clarke *et al.* (2003) provide surveys of the literature on the effects of bank privatization.

RiskMetrics' Corporate Governance Quotient (CGQ), which incorporates the most widely used corporate governance proxies—in civil law countries, but that it is positively related to governance quality in common law countries.

5. Remuneration of executives

After the recent financial crisis, remuneration practices in banks (and in particular remuneration focused on short-term objectives) attracted much interest. One reason is the alleged role played by financial incentives for bank managers in risk-taking.[29] Arguably, managers receiving an income that is depended on firm performance will have different risk-taking attitudes than managers for whom salary is the only (or the main) form of compensation (Devriese *et al.*, 2004). From a regulatory perspective, the underlying concern is that both the level and the structure of executive pay may enhance the risk-taking of banks and affect financial stability.

Arguably, managers who receive a significant part of their compensation based on short-term performance are more likely to pursue riskier investment strategies and to increase bank's leverage, since this will increase share prices (a common metric for performance measurement). Also Peng and Röell (2008) and Bebchuck and Spaman (2010) argue that stock-based compensation causes executives to focus on the short-term stock price developments.[30] Mehran (1992) documents a positive relationship between the firm's leverage and the executives' compensation in incentive schemes. Based on data for 143 BHCs from 1993 till 2007, John *et al.* (2010) show that pay-for-performance sensitivity of bank CEO compensation is negatively related to the leverage ratio and positively related to monitoring intensity by a bank supervisor and subordinated debt holders.

On the other hand, performance-based compensation linked to long-term stock performance might be a viable mechanism to mitigate agency problems by better aligning managers' and shareholders' interests. Nevertheless, as argued by Bebchuk and Spamann (2010), executive remuneration that is favoured by shareholders might diverge from the one favoured by the supervisory authorities. This divergence is caused by the profit-driven interests of shareholders, which do not necessarily coincide with financial stability concerns of supervisors.

[29] Still, evidence suggests that the total compensation paid to banks' executives was not significantly higher than for non-financial firms' executives over the period 1994-2006 (Gregg *et al.*, 2012; DeYoung *et al.*, 2013). Also, combining short- and long-term executive pay at financial institutions, Gopalan *et al.* (2013) argue that total executive compensation in financial sector is more long-term oriented (as proxied by the duration) than in other industries, being above median across 48 different economic sectors.

[30] See Bebchuck and Fried (2003, 2004, 2005, 2009) for discussions on the key features of performance-based compensation schemes that incentivized firms' executives to take excessive risk.

There is some evidence that higher (potential) compensation in financial firms is associated with higher risks (Adams and Mehran, 2003).[31] For instance, Bebchuck *et al.* (2010) show that compensation for top executives at Bear Stearns and Lehman promoted excessive risk-taking during the 2000-2008 period. Cheng *et al*. (2012) use data on executive compensation for financial firms from 1990-2008 and find that those offering higher aggregate compensation are riskier. Gropp and Kohler (2010) show that in their sample consisting of 1,100 banks from 25 OECD countries from 2000-2008, aligning the interests of managers and shareholders increases risk-taking of banks.

However, there is also some evidence that there is no clear association between remuneration of executives in financial institutions and their risk-taking. Grove *et al* (2011) show that in their sample of 236 US commercial banks, the impact of executive remuneration on banks' financial performance and loan quality is mixed. There is a positive association in short-term (over a period of one or two years), but the association becomes negative for longer horizons (more than three years).

Also the type of compensation may play a role. The risk-taking incentives of executives may be exacerbated if they receive options on bank's equity as compensation instead of shares.[32] DeYoung *et al.* (2013) show that before the onset of the financial crisis (2000-2006), US banks' CEO compensation was changed to encourage executives to exploit new growth opportunities created by deregulation and debt securitization. Subsequently CEOs took more risk. These authors measure CEOs' incentives using two proxies: pay-performance sensitivity (delta) which is the change in CEO's wealth with respect to changes in bank's stock price, and pay-risk sensitivity (vega) which is the change in CEO's wealth with respect to changes in stock return volatility. The former is associated with stock grants, and the latter is associated with stock options grants. The authors show that there is a strong relation between bank's income generated by non-traditional banking activities (i.e., risk-enhancing activities), and the size of vega-type compensation. Likewise, Mehran and Rosenberg (2008) and Chesney *et al.* (2010) document a significant impact of pay-risk sensitivity on risk-taking (as proxied by standard deviations of stock returns and writedowns, respectively). However, Erkens *et al.* (2012) find that the worst performers during the financial crisis were not those financial firms that used equity-type compensation (i.e., restricted shares or stock options) for

[31] Minnick *et al.* (2011) and Hagendorff and Vallascas (2011) analyze how the structure of executive compensation affects the risk choices made by bank CEOs in mergers. Minnick *et al.* (2011) find a positive association between pay-for-performance compensation and operating performance in their sample of US banks' mergers from 1991-2005. For a sample of 172 acquiring US banks, Hagendorff and Vallascas (2011) find that CEOs with higher pay-risk sensitivity engage in risk-inducing mergers. As a result, banks mergers are less likely to reduce default risk.

[32] Chen *et al.* (2006) argue that this problem might be more acute in banking industry since stock option-based compensation is more prevalent at banks than at non-financial firms.

their CEOs, but those offering non-equity schemes (i.e., cash bonuses based on annual profit targets). Similarly, Fahlenbrach and Stulz (2011) argue that CEOs' option compensation and cash bonuses are unrelated to bank performance during the financial crisis.

While the evidence on the impact of stock options grants in CEOs compensation packages on risk-taking and performance is mixed, the impact of delta-type compensation is muted. Houston and James (1995) investigate 134 banks over the period 1980-1990 and conclude that executive equity-based compensation is not related with bank risk. Similar findings are reported by John and Qian (2003) and Mehran and Rosenberg (2008).

Evans *et al.* (1997) examine the impact of golden parachutes on banks' performance using a sample of 241 US BHCs during the period prior to 1994. They show that golden parachutes for bank managers are associated with poor performance and are also positively related to the likelihood of failure. Likewise, Faleye and Krishnan (2010) find that the presence of a golden parachute in the CEO's compensation contract increases the likelihood of risky lending.

Other recent studies show that debt-like compensation can be an efficient mechanism for mitigating excessive risk-taking by bank managers. Bebchuck and Spaman (2010) and Bolton *et al.* (2011) argue that giving managers either straight debt or deferred compensation, or linking their compensation to default risk (as proxied by the CDS spread) may align management objectives with social objectives in terms of risk choice (see also Edmans and Liu, 2011 for a theoretical argument).

Finally, there are a few recent studies focusing on the importance and remuneration of chief risk officer (CRO) as opposed to the CEO within banks. These studies use different indicators of the relative power of CRO within a bank. They either look at specific features of the risk-management mechanism and investigate whether the CRO reports to the CEO or directly to the board of directors (Aebi *et al.*, 2012; Ellul and Yerramilli, 2012), or measure the CRO centrality, defined as the ratio of CRO's total compensation to CEO's total compensation (Keys *et al.*, 2009; Ellul and Yerramilli, 2012). These studies find that banks with relatively powerful risk managers make better loans as measured by the default rates on their portfolio (Keys *et al.*, 2009), have lower tail risk and higher annual stock returns during the crisis (Aebi *et al.*, 2011; Ellul and Yerramilli, 2012), and take less risks—proxied by the size of banks' trading books, the amount of derivatives on the balance sheets, and volatility of banks' share prices (Kashyap, 2010). These findings complement the evidence on CEO centrality (Bebchuck *et al.*, 2007), which suggest that higher relative importance of CEO with respect to other top executives is associated with lower firm valuation (proxied by industry-adjusted Tobin's Q), lower accounting profitability, and quality of acquisitions.

6. Conclusions

Financial firms, notably banks, are different from non-financial firms. These differences are largely caused by a) regulation, b) the capital structure of banks (i.e., funding through deposits and high leverage), and c) the complexity and opacity of their business and structure. The traditional corporate governance approach focusing on the interests of shareholders is therefore insufficient, since it largely neglects these features which distinguish banks from non-financial firms. Valuation should not be the sole metric to assess the performance of banks, but risk of failure (and associated social costs) and contribution to systemic risk should be also considered (see also Laeven, 2012). Unfortunately, most empirical research on corporate governance of banks sticks to the traditional corporate governance approach, ignoring the interests of other stakeholders. In addition, most studies covered here use observable data (largely from the US where data is more abundant), hence their findings are limited mainly to listed companies.

Having said that, the research surveyed here suggests that some of the empirical regularities found in the literature on corporate governance of non-financial institutions (e.g., the positive (negative) association between board independence (size) and performance) do not hold for banks. Several recent studies conclude that board independence is not positively related to bank performance in banking industry. Likewise, quite a few recent studies conclude that board size is positively related to the performance of banks. Informational asymmetries are more pronounced for banks (and financial firms in general) than for non-financial firms due to their opacity and complexity. This suggests that expertise of directors may be more important in the financial industry, but the results of studies surveyed here yield very mixed findings for the relationship between expertise and financial performance.

Ownership and remuneration structures, standard corporate governance mechanisms, may mitigate agency problems and may affect bankers' incentives for excessive risk-taking. Our review highlights the conflicting results from the empirical literature on a) the role played by different corporate governance mechanisms such as outside and inside ownership, and b) the relation between managerial compensation and banks' risk-taking.

With respect to the former, there is evidence for both a positive, as well as a negative impact of concentrated ownership on performance. An explanation for this divergence is that the documented risk-taking behavior of banks results from the interaction between regulation and ownership structure, which is often not taken into account. When concentrated ownership takes the form of government control, the existing research generally finds a negative impact on governance quality and banks' performance.

With respect to the latter, our review suggests that a special attention should be given to the role played by compensation and ownership of insiders (and the interaction between the two) on risk-taking incentives. The empirical literature again reports mixed results as to the question of whether CEO compensation and ownership promote excessive risk-taking. Some studies report that higher compensation, and in particular stock option compensation and other pay-for-performance schemes focused on short-term objectives, lead to higher risks. Other studies find different results, identifying the positive impact that management ownership has on banks' performance and highlighting the benefits of contingent compensation focused on shares distribution instead of options. This divergence in views suggests that a better understanding of incentives structure and the alignment of the interests of the executive management and shareholders (and other stakeholders) is warranted.

In view of the differences between financial firms and non-financial firms, it should not come as a surprise that the 'optimal corporate governance' of banks is different, even from a traditional corporate governance perspective. Our review has shown that there is clearly no consensus in the literature on the role of different corporate governance mechanisms. There are at least three explanations for this. First, one important reason suggested by several studies surveyed here is the time period covered, notably whether or not the crisis period is included. Banks taking high risks may outperform the more prudent ones before the crisis, while they underperform during the crisis. Second, the interdependence of different dimensions of corporate governance is largely ignored. Since the effectiveness of one dimension may be conditioned by another dimension, is of great importance not to assess the role of each mechanism in isolation. Finally, if banks from different countries are included, differences in national regulations and governance systems may also play a role in explaining differences between studies as there is substantive evidence that corporate governance of banks and financial regulation and national governance interact. Further research is thus necessary to establish whether the above explanations (and in particular the interactions between different dimensions of corporate governance) are indeed the main drivers for the mixed results we have documented. In addition, future work needs to examine the effects of other (non-traditional) governance mechanisms, such as the impact of governance of large shareholders (if they are companies and not individuals), or the role played by large creditors in disciplining bank management.

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Table 1. Recent studies on board size and expertise of financial firms and their performance

Study:	Firms:	Sample:	Measure used:	Dependent variable:	Result:
Board size					
de Andres and Vallelado (2008)	69 large banks from 6 countries	1995-2005	Number of directors	Tobin's Q, ROA, shareholder market return	Inverted U-shaped relation between board size and performance
Pathan (2009)	212 large US bank holding companies (BHCs)	1997–2004	Number of directors	Total risk, idisosyncratic risk, systematic risk, assets return risk, Z-score	Negative
Minton *et al.* (2010)	US publicly-traded financial institutions with total assets greater than $1 billion	2007-2008 2003-2006/08	Number of directors	Stock returns, Tobin's Q, propability of receiving TARP money Several risk indicators	Only significantly positive in model for TARP (but not for sample of large banks) Before crisis there is a negative relationship between size and risk (st. dev. stock returns).
Faleye and Krishnan (2010)	317 bank-years for 51 US banks	1994-2006	Number of directors	Borrower's long-term S&P credit rating, the inclusion of financial covenants in loan contracts, and the bank's decision to diversify its lending risk through syndication	Banks with smaller boards provide fewer junk loans and are less likely to underwrite speculative loans. The inclusion of financial covenants is not related to board size.
Hardwick *et al.* (2011)	UK life insurance firms	1994-2004	Number directors and its square	Profit efficiency	Not significant
Grove *et al.* (2011)	236 US banks	2005-2008	Factor of variables covering size, including number of directors	ROA, future excess return, non-performing assets ratio	Inverted U-shaped relation between board size and ROA; not significant for other variables
Muller-Kahle and Lewellyn (2011)	Matched-pair sample of firms in the financial industry	1997–2005	Number of directors	Dichotomous variable which takes a value of 1 if the firm is Subprime Specialist List and 0 otherwise	Not significant
Adams (2012)	89 US banks	2008-2009	Number of directors	Propability of receiving TARP money	Positive

Adams and Mehran (2012)	35 US BHCs	1964-85	(Log of) number of directors	Tobin's Q	Positive
Aebi *et al*. (2012)	372 US banks	July 1, 2007, to December 31, 2008	Log of number of directors	Buy-and-hold returns and ROE	Positive
Beltratti and Stulz (2012)	International sample of 164 large (i.e. more than $50 billion of assets)	July 2007 – December 2008)	Board attributes collected by Institutional Shareholder Services (ISS) including size	Buy-and-hold returns	Banks with more shareholder-friendly boards (i.e. low size) had lower buy-and-hold returns during the crisis.
Erkens *et al.* (2012)	296 large (total assets greater than US $10 billion) financial firms (including non-banks) across 30 countries	2007.I-2008.III	(Log of) number of directors	Buy-and-hold returns	Insignificant
Wang *et al.* (2012)	68 US BHCs	2007	Number of directors	Efficiency index based on CAMEL indicators	Negative relationship between board size and efficiency
Berger *et al.* (2012a)	85 default and 243 no default US commercial banks	2007.I-2010.III	Log of board size	Propability of default	Not significant
Board expertise					
Fernandes and Fich (2009)	398 US banks	January 2007-December 2008	Financial expertise of outside directors (years of experience at end of 2006)	Stock performance Likelihood of bank failure Amount of TARP money	Positive (only during crisis, not before) Negative Negative
Hau and Thum (2009)	592 supervisory board members in 29 largest German banks	2007.I-2008.III	Management and financial expertise	Bank losses	Higher losses in banks having boards with less financial experise
Cuñat and Garicano (2010)	Spanish *cajas*	2007-2009	Background of chairmen (education, experience, political ties)	Loan losses, rating changes and the composition of the loan portfolio	*Cajas* that had chairmen without postgraduate education or chairmen without previous banking experience performed worse

Minton *et al.* (2010)	US publicly-traded financial institutions with total assets greater than $1 billion	2007-2008 2003-2006	Fraction of reported independent directors that are classified as financial experts	Stock returns, Tobin's Q, propability of receiving TARP money Several risk indicators	Negative for performance but not significantly related to probability of receiving TARP money. Positive relationship with risk, notably in pre-crisis period.
Aebi *et al*. (2012)	372 US banks	July 1, 2007, to December 31, 2008	Percentage of directors with financial expertise	Buy-and-hold returns and ROE	Negative, but not always significant
Erkens *et al.* (2012)	296 large (total assets greater than US $10 billion) financial firms (including non-banks) across 30 countries	2007.I-2008.III	Percentage of directors with finance background	Buy-and-hold returns	Insignificant

Table 2. Recent studies on board independence of financial firms and their performance

Study:	Firms:	Sample:	Measure used:	Dependent variable:	Result:
Pi and Timme (1993)	112 US banks	1987-1990	Percentage of outside directors CEO is also the chairman of the board	ROA, Cost efficiency	Not significant Negative
de Andres and Vallelado (2008)	69 large banks from 6 countries	1995-2005	Number of non-executive directors out of the total number of directors	Tobin's Q, ROA, shareholder market return	Inverted U-shaped relation between board independence and performance
Pathan (2009)	212 large US bank holding companies (BHCs)	1997–2004	Percentage of independent directors	Total risk, idisosyncratic risk, systematic risk, assets return risk, Z-score	Negative
Fernandes and Fich (2009)	398 US banks	January 2007-December 2008	Percentage independent directors in the board	Stock performance Likelihood of bank failure Amount of TARP money	Not significant Not significant Not significant
Minton *et al.* (2010)	US publicly-traded financial institutions with total assets greater than $1 billion	2007-2008 2003-2006/08	Percentage of directors that are not employed or affiliated with the firm	Stock returns, Tobin's Q, propability of receiving TARP money Several risk indicators	Not significant for performance, but independence is associated with higher probability of receiving TARP money Negative but not always significant
Faleye and Krishnan (2010)	317 bank-years for 51 US banks	1994-2006	Percentage of independent directors	Borrower's long-term S&P credit rating, the inclusion of financial covenants in loan contracts, and the bank's decision to diversify its lending risk through syndication	Negative
Cornett *et al*. (2010b)	All publicly traded BHCs in the US	2003-2008	Inverse of board size times the ratio of the number of outside directors to the number of affiliated and inside directors	Buy and hold abnormal stock returns (BHAR) and accounting based performance measures	Before the crisis not significantly related to BHAR but positive during the crisis. Increases in board independence are also related to lower declines in accounting based performance measures during the crisis.
Yeh *et al.* (2011)	20 largest financial firms from each G8 country	2005-2008	Proportion of independent directors in committees	Stock return, ROE, ROA	Performance is better for financial institutions with more independent directors on auditing and risk committees particularly in cil law countries and in firms with excessessive risk-taking

Hardwick *et al.* (2011)	UK life insurance firms	1994-2004	Proportion of non-executive directors on the board	Profit efficiency	Significant positive or negative depending on whether there is separation of the CEO and board chairman positions and whether there is an audit committee
Muller-Kahle and Lewelly (2011)	Matched-pair sample of US firms in the financial industry	1997–2005	Ratio of outside to total number of directors	Dichotomous variable which takes a value of 1 if the firm is Subprime Specialist and 0 otherwise	Not significant
Adams and Mehran (2012)	35 US BHCs	1964-85	Fraction of outside directors	Tobin's Q	Not significant
Aebi *et al*. (2012)	372 US banks	July 1, 2007, to December 31, 2008	Percentage of outside directors	Buy-and-hold returns and ROE	Negative but mostly insignificant
Beltratti and Stulz (2012)	International sample of 164 large (i.e. more than $50 billion of assets)	July 2007 – December 2008	Board attributes collected by Institutional Shareholder Services (ISS) including independence	Buy-and-hold returns	Banks with more shareholder-friendly boards (i.e. more independence) had lower buy-and-hold retruns during the crisis.
Erkens *et al.* (2012)	296 large (total assets greater than US $10 billion) financial firms (including non-banks) across 30 countries	Jan. 2007-Sep. 2008 Jan. 2004-Dec. 2006 2007.I-2008.III	Percentage of non-executive directors	Buy-and-hold returns Expected default frequency and stock return volatility Equity raised	Negative Not significant Positive
Wang *et al.* (2012)	68 US BHCs	2007	Number of outside directors over total number of directors	Efficiency index based on CAMEL indicators	Negative
Berger *et al.* (2012a)	85 default and 243 no default US commercial banks	2007.I-2010.III	Number of outside directors in the board	Propability of default	Not significant

Table 3. Recent studies on the relationship between financial firms' CEO ownership and their performance and risk-taking

Study:	Firms:	Sample:	Measure used:	Dependent variable:	Result:
Saunders *et al.* (1990)	38 BHCs in the US	1978-1985	Fraction of stocks held by bank managers	Four capital market risk indicators (total return risk, non-systematic risk, market risk, interest rate risk)	Positive (except for systematic risk for each the relation is not significant)
Pi and Timme (1993)	112 US banks	1987-1990	CEO percentage ownership	ROA and cost efficiency	Negative but marginally significant (in presence of CEO-duality), Positive otherwise
Knopf and Teall (1996)	2082 US thrifts	1986-1992	Percentage of insiders (managers) shareholdings	Five indicators for risk-taking (the log of the 52 week hi-lo stock price ratio, the real estate to total assets ratio, the equity to total assets ratio, brokered CDs to total assets ratio, incidence of bankruptcy or forced resolution)	Positive
Demsetz *et al.* (1997)	350 BHCs in the US	1991-1995	Percentage of shares held by all officers and directors	Annualized standard deviation of stock returns	Positive (stronger relationship for banks with low franchise value)
Simpson and Gleason (1999)	287 banks	1989 and 1993	Percentage of insiders (management, directors) shareholdings	Financial distress indicator	Not significant
Anderson and Fraser (2000)	150 US banks	1987-1994	Percentage of shares held by all officers and directors	Three measures of risk (total, systemic, firm-specific)	Positive (1987-1989), Negative (1992-1994) - except for systematic risk for each the relation is not significant
DeYoung *et al.* (2001)	266 state-chartered US banks	1991-1994	Percentage of total shares held by the bank's managing officer	Relative profit efficiency	Inverted U-shaped relation
Lee (2002)	65 BHCs in the US	1987-1996	Percentage of shares held by all officers and directors	Standard deviation of stock returns	Negative for larger banks with low probability of failure
Spong and Sullivan (2007)	266 state-chartered US banks	1994	The ownership share of owner-manager, the ownership share of the hired manager The manager ratio of bank's investment to personal net worth	Distance to default (lower values suggest more risk-taking)	Negative Positive
Pathan (2009)	212 large US (BHCs)	1997–2004	CEO percentage ownership	Total risk, idisosyncratic risk, Z-score Systematic risk, assets return risk	Positive Not significant

Fahlenbrach and Stultz (2011)	95 US banks	2006-2008	CEO's percentage ownership	Buy-and-hold returns ROA ROE	Negative but not significant Negative Negative
Grove *et al.* (2011)	236 US banks	2005- 2008	Fraction of outstanding shares held by the average outside director Fraction of outstanding shares held by the average affiliated director	ROA, future excess returns, non-performing assets ratio	Not significant Negative (on ROA), Positive (on non-performing loans)
Westman (2011)	477 European banks	2000-2006	Percentage ownership of management and board members	ROE, ROA, Risk-adjusted profitability variables	Positive impact of both management and board ownership, conditional on bank strategies
Cheng *et al.* (2012)	Large sample of US financial firms	1990–2008	Three measures for risk (beta, stock returns volatility, exposure to ABX)	Ratio of insider ownership (top five executives)	Not significant
Aebi *et al*. (2012)	372 US banks	July 1, 2007, to December 31, 2008	Ln(CEO ownership in USD)	Buy-and-hold returns and ROE	Not significant
Berger *et al.* (2012b)	4270 US commercial banks	2007-2010	Percentage shareholdings of different categories of bank management	Bank default probability	Negative (for outside directors' and CEO's ownership) Positive (for lower-level management)

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