Bankers on the Boards of German Firms: What they do, what they are worth, and why they are (still) there[a]

Ingolf Dittmann[b] Ernst Maug[c] Christoph Schneider[d]

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Abstract

In this paper, we analyze the role of bankers on the boards of German non-financial companies. We assemble a unique panel data set for 137 firms and 11 banks for the period from 1993 to 2005 and investigate if bankers act as monitors of their equity interests or their interests as lenders, as capital market experts, or if they help to advance the commercial banking services and the investment banking services of their banks. We find convincing evidence that bankers promote their M&A advisory services, but we find no or little evidence for all other hypotheses that have been formulated in the literature. Our main conclusions are that bankers extract private benefits from their board seats and that banks benefit because bankers on the board become industry experts. Non-financial firms do not benefit because bank representation on their boards reduces their valuations.

JEL classifications: G21, G34

Keywords: Banks, Boards, Corporate Governance, Germany

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[b] Erasmus University Rotterdam, P.O. Box 1738, 3000 DR, Rotterdam, The Netherlands. E-mail: dittmann@few.eur.nl. Tel.: +31 10 408 1283.

[c] University of Mannheim, Chair for Corporate Finance, 68131 Mannheim, Germany. E-mail: maug@bwl.uni-mannheim.de. Tel: +49 621 181 1952.

[d] University of Mannheim, Chair for Corporate Finance, 68131 Mannheim, Germany. E-mail: schneider@bwl.uni-mannheim.de. Tel: +49 621 181 1949.

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Abstract

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1 Introduction

In this paper, we analyze the influence of German banks on non-financial companies for the period from 1993 to 2005. During this period, Germany's financial markets underwent a number of rapid changes. The most significant change for our study was a change in capital gains taxation that became effective in 2002, and which allowed banks to divest their equity holdings without becoming liable capital gains taxes for the first time. As a result, bank equity holdings in non-financial firms vanish almost completely by 2005, whereas board representation declines only moderately. This setting gives rise to a natural experiment, which allows us to investigate a number of hypotheses regarding bank involvement that have been formulated in the literature. We hand-collect a data set of large German firms, which allows us to investigate the direction of causality in the relationship between bank involvement and performance. Our main conclusion is that bank representation on the board helps the banks as well as the bankers, who seem to extract private benefits, whereas non-financial companies suffer through lower valuations.

The relationship between banks and non-financial companies in Germany and Japan has been the subject of continuing debate in the literature.[1] Earlier comparative analyses in the 1980s have focused more on the advantages of the German bank-based system, as it was perceived at the time and emphasized the ability of the German and Japanese banks to provide a longer-term perspective compared to the Anglo-Saxon market based financial system.[2] The more recent literature provides a less favorable perspective and emphasizes the lower quality of governance in civil law countries like Germany. In the intervening period, the gap between both systems has narrowed through institutional changes on both sides of the Atlantic. In Germany, legislators enacted a sequence of laws to enhance corporate governance by outlawing insider trading, increasing disclosure standards, and introducing a new regulator for financial markets. In the US, the repeal of the Glass-Steagall Act in 1999 permitted more German-style universal banks, which reinvigorated the debate about universal banking versus specialist banking. The main argument against universal banking is that banks could try to sell bad equity in order to save their loans given to the same firms. The usual counter argument is that such a behavior would destroy a

1 See Section 2 for a detailed discussion of the literature on this subject.
2 See for example Mayer (1988).

bank's reputation, which is arguably its most valuable asset.[3] However, specialist banking also *creates* conflicts of interest as board-appointed commercial bankers have been shown to be detrimental to firm value.[4] In contrast, the incentives of a universal bank that also owns a stake in the firm, has interests that are much more aligned with those of shareholders. Ultimately, these are empirical questions, some of which we address in this paper.

During the period of our study, equity ownership of banks in non-financial companies in Germany declines by a factor of 10, from 4.1% in 1993 to 0.4% in 2005. During the same period, the number of top 100 firms where bankers are represented on the board declines from 51% to 33%, while the number of board seats held by bankers declines from 9.6% to 5.6%. Most of this shift occurred recently, because capital gains taxation was reformed at the beginning of 2002. Before this date, banks had to pay capital gains taxes on the profits from equity sales, and these were often prohibitive, especially for those equity stakes held for several decades where the tax base had become negligible relative to the valuations of these stocks. This shift provides a unique setting, which allows us to investigate a number of hypotheses developed in the literature for the presence of banks on the boards of non-financial firms:[5]

- Bankers act as monitors, either of their equity interests or of their interests as lenders.
- Bankers are capital markets experts and reduce the frictions associated with external funding.
- Bankers use the relationships to firms in order to sell debt (for commercial bankers) or their advisory services (for investment bankers).

We hand-collect a unique panel data set for all firms that were among the top 100 listed companies in Germany for any year in our sample period. This provides us with a data set for 137 non-financial firms and 11 banks.

The most difficult challenge in this context is to identify the direction of causality. We address the endogeneity problem in several ways: (1) we lag the independent variables in

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3 Kroszner and Rajan (1994) show that there is no evidence that banks fooled U.S. investors before the introduction of the Glass Steagall act in 1933. De Long (1991) and Ramirez (1995) provide evidence that the involvement of bankers in the corporate governance of non-financial firms seemed to have created considerable value for these firms before 1933.

4 See Byrd and Mizruchi (2005) and Güner, Malmendier and Tate (2007). In contrast, Jagannathan and Krishnamurthy (2004) show that investment bankers on the board have a positive effect on firm value in the U.S.

our regressions, so that all right hand side variables are pre-determined; (2) we include the lagged dependent variables; hence, we only analyze the explanatory power of the dependent variables *beyond* the explanatory power included in lagged values of the dependent variable itself; (3) we use panel data estimators to take care of potential fixed effects. Our approach allows us to distinguish between mere correlations and causality (in the sense of Granger, 1969). For example, the negative correlation between Tobin's Q and the presence of bankers on the board that we find can be explained as evidence for the negative influence of bankers, but also as a reflection of the role of banks in supporting and sometimes even rescuing underperforming firms.

We do not find convincing evidence for most of the hypotheses found in the literature. We can exclude that bankers on the board act as monitors, either of their interests as lenders or of their interests as equity-holders, where the latter role largely disappears during our sample period. Also, we cannot find much evidence that bankers are capital market experts who help companies to acquire external finance more easily. However, there is some evidence that bankers become industry experts through their board memberships and that they gear their lending more towards sectors where they hold more board seats. Bankers do not lend more to companies on whose boards they are represented, but they seem to successfully promote their investment banking services, as the selection of M&A advisors is strongly biased towards those banks that are represented on the board. We do find that bankers prefer seats on the boards of those companies where board membership offers more private benefits. Overall, we conclude that the relationships between bankers and non-financial firms offers little benefit to the non-financial firms, whose valuations decline, but some benefits to the banks as well as to the bankers themselves.

The argument proceeds as follows. We provide a literature review and develop our hypotheses in Section 2. Section 3 describes the main features of the relevant institutional framework, the construction of our dataset, and the methods we use. Section 4 discusses the factors that influence the presence of bankers on the supervisory boards of non-financial firms. Section 5 asks what role bankers actually perform on the boards, and Section 6 addresses the question if and how bankers and their banks benefit from their board seats. Section 7 integrates our findings and relates them to the hypotheses developed in Section 2. Section 8 concludes.

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[5] These hypotheses are developed in Section 2 in greater detail.

2 Literature Review and Hypothesis Development

Several mutually non-exclusive hypotheses regarding bank representation have been advanced in the literature.[6] We develop these hypotheses here in detail. In all cases, we distinguish between three questions. First, we want to understand the motivations of banks to seek board representation in non-financial companies. Second, once bankers are represented on the board we want to understand the impact they have on financing and investment decisions. These two questions are clearly linked, but bankers may or may not pursue the agenda they were meant to pursue when they were elected to the board. Finally, we are interested in the link between bank representation on the board and firm value.[7]

The capital markets expertise hypothesis emphasizes the demand side and therefore the characteristics of companies that actively seek bank representation on their boards. According to this hypothesis, bankers are appointed to the boards of non-financial companies as financial experts who help the company to obtain funding. Bankers on the board overcome adverse selection and credit rationing problems so that companies that have a banker on their board should use more bank lending and increase their leverage.[8] The company should then be financially less constrained and investment decisions of firms with a banker on the board should be responsive only to their own investment opportunities.[9] If bankers are experts at pricing debt, then companies that rely more on debt financing should also include more bankers on the board (Booth and Deli, 1999). In terms of consequences for financial policy, increases in leverage should then be accompanied by higher capital expenditure and capital expenditure should be higher for firms with a banker after controlling for investment opportunities. The effect on firm value of a relaxation of financing constraints is unclear, however. The effect is positive if the reduced constraints allow the firm to invest in positive net present value projects, which it would not have been able to finance otherwise. On the other hand, relaxed financing constraints might also allow

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6 Several papers develop several of these hypotheses in detail; see for example the discussion in Kroszner and Strahan (2001), and Byrd and Mizruchi (2005).

7 Güner, Malmendier and Tate (2007) show for the U.S. that commercial bankers on the board of U.S. firms have a negative effect on the firm's future Tobin's Q. For Switzerland, another universal banking country, Tobin's Q is not significantly correlated with the presence of bankers on the board (Loderer and Peyer, 2002).

8 Ramirez (1995), Byrd and Mizruchi (2005), and Güner, Malmendier and Tate (2007) provide evidence for the capital markets expertise hypothesis for U.S. firms, Morck and Nakamura (1999) provide supporting evidence for Japan. Byrd and Mizruchi (2005) list a number of sources that develop the expertise hypothesis (pp. 229-30).

9 This implication is conventionally tested by regressing capital expenditure on a set of variables that measure liquidity and control for investment opportunities, see Fazzari, Hubbard, and Petersen (1988), Hoshi, Kashyap, and Scharfstein (1991).

managers to overinvest or to waste resources. The effect of bank representation on the board on firm value should therefore only be positive if the banker also represents equity interests. The industry expertise hypothesis develops a different perspective on this and argues that bankers may derive industry knowledge from their board seats, which then allows them to condition their lending decisions to firms in that industry more accurately.[10] Note that in our formulation of this hypothesis this knowledge is gained through board seats and then benefits the banks.

Another group of hypotheses emphasizes the supply side and the motivations of bankers to seek representation on the boards of certain companies. First, according to the equity-monitoring hypothesis, bankers on boards simply represent their interests as shareholders, just as any other block owner may do. If this is correct, then we should see that bank representation is closely associated with bank ownership of shares, and that they engage more in underperforming companies with lower valuations, as these companies seem to indicate a stronger need for intervention by the owners.[11] Hence, we should see a negative association between the appointment of a banker and Tobin's Q.[12] Berger, Ofek, and Yermack (1997) argue that entrenched managers tend to have less leverage and that a better representation of the interest of owners should therefore increase leverage. According to this view bankers should increase leverage and if they increase leverage primarily in pursuit of their equity interests, then this increase in leverage should be spread across different sources of borrowing. Similarly, banks as equity investors should press for higher payouts of free cash flows to shareholders, just as much as any other block holder would. If bankers pursue equity interests, then we should observe improving performance and higher future valuations for firms with bank representation on the board.

The German proxy voting rules allow banks to vote the shares of their depositors. Since large fractions of the shares of German companies are deposited with the large banks, this permits banks to elect their own managers to corporate boards independently of their own equity stakes. As a result, banks may use board representation for purposes unrelated to

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10 See Kroszner and Strahan (2001). However, they argue that banks learn through their lending decisions and then provide this knowledge to the companies where they sit on the board.

11 There is some evidence that banks acquire equity stakes as part of a restructuring. Gorton and Schmid (2000) cite a report of the Deutsche Bundesbank that argues "German banks originally acquired part of their shareholdings (…) through 'rescue operations.'" (p. 51). Gilson (1990) documents the relationship between debt restructurings or bankruptcy and banks acquiring equity stakes for the U.S.

12 Kaplan and Minton (1994) and Morck and Nakamura (1999) argue similarly for the case of Japan that poor stock performance increases the likelihood of bankers being appointed to the boards of non-financial companies.

equity interests. In particular, bankers might seek board seats in order to sell debt to the firm (debt selling hypothesis).[13] Related to this, they may wish to better screen credit applications and obtain inside information on the financial status of (potential) borrowers. We would then expect that bankers seek representation on the boards of firms with large unutilized debt capacity, i.e., firms with a large proportion of tangible assets, low volatility, and low existing leverage. In contrast to the equity-monitoring hypothesis, this argument does not imply that bankers on the board cause higher overall leverage but only more lending from the bank represented on the board. Borrowing across all sources of funding may even be reduced if borrowing from the bank represented on the board displaces borrowing from other sources.[14] If bankers on the board represent the interests of their employer in this way then the firm will most likely borrow too much and at less advantageous terms, which should lead to a reduction in firm value.

Banks may also sell other services to their clients and we label this hypothesis selling M&A advisory services (see, e.g., Güner, Malmendier, and Tate, 2007). The firms in our sample are large and undertake mergers and acquisitions on a regular basis to complement their operations. Most of the banks represented on the boards of these firms also own investment banking divisions, which typically contribute significantly to the overall profitability of universal banks in Germany. We would therefore expect that bankers on boards channel this high margin M&A advisory business towards their own employer. We do not expect this to have a major implication for valuation, unless mergers and acquisitions account for a large fraction of a company's economic activity.

According to the debt monitoring hypothesis bankers wish to safeguard their existing loans and want to get involved in those companies where their loans have a significant probability to be distressed in the future.[15] Then bank representation on the board allows bankers to influence financial and investment policies to protect the interests of the firm's existing creditors and becomes a substitute for loan covenants. In this scenario, we should see more bankers on the boards of companies that are riskier and have a higher likelihood of financial distress, fewer collateralizable assets, and higher leverage, in particular through

[13] Booth and Deli (1999) find that the presence of commercial bankers on the boards of U.S. companies is associated with higher aggregate debt levels.

[14] Daniševská, de Jong, and Verbeek (2004) argue that banks use their influence to increase lending but reduce overall leverage to maximize the value of their own loans. Byrd and Mizruchi (2005) show that U.S. commercial bankers who are also lenders to the firm have a negative effect on the debt ratio.

[15] See Fama (1985) and James (1987). Morck and Nakamura (1999) show that bankers on the boards of Japanese firms primarily act in the interest of creditors.

loans from the bank represented on the board. If bankers represent the interests of lenders, we should expect a lower payout ratio, a decline in the firm's risk, and improvements in the firm's interest cover. The implications for the value of the firm are ambiguous. Debt monitoring may reduce adverse selection costs and therefore the costs of capital, which increases the value of the firm. However, steering the investment policy of the firm towards lower risk investments and lower payouts may reduce the value of the firm.

Finally, according to the private benefits hypothesis, bankers are represented on boards of companies where they can extract more private benefits, because board seats are associated with social prestige, power, additional income, and the opportunity to form networks. If bankers mainly pursue personal benefits then we would expect them to be attracted to larger, more profitable, and faster-growing firms, and firms with higher board compensation, because these are typically attributes associated with social prestige. Also, networks with other board members are easier to form if the board is larger. Moreover, bankers should press for higher board compensation and overall firm value should decline with the representation of bankers on the board. The agency conflict between bankers on the supervisory board and shareholders should be particularly strong when the bank has no equity interest in the firm.

The literature has also discussed the conflicts of interest hypothesis, which says that bankers are more likely to seek representation on boards where they do not jeopardize their position as lenders (see e.g. Kroszner and Strahan, 2001). In our view, this hypothesis depends on the validity of the doctrine of "lender liability" and is therefore specific to institutional contexts such as those of the United States, where banks with board representation may be held accountable and lose the priority of their debt claims in case of bankruptcy. German law has no such provisions, so this hypothesis does not apply.

Numerous studies have analyzed aspects of the relationship between German banks and German non-financial companies. In particular Cable (1985), Gorton and Schmid (2000), Edwards and Nibler (2000), and Lehmann and Weigand (2000) reach more benign conclusions regarding the role of banks in German corporate governance than our study. To the best of our knowledge, Cable (1985) is the earliest paper in this literature. He studies a 1970 sample of 48 German firms and finds that bank control enhances profitability. He does not analyze causality, relies on a small and much earlier sample, and uses a somewhat idiosyncratic measure of profitability. Gorton and Schmid (2000) study the effects of bank

equity control on German firms for two cross-sections and find that bank equity ownership is beneficial and that banks appear to be special compared to other shareholders in that they positively affect firm performance. However, unlike our study they do not analyze a panel and do not include the influence through board membership in their study. Also, as their study finds a significant structural break between their 1975 and their 1986 cross-section, it is plausible to presume that some of the relationships they describe have changed until the 1990s, when our sample starts. Lehmann and Weigand (2000) reach a similar conclusion to Gorton and Schmid, but they use a very different research design. Their sample covers the early 1990s and therefore overlaps with our sample, but is restricted to mining and manufacturing industries and includes smaller and also unlisted firms. Their results are therefore not directly comparable to ours. Edwards and Nibler (2000) investigate a cross-section of 156 of the largest non-financial German firms and find a positive impact of the equity ownership of the top three banks, but they undertake neither causality analysis nor control for unobserved heterogeneity and several other effects we include in our model. Boehmer (2000) studies a sample of acquisitions and finds that banks only provide benefits to bidding companies when their power is offset by non-bank block holders, which is closer to our findings in a different context. Franks and Mayer's (1998) clinical study of all three German hostile takeovers attempts also finds evidence that banks do not always act in the interests of shareholders. Elston and Goldberg (2003) show that bank influence reduces the level of compensation for German executives. Agarwal and Elston (2001) also strike a more cautious note on the beneficial impact of German banks and find that bank influence does not seem to enhance either firms' profitability or growth, which is also corroborated by a later study by Chirinko and Elston (2003).

3 Institutional framework, data and methods

3.1 Institutional framework

The German board system has some distinct characteristics that differentiate it from the systems of most other countries, notably the Anglo-Saxon model.[16] German companies have a two-tier board, where the management board (*Vorstand*) is responsible for the day-to-day operations and the supervisory board (*Aufsichtsrat*) appoints and supervises the members of the management board on behalf of shareholders and the public interest. This

[16] More detailed accounts of the German board system can be found in Charkham (1994), Edwards and Fischer (1994), Hopt (1998), and Prigge (1998).

structure has been mandatory since 1870. Most aspects of the board structure are tightly regulated by the German stock corporation act (*Aktiengesetz*) and other laws, which leave little discretion to the company and its charter. In particular, the two boards are personally separated, and nobody can be a member of both boards of the same company at the same time. Also, direct board interlocks are prohibited so that a member of the management board of company A cannot sit on the supervisory board of company B if a management board member of company B is sitting on the supervisory board of company A at the same time. Nobody is allowed to accumulate more than ten seats on the supervisory boards of different corporations, where a chairmanship counts as two board seats for the benefits of this regulation.[17]

Under applicable German law, in particular the co-determination act (*Mitbestimmungsgesetz*) the supervisory board has a minimum and a maximum size, which depends on the number of employees of the firm, so board size is largely determined by law. The codetermination act also requires that half of all board members are worker representatives.[18] Still, the shareholders of the company retain control of the supervisory board because the chairman of the supervisory board, who has the casting vote in case of a tie, is appointed by shareholders. The worker representatives are elected by the company's workers, and some of them must be union representatives. The shareholders' representatives on the supervisory board are elected by the shareholders' annual general meeting. The supervisory board cannot assume managerial responsibilities, but the company's charter can require that some executive decisions be subject to the supervisory board's approval.

During our sample period from 1994 to 2003, a potentially important change in tax legislation took place: In January 2002, a capital gains tax reform became effective that was discussed at least since December 1999 and that was formally (and rather unexpectedly) finalized by a vote of the upper house (Bundesrat) in July 2000. While capital gains realized from the sales of shares in companies were taxable before January 2002, they have been tax-free since then. Hence, the reform provided incentives to realize book losses

[17] Management board members of holding companies and parent corporations often represent the interests of the parent by holding supervisory board seats on the boards of their subsidiaries. Up to five seats in subsidiaries are not counted towards the seat limit. Chairmanships count as two seats towards the limit of 10 seats on the supervisory board only since May 1998.

[18] The co-determination act does not apply to smaller companies with less than 2,000 employees, where the required proportion of worker representatives is only one third. For 72% of our non-bank firm-year observations, the number of employees exceeds 2,000.

before January 2002 and to delay the realization of gains until after January 1, 2002. The taxation of capital gains was widely perceived as an obstacle to the unraveling of cross shareholdings between German companies. As the last two years of our sample period fall into the new regime, we routinely check whether our results are robust to the exclusion of these last two years.

Another important development during our sample period is the internationalization of the German stock market. More and more German companies switched their financial reporting from German GAAP to IAS or U.S. GAAP. While in 1994 all firms in our dataset reported according to German GAAP, this number falls to 52% in 2003. As German GAAP is much more conservative than IAS or U.S. GAAP (see Harris, Lang and Möller, 1994), we consider only firm-year observations with German GAAP reporting in all regressions that involve accounting variables.

3.2 Construction of the data set

We identify all companies that were included in the DAX 100, the index of the top 100 listed German companies, at any point in time during the 12-year period from 1994 to 2005. These are 167 firms, which we divide into two subsamples. The first subsample comprises 11 banks (SIC code 6021) and the second subsample comprises 135 non-banks. 21 financial services companies (SIC codes between 6000 and 6999) other than banks are excluded from both samples. For all these companies we obtained the following data from *Worldscope*, *SDC Platinum*, *Datastream*, *Deutsche Bundesbank* and *Hoppenstedt company profiles* for the years 1994-2005.[19] *Hoppenstedt company profiles* (a periodical similar to Moody's manuals) gives us the names of all members of the management board and the supervisory board, and information on whether they are chairman, vice chairman, or worker representatives. From *Hoppenstedt company profiles* we also obtain the total payments to members of the supervisory board, and information about block holders. In those cases where *Hoppenstedt* does not provide certain data, we compiled it from other sources, usually from company reports, which was successful in most cases. We obtain accounting data from *Worldscope* and market data from *Datastream*. From *SDC Platinum* we obtain data on mergers and acquisitions of our sample firms and the identity of the acquiring firm's advisor. The *Deutsche Bundesbank* provided us data for individual bank-firm credit

[19] See http://www.hoppenstedt.de/ for further information on the Hoppenstedt group and their company profiles (*Firmen-Profile*).

relationships that exceed €1.5m, which are collected by the *Deutsche Bundesbank* according to section 14 of the German Banking Act (*Kreditwesengesetz*). Our final sample consists of 1,388 firm-year observations on non-financial firms and a further 107 firm-year observations for banks.

Insert Table 1 and Table 2 here

Table 1 provides the definitions of all variables we use and reports their respective sources. Table 2 presents summary statistics for the non-financial firm's sample.

3.3 Ties between banks and non-financial firms

In order to measure bank influence we need to define a "banker," which poses some difficulties.[20] It is common practice in Germany that former bank managers become members of their company's supervisory board immediately after their retirement, when a younger colleague takes over the top management post. In our view, these retired supervisory board members still represent the interests of their former employers. We therefore define that a person is a "banker" for all years after he or she joined the management board of a bank. She stays a "banker" except if she is appointed to a non-bank's management board during the sample-period. Then we define her status as a "non-banker" from that point onwards.

We measure banks' influence on a company by two variables. The first is defined as *BankDummy* and assumes a value of one if at least one member of the supervisory board is a banker, and zero otherwise. In 643 firm-years, or 46% of our sample, at least one member of the supervisory board was a banker. The second variable to measure the influence of banks is *PercentBankers* defined as the ratio of bankers to the total number of shareholder representatives on the supervisory board. We focus only on shareholder representatives on the supervisory board and disregard worker representatives for our purposes. On average, bankers occupy 8.8% of all supervisory board seats, and the median supervisory board in our sample has six shareholder representatives (the mean is 7.07). These figures are substantially below the 75% of the top 100 German firms who had a banker on their supervisory board in 1974, when bankers held 22.4% of the shareholder seats in a

[20] Note that unlike the U.S. literature on the influence of bankers on boards we do not distinguish between commercial bankers and investment bankers, a distinction that is impossible in the German context as investment banking services and commercial banking services are offered by the same universal banks. See Booth and Deli (1999), Kroszner and Strahan (2001), Jagannathan and Krishnamurthy (2004), and Güner, Malmendier, and Tate (2007).

comparable sample of companies (Edwards and Fisher, 1994, p. 201). By comparison, in the U.S. only about 31.6% of large firms had representatives of banks (commercial or investment banks) on their boards (see Kroszner and Strahan, 2001, referring to the Forbes 500 firms in 1992).[21] The average equity ownership of German banks is only 3.3% during this period, again much reduced compared to the 7.3% reported for the earlier sample by Edwards and Fischer (1994).[22]

Insert Table 3 here

The aggregate figures above suggest a substantial loosening of the ties between banks and non-banks between the 1970s and the 1990s. We investigate this further in Table 3, which reports the means of some of the major variables from our dataset by year for the subset of companies where we have continuous data from 1994 to 2005. This allows us to assess the impact of the institutional changes during this period, in particular the reform of corporate taxes that became effective at the beginning of 2002. Table 3 shows that the equity ownership of banks in non-financial firms (*BankEquity*) is stable around 4% from 1994 to 2001 and then drops to 0.4% by 2005. This suggests that banks held shares during the earlier sample period mainly in order to defer taxes and not because of other economic motivations. We therefore expect that theories trying to explain bank shareholdings in non-financial companies will find little support during this period. Ownership of other block holders (*NonBankEquity*) also declines from 55.4% in 1994 to 47.7%, but the decline is more gradual here and relatively moderate compared to the decline of bank equity ownership. This is also reflected in the increase of the free float from 40.5% to 51.9%, which suggests that the attempts to improve financial market regulation where met with some success, at least in terms of the attractiveness of German capital markets for small shareholders.

The representation of bankers on boards has declined dramatically over the 1994 to 2005 period according to both measures *BankDummy* and *PercentBankers*. At the beginning of this period, 50.7% of all supervisory boards included a banker compared to only 33.3% twelve years later, and most of this change happened between 2002 and 2004. The percentage of bankers on boards fell from 9.6% to 5.6% over this period. This reduction is

[21] See Byrd and Mizruchi (2005) and Güner, Malmendier, and Tate (2007).

[22] Gorton and Schmid (2000) use a similar sample to Edwards and Fischer (1994) of 82 firms and report equity ownership to be 8%. They also collect data for another 56 firms for 1986 and report equity ownership to be 13% there.

dramatic and a comparison to the data for the 1974 sample reported above show that this development continues the unraveling of what used to be the distinctly German pattern of corporate governance and bank-firm relationships. In fact, the 33.3% of supervisory board with a banker in 2005 accords well with the figure of 31.4% reported by Kroszner and Strahan (2001) for the U.S. and supports the notion that the German model converges to the Anglo-Saxon model. However, the decline in bank representation on boards is not nearly as stark as the decline in banks' equity ownership and by 2005 these two dimensions of bank influence are separated almost completely. Clearly, bank representatives do not primarily represent equity interests at the end of our sample period.

We do not have data on proxy voting rights of banks. These voting rights are a specific part of German corporate governance, which allows banks to vote the shares of their customers at shareholder meetings. Data on these voting rights are very expensive to collect because the only source are the minutes of the shareholder meetings, which must be filed with the local district court where the company is registered. Previous studies have therefore always collected only small samples of proxy voting data, and no study has ever compiled a panel.[24] The figures in these studies are not directly comparable, but they agree on the fact that banks' voting power derives to a very large extent from their proxy voting rights, and only a small proportion of voting rights derives from direct equity ownership.

3.4 Measuring performance

Our measure of company valuation is Tobin's Q, which is the market value of the firm scaled by the book value of total assets.[25] The market value of the firm is calculated as the book value of total assets minus the book value of equity plus the market value of equity. Clearly, this is only an approximation to Tobin's Q. German accounting practice is very conservative and there is little scope for adjusting the denominator to reflect the true replacement value of the capital stock, especially property, plant, and equipment. We have sufficient balance sheet data for 1,282 firm-years or 92% of our sample and the average Q

[24] Edwards and Fischer (1994) report that the banks in their sample vote 49.45% of the shares by proxy. Gorton and Schmid (2000) have 21% for their 1975 sample and 23% for their 1986 sample. Elsas and Krahnen (2004) report an average of 29.5% for a 1990 sample of 65 large firms.

[25] Tobin's Q has been widely used as a performance measure in the corporate governance literature. Research that focuses on boards and uses Tobin's Q or the market to book ratio includes Pfannschmidt (1995), Yermack (1996), Edwards and Weichenrieder (1999), Gorton and Schmid (2000), de Jong (2002), Loderer and Peyer (2002), and Fich and Shivdasani (2006).

is 1.54 (the median is 1.24, see Table 2). These values do not reflect superior investment opportunities of German firms but rather the undervaluation of the replacement value of the capital stock by the book value of assets. In particular, the value of intangible assets is often not capitalized on German balance sheets. We attempt to control for this in our regressions by using the R&D-intensity and the fraction of intangible assets relative to total assets as control variables. As R&D expenditures need not be reported according to German GAAP, we set this item equal to zero if it is missing.

Table 3 shows the development of Tobin's Q over time, once for all 59 firms for which we have sufficient data to calculate Tobin's Q for every year from 1994 to 2005, and once for the subset of 22 firms that reported always according to German GAAP during this period. Given that German GAAP is generally more conservative than U.S. GAAP or IFRS, we would expect that Tobin's Q is higher under German GAAP. Table 3 shows that the opposite is true: Tobin's Q is lower for those firms that consistently report according to the local standard. This suggests that firms that report according to international standards have a higher market value relative to firms that continue to use German GAAP.

Other variables we use to describe companies' performance are the return on assets (defined as EBIT divided by total assets), labor productivity (defined as net sales divided by the number of employees), and sales growth. The median company has sales of almost €1.9bn, which shows that our sample consists of large companies.

3.5 Additional variable definitions

Data on board compensation and executive compensation are notoriously scant in Germany and we have no data on these variables before 1997. We have complete data on these variables for 58 (executive compensation), respectively, 59 (board compensation) companies. Executive compensation has to be disclosed individually for members of the management board only since 2006 and for our sample period we can only compute the average compensation per board member. Compensation of both groups increases steadily and more than doubles during the nine years for which we have data. To some extent this reflects increases in firm value, and the average compensation per board member increases by 35% if scaled by size. For members of the management board the same figure even declines by 5% from 1997 to 2005.

We use dummy variables for calendar years and for industries. Our industry definition uses the definition of prime sectors used by the German stock exchange, and we aggregate consolidate some sectors with a small number of firm-years in our sample to obtain 15 different industries.

3.6 Methods

Endogeneity is a major problem in our analysis, because firm value and bank involvement are likely to be jointly determined. Some of our hypotheses imply that firm value increases (or decreases) if banks get involved, while other hypotheses state that low-value firms actively solicit bank involvement. The obvious way to address this problem would be to estimate the simultaneous equations with an instrumental variables approach. An instrumental variable regression, however, is only as good as the instruments. A good instrument is highly correlated with at least one of the independent variables and, at the same time, uncorrelated with the error terms, i.e. with all missing variables in all equations. It is difficult to argue that any variable in our dataset is truly exogenous. Take for example total assets, which is usually regarded as exogenous in simultaneous regressions involving Tobin's Q (see for instance De Jong, 2002). In our context, total assets might very well be endogenous, because bankers could raise capital expenditure and thereby total assets.

We therefore resort to three alternative methods to address the endogeneity problem: differencing, lagged dependent variables, and fixed effects. In all our regressions, the independent variables are lagged by one year, and the lagged dependent variable is included as an additional independent variable:

$$y_{it} = \alpha + \beta y_{it-1} + \sum_k \gamma_k x^k_{it-1} + \varepsilon_{it} \qquad (1)$$

This specification is a generalization of differencing the dependent variable, because β is not restricted to be equal to one. Formally, specification (1) is a Granger (1969) causality regression, which asks whether the lagged independent variables x^k have explanatory power for the dependent variable y beyond the explanatory power included in lagged values of y itself. The lagged dependent variable filters out most of the effect of missing variables, which will affect y_t and y_{t-1} in equal measure.

An obvious way to measure the impact of bankers on firm value is an event study of the effect of adding a banker to the board. We also followed this approach, but it did not yield any robust results because the appointment of a new banker is not a big news event. In most

cases, the proposed new appointments are listed in the proxy statement, which usually includes a lot of further contaminating news. If a director must be replaced between two annual general meetings, the firm proposes a new director to the local court, and the court then checks a number of formal criteria. In the few cases where there are press announcements, these are dated from after the court's decision, and it appears unreasonable to assume that the market did not learn about the pending appointment earlier.

3.7 Robustness checks

In our analysis below, we concentrate on *PercentBankers* as a measure of bank board activity. As a robustness check, we have repeated the whole analysis with *BankDummy* and found very similar results. In order to conserve space, we therefore discuss the *BankDummy* results only if they differ substantially from the *PercentBankers* results.

We perform two additional robustness checks on all our results. First, we reran all regressions after excluding the post reform years 2002 to 2005, because the capital gains tax reform that became effective in January 2002 led to a reduction in bank ownership as shown in Table 3. It turns out that our results are robust to the exclusion of these four years from our sample.

Banks often become shareholders in firms that restructure their debt in order to avoid bankruptcy (see e.g. Gilson, 1990). Therefore, some of our results – especially the negative relationship between Tobin's Q and bank ownership – might be caused by financially distressed firms. In our second robustness check, we exclude the 30% firm-year observations with the lowest Altman (1993) Z-score and repeat our analysis. Again, the main results do not change, so we do not report this robustness check in more detail.

4 When do banks get involved?

We first address the question when banks are represented on the supervisory boards of non-financial German firms, and all hypotheses developed in Section 2 (except the selling of advisory services-hypothesis) make predictions with respect to this question. Our independent variable is therefore the percentage of bankers on the firm's supervisory board. We reach the same conclusions if we code bank representation on the board as a dummy variable, so we do not report these results.

Insert Table 4 here

Table 4 reports Tobit regressions with *PercentBankers* as the dependent variable. Using a Tobit model here is necessary because about half of the observations are censored at zero. We run the regression with year and industry dummies (models (3) and (4)) and also without these dummies (models (1) and (2)). The specification without dummies avoids the incidental parameters problem, although this is likely to be very moderate because the number of industries is small.

There are four findings with respect to the debt-monitoring hypothesis. If bankers seek representation on the board in order to monitor existing loans, then we should see more bankers on the boards of those companies that use more bank loans, that have a higher likelihood to enter financial distress, and where recovery in case of financial distress would be more difficult. We find that bank lending, measured by *LeverageBanks*, never has any impact on the percentage of bankers on the board. The likelihood of financial distress should increase with volatility and decrease with the interest cover, which we also do not observe. The coefficients on *Volatility* are negative for all specifications, but never statistically significant. The coefficients on *InterestCover* are economically small and statistically insignificant. Finally, the possibility to recover assets in case of financial distress should be associated with the tangibility of the assets, which we measure by the proportion of the assets that are intangible, so we expect a positive coefficient on *Intangibles* under the debt-monitoring hypothesis. However, the coefficient on *Intangibles* is negative and statistically significant in all specifications, which contradicts this implication. We therefore find no evidence to support the debt-monitoring hypothesis, and the observation on the negative impact of the tangibility of the assets directly contradicts it.

The capital markets expertise hypothesis implies that companies that rely more on debt and that have higher funding requirements try to attract more bankers to their boards. We find some evidence for these implications. If we assume that faster growing companies are also those with larger funding needs, then the positive and highly significant coefficient on *SalesGrowth* can be explained by fast growing companies attempting to recruit directors to their boards who help them to reduce the costs of external financing. Higher expected growth should also be reflected in higher values for Tobin's Q, but *TobinsQ* has no significant impact on bank representation on the board in any of our regressions. To the extent that funding requirements are related to (past) capital expenditure, we should also see a relationship between *CapEx* and *PercentBankers*, but we do not find significant results here. If the expertise on negotiating and pricing debt contracts is important, then we

should see more bankers on the boards of more highly levered firms. There is some evidence for this as well, as the coefficient on *LeverageMarket* is positive and significant, but only in model (3), where we control for year and industry effects by using dummy variables, and in the fixed-effects specification (5). The overall verdict on the capital markets expertise hypothesis from Table 4 is therefore somewhat mixed, since only the indirect implications on sales growth and market leverage are supported, but there is no evidence for the more direct implications regarding growth prospects and capital expenditure.

The debt-selling hypothesis implies that bankers seek representation on the boards of companies that have large underutilized debt capacity. Then bank representation should be higher for large, low-risk companies that currently have low leverage and a large proportion of tangible assets. We find that size as measured by sales and volatility has no impact on bank representation on the board. The debt selling hypothesis could explain the significant negative relationship between *PercentBankers* and *Intangibles*, but it is contradicted by the positive correlation between *PercentBankers* and *LeverageMarket* we commented on above, because highly levered firms have less underutilized debt capacity and are therefore less likely to issue new debt. However, bankers may be able to displace existing debt from other lenders of the firm, so this finding cannot conclusively reject the debt-selling hypothesis, which we will therefore investigate more directly below.

The equity-monitoring hypothesis predicts that bankers should be represented on those boards where their banks also hold significant equity stakes and that are valued relatively poorly. However, we find that the coefficients on *BankEquity* and on TobinsQ are both insignificant. This last finding is unsurprising given our earlier result that bank representation on the board did not decline nearly as much as bank equity ownership. Overall, we cannot find any evidence to support the notion that banks seek board representation to safeguard their equity stakes in non-financial firms.

Finally, the private benefits hypothesis implies that bank managers seek to be represented on the boards of firms that give them more networking opportunities and that are more likely to enhance their status. Bankers should therefore try to obtain seats on the boards of large, fast-growing companies, as these have a higher status. Also, they should try to be represented on companies with larger boards, as these offer more networking opportunities. We do find evidence for the predicted implication of *BoardSize*, which is significant at the

5%-level in three of the four regressions. As noted before, we find evidence for the positive impact of SalesGrowth, although this finding can also be explained by the capital markets expertise hypothesis. Size as measured by sales has no impact, but recall that the size of the board of German companies is determined by the number of employees, so *BoardSize* also picks up the effect of the size of the company, which may render other size measures insignificant.

Overall, we find that the debt-monitoring hypothesis cannot explain why bankers are represented on some boards and not on others. We are also skeptical on the debt-selling hypothesis and find nothing to support the equity-monitoring hypothesis. We find some, but not conclusive evidence for the capital markets expertise hypothesis and for the private benefits hypothesis.

5 What do bankers on the board do?

5.1 Bankers on boards as sales agents?

We investigate two aspects of the notion that bankers may act as sales agents for their bank. We first investigate if bankers persuade the companies on whose boards they are represented to take on more debt and more specifically, debt from the bank they are representing. In addition, we also investigate if bankers sell advisory services to companies through their board representation.

Insert Table 5 here

Table 5 analyzes the impact of board representation on leverage, where we measure aggregate leverage in market value terms as well as the portion of leverage attributable to borrowing from banks. We can see that bankers increase the overall leverage of the firm, although the coefficient on *LeverageMarket* becomes marginal once we control for year effects and industry effects. Specifications (4) to (6) imply that bankers do not seem to increase lending from banks. The debt-selling hypothesis predicts the opposite results from those observed in Table 5, namely that banks try to keep aggregate leverage constant, but try to increase borrowing from banks at the expense of borrowing from other sources.

Insert Table 6 here

Table 6 performs a univariate analysis of the subsample of all firms with a banker on the board and positive bank debt, so that bank debt can increase as well as decrease. Then we

measure the change in bank debt for all loans provided by the bank represented on the board *(ΔBankDebtIn*) and the change in bank debt for all loans provided by banks not represented on the board (*ΔBankDebtOut*). According to the debt-selling hypothesis, the first number should be significantly larger than the second number, but we cannot find any significant difference, with p-values at 0.78 and 0.80 for the tests of equal means and medians, respectively. However, an interesting feature emerges if we analyze this sample further. Then we can see that *ΔBankDebtIn* is larger than *ΔBankDebtOut* for the subsample of firms where *ΔBankDebt* is positive (p-value = 0.061 for test on the equivalence of the medians). However, *ΔBankDebtIn* is smaller (but larger in absolute value) for the subsample of firms where *ΔBankDebt* is negative (p-value = 0.022). Hence, for those firms that increase their borrowing (in absolute terms), the additional borrowing comes mostly from the bank that is represented on the board. At the same time, for those firms that reduce their borrowing, repayments are larger to the bank that is represented on the board compared to repayments to the other banks. For the aggregate statistics, both of these effects cancel.

Panel D of Table 6 corroborates these results for a larger sample and tests if the ratio of *ΔBankDebtIn* to *ΔBankDebt* is the same as the ratio of *BankDebtIn* to *BankDebt*. The test shows that the median difference between the two ratios is significantly different from zero (p-value = 0.013). Under the null hypothesis that bankers on the board have no influence on the firm's borrowing, these two ratios should be the same, but in fact *ΔBankDebtIn*/*ΔBankDebt* is about twice as large as *BankDebtIn*/*BankDebt*, which shows that any change in borrowing policy is reflected more strongly in the borrowing from the bank that is represented on the board.

Overall, we reject the key implications of the debt-selling hypothesis. Bankers on the boards of firms do not influence their firms to displace existing debt by borrowing from the firm that is represented on the board. However, bankers do seem to influence the borrowing policies of firms since any change in firms' borrowing in either direction is mostly attributable to a change in the borrowing from or the repayments to the bank that is represented on the board.

Insert Table 7 here

In Table 7 we investigate the hypothesis that bankers sell M&A advisory services to the firms on whose boards they are represented. We perform this analysis for all banks in the sample and separately for those sample banks that have a large investment banking business, i.e. Dresdner Bank and Deutsche Bank. We collect data on 4,097 acquisitions undertaken by 115 of the non-financial firms in our sample. However, for only 67 acquisitions undertaken by 28 sample firms was the advisor also one of the sample banks. We define for each of these banks the variable *PercentBankAcqAdvisor* as follows. A firm-year enters the data set if there the firm undertook at least one acquisition in that year, which gives us 700 firm-year observations. Then *PercentBankAcqAdvisor* is the percentage of the firm's acquisition undertaken by one particular bank in that year, so that we obtain 700 firm-year observations for each bank, a total of 7,000 observations.[26] If we include all banks in the analysis and also if we just focus on the two large banks, we observe a significant and positive relationship between bank representation and *PercentBankAcqAdvisor*, even though the number of observations is small in each case (15 for Dresdner Bank, 32 for Deutsche Bank). We can safely conclude that bankers on the board successfully promote the M&A advisory services of the bank they represent on the boards of large, non-financial firms.

5.2 Bankers on boards as capital markets experts?

Several studies in the literature argue that if bankers are appointed to the boards of non-financial companies as capital market experts, then they should help firms to finance their projects more easily and, accordingly, the investment behavior of these firms should become less sensitive to the firm's own cash flows.

Insert Table 8 here

Table 8 performs standard tests of the investment-cash flow sensitivity. The argument relies on the assumption that if companies are financially constrained, then their capital expenditure should be responsive to their own cash flows. By contrast, if they are unconstrained, then cash flows and investment levels should be uncorrelated.[27] We therefore regress investment levels on cash flows and a number of controls and on an

[26] We have only 10 banks left here because of the merger that created HypoVereinsbank.

[27] This argument is not uncontroversial. Alti (2003) shows that even in a standard neoclassical investment model without financial constraints there can be a correlation between investment levels and cash flows because cash flows reveal information about the productivity of future investments, so that companies with higher cash flows tend to invest more.

interactive coefficient of *CashFlow* with *PercentBankers*. This coefficient should be negative for financially constrained firms, so that more bankers on the board reduce the sensitivity of investments to cash flows. We follow the literature and argue that firms are more financially constrained if (1) they have smaller dividend payouts and (2) if they are smaller.[28] We therefore partition the sample into those firms whose payout ratio (respectively, size as measured by total assets) is above the median and those whose payout ratio (size) is below the median of the sample. We see a significant difference if we split the sample according to payout policy, but not if we split it according to size. For the low-payout sample, we expect that the coefficient on the interactive coefficient of *PercentBankers* and *CashFlow* is negative, so that the investment-cash flow sensitivity is reduced through the presence of bankers on the board. We observe a negative coefficient, but it is insignificantly different from zero, so we do not find supporting evidence for the claim that financially constrained firms reduce their dependence on internal financing by having a banker on their supervisory board.

For the high-payout sample, the coefficient on the interactive term is positive and highly significant (p-value = 0.0004). This means that the presence of bankers on the boards of high-payout firms, which are deemed financially unconstrained, increases their dependence on internal financing. This result is somewhat puzzling, given that we would expect that these firms rely less on internal financing, so that the presence of a banker on the board should not make any difference to them. If we split the sample on size (models (4) and (5)), then we find no significant results. Note that splitting our sample on size may not identify any financially constrained companies, given that all companies in our sample are by some definition large. We can therefore not infer any evidence from Table 8 that would support the capital markets expertise hypothesis.

It could also be that banks seek appointments to supervisory boards to gain industry expertise and lending possibilities that are industry-specific, for example because lending prospects are sensitive to industry cycles. We analyze this by averaging all variables across industries and banks, so that for each bank-industry-year combination, we have exactly one observation. We adapt our variable names by using the prefix "Sector" in each case. For observations that refer to the same firm-year but to different banks, all variables other than

[28] This argument is not uncontroversial. Kaplan and Zingales develop an index of financial constraints, however, no similar index is available for Germany. Güner, Malmendier and Tate (2007) argue that payout policy and size may be poor proxies for financial constraints.

SectorBankDebtVolume and *SectorPercentBankers* therefore have identical values. The latter two variables are bank-specific and describe, respectively, the total lending volume of the bank (scaled by the total assets of that sector) and the percent of all board seats of that sector held by a specific bank. For example, we have one observation for the lending of Deutsche Bank to the automobile sector in a certain year as well as the representation of Deutsche Bank on all boards of automobile companies in the same year.

Insert Table 9 here

Table 9 gives the regressions of our measure of banks' lending to a particular sector on banks' representation on supervisory boards in the same sector. The coefficient on *SectorPercentBankers* is statistically highly significant in all specifications in Table 9. Hence, if a bank is represented more on the supervisory boards in a certain sector in year t-1, then it will lend more to this sector in year *t*. This is true even though we *cannot* show that the bank will actually lend more to the exact company where it is represented on the board. However, it will lend more to either this company or to its competitors in the same industry. Hence, it seems that bankers benefit from the knowledge they have about certain industries through their representation on the supervisory boards of companies within these industries, even though this may not benefit the particular company on the board of which they are represented.

5.3 Bankers on boards as monitors?

We have discussed the potential role of bankers on the boards as monitors of their equity interests or of their interests as creditors in Section 4 and found no evidence that either version of the monitoring hypothesis might explain why bankers join the boards of non-financial companies. However, they may still act as monitors once they are appointed to these boards. We therefore investigate how bankers affect the investment behavior and financial policies of firms.

Insert Table 10 here

Table 10 shows regressions of *PayoutRatio*, *InterestCover*, *CapEx*, and *Volatility* on *PercentBankers*, ownership variables, and a number of controls. The equity-monitoring hypothesis postulates that bankers on the boards pursue the interests of their banks as equity-holders. In this case, we should see that banks use their influence to increase the payout ratio and to shift risk and thereby increase volatility. The first implication is strongly

contradicted. The coefficient on *BankEquity* in the *PayoutRatio* regressions is negative and significant at the 5%-level (the p-value is slightly above 5% if we control for industry effects and year effects). The coefficient on *PercentBankers* also has the opposite sign predicted by the hypothesis, but it is not significant. These results contradict the equity-monitoring hypothesis. The effect of *BankEquity* on *Volatility* is positive and insignificant, that of *PercentBankers* on *Volatility* is negative, but also insignificant, and so these regressions do not lend any support to the equity-monitoring hypothesis either. Note, however, that *NonBankEquity* also has no impact on *Volatility*, so it could simply be the case that the leverage of our sample companies is not high enough (the median of *LeverageMarket* is 24.8% from Table 2) to generate significant risk shifting incentives for equity holders.

The implications for debt monitoring for the relationship between *PercentBankers* and, respectively, *PayoutRatio* and *Volatility*, are the opposite of those suggested by the equity-monitoring hypothesis, but all the coefficients here are insignificant. If bankers on the boards act to safeguard their loans then we would also expect that bank representation on the board improves the safety of these investments, which would imply a positive relationship between PercentBankers and InterestCover. We see a negative sign in all regressions in Table 10, although these are again insignificant. Overall, we cannot find any support for the debt-monitoring hypothesis based on these results.

6 The benefits of bankers on the board

6.1 The benefits of being a banker on a board

We investigate the relationship between equity ownership and board compensation as well as management compensation. Disclosure on compensation in Germany is poor by US or UK standards and before 2006, publicly listed companies had to disclose only the aggregate compensation of the management board and the supervisory board, without providing a breakdown by person or by compensation components (fixed pay, bonus payments, stock options, etc.). We can therefore not evaluate pay for performance sensitivities. Our main variables of interest are therefore AvgBoardComp, which is the average total compensation per member of the supervisory board, and AvgManComp, which is the average total compensation per member of the management board. These data are available only from 1997 onwards, so the number of observations for our regressions is somewhat reduced.

Insert Table 11 here

Table 11 reports regressions results for both compensation variables on ownership variables and a number of control variables that control for firm characteristics. In order to investigate the equity monitoring hypothesis more directly, we split *PercentBankers* into those bankers that represent equity interests on the board (*PercentBankersWithEquity*) and those bankers on the board whose bank does not have an equity interest in the company at the same time (*PercentBankersWithoutEquity*). For these regressions, we only report results with industry dummies because compensation is known to be industry dependent. Interestingly, the impact of bankers on average management compensation is negative if – and only if – these bankers represent equity interests on the board. All other bankers, whose supervisory board seats are not associated with any equity ownership, have a positive but insignificant impact on average management compensation. The difference between the coefficients on *PercentBankersWithEquity* and *PercentBankersWithoutEquity* is statistically significant at the 2%-level (the p-values are reported at the bottom of Table 11). Recall that during our sample period the equity ownership of banks falls below 1% whereas *PercentBankers* is still above 5% in 2005 (see Table 3). Hence, the equity-monitoring hypothesis has some explanatory power here, but only for the minority of bankers who actually represent equity interests.

For the results on average board compensation, we can see that concentrated ownership by non-bank equity holders tends to reduce average board compensation in both regressions, and this result is always significant. By contrast, the impact of *BankEquity* is always insignificant. The impact of bankers on the board depends again on their association with equity ownership. The impact of *PercentBankersWithEquity* is always negative, although this effect is never statistically significant. The Impact of *PercentBankersWithoutEquity* on compensation is positive, although statistical significance is marginal, probably because the sample is not large enough to measure this effect more precisely. This effect is only consistent with the private benefits hypothesis. Note, however, that median board compensation is €25.200 in our sample, so it is unlikely that the monetary compensation itself plays a major role for most board members, whose own salaries are most likely orders of magnitude larger. Our interpretation is that board compensation is again a variable that proxies for status and therefore has to be interpreted similarly to *BoardSize* as mentioned in the discussion of Table 4 above.

6.2 The value of having a banker on the board

Our final question addresses the relationship between bank representation on the board and valuation.

Insert Table 12 here

Table 12 regresses *TobinsQ* on *PercentBankers* (again split according to the equity ownership of the bank), ownership variables, and a range of controls. Here it is conventional to also control for some value drivers (ROA, productivity, sales growth), although we are not convinced by this approach for our purpose. Ultimately, if bank representation on the board affects valuation, then it has to affect some value driver (such as profitability or growth), and for our question the precise transmission channel is of secondary importance. Therefore, if we control for value drivers, then we control to some extent for the effect we are trying to measure. Our preferred specifications are therefore models (1) and (3) in Table 12, but we include the regressions with more controls (2) and (4) for better comparison with the literature.

The impact of bank representation on *TobinsQ* is negative and statistically significant at the 2%-level in our preferred specification. As expected, controlling for value drivers removes a part of this effect, although the effect is not large. The split between bankers with and those without equity ownership shows that the negative effect is numerically larger for *PercentBankersWithoutEquity*, and here it is also statistically significant. The effect of *PercentBankersWithEquity* is also negative, but cannot be measured precisely enough and is therefore statistically indistinguishable from zero. These results sharply contradict the equity-monitoring hypothesis, which predicts a positive relationship between bank representation on the board and valuation, but it is consistent with the private benefits hypothesis. It would also be consistent with the debt-selling hypothesis, but we found little support for this approach in our earlier analysis.

Our approach allows us to clearly establish causality here, because *TobinsQ* for period *t* is regressed on its own lag and lagged independent variables. Recall from Table 4 that there is no reverse causality that runs from *TobinsQ* to *PercentBankers*. Hence, we can rule out the alternative hypothesis that the negative correlation between variables that measure bank influence and Tobin's Q could be explained by bankers stepping in to rescue undervalued companies, either to pursue their interests as equity holders or as lenders.

7 Assessment of the hypotheses: Putting it all together

In this section, we summarize our results with respect to the hypotheses developed in Section 2. We can clearly rule out the debt-monitoring hypothesis. It cannot explain what motivated bankers to assume board seats as they clearly do not take seats in companies where they could add most value. Our finding of a positive relationship between the tangibility of assets and board representation (Table 4) contradicts this hypothesis just as much as our finding of a positive relationship between bank lending and volatility (Table 10). The only finding consistent with the debt-monitoring hypothesis, namely the positive relationship between leverage and bank representation on the board, can also be explained by the capital markets expertise hypothesis, and for all other implications, we found no evidence. The equity monitoring hypothesis does not fare well either. In our tests in Tables 4, 10, and 12, we could not establish any evidence that would support this hypothesis and the negative relationship between bank influence and the payout ratio (Table 10) even contradicts it. The only exception is the finding on compensation in Table 11, which on its own is only a weak indication. We therefore consider both monitoring hypotheses to be rejected by the data; bankers do not sit on the boards of German non-financial companies to safeguard either their interests as lenders or as shareholders.

While the debt-monitoring hypothesis posits that bankers seek seats on boards in order to protect their existing loans, the debt-selling hypothesis suggests that they seek seats on the boards of companies with underutilized debt capacities in order to sell new loans. Our discussion of Table 4 cannot find any evidence for this, and the positive correlation between bank representation on the board and leverage even contradicts it. We then investigate this hypothesis using more detailed data and find that bankers do not generally seem to displace existing loans with borrowing from their own bank. However, interestingly, we find that they do not, but the sensitivity of borrowing from the bank that is represented on the board is much larger than for other banks, and this effect pertains to reductions as well as increases in borrowing. The net effect is almost zero, so the debt-selling hypothesis in itself is not supported. We find strong support for the hypothesis that bankers on the board sell M&A advisory services of their own investment banking divisions. The large companies in our sample regularly acquire smaller companies, and the M&A-advisory work is usually done by the bank that is represented on the board. However, this concerns only a minority of the companies in our sample.

Support for the capital markets expertise hypothesis from our data is at best weak. Some of the indirect implications are supported. However, the more direct implications of this hypothesis suggest a positive association of growth and capital expenditure with the appointment of financial experts to the board, and we do not find this (see Table 4). Our tests of investment-cash flow sensitivity do not lend support to this hypothesis either. However, we do find some support for the industry expertise hypothesis, which holds that bankers seek board appointments in order to gain insider knowledge of industry cycles and to better adjust their lending policies. We find that higher board representation in companies of a certain sector is followed by significantly higher lending volume to that sector, even though we cannot find any such relationship at the individual company level.

Private benefits seem to be an important part of the relationship between banks and non-financial companies. Bankers seek appointments to larger boards that provide better networking opportunities, and to companies that grow faster, which normally are associated with more successful direction of the company and therefore social prestige. Bank representation on the board causes higher board compensation, which, although small in absolute terms, is an indicator of social status.

8 Conclusions

This paper analyses the network of cross shareholdings and the board interlocks between banks and non-banks in Germany between 1994 and 2005. We find shareholdings by banks in non-financial firms declined by about 90% after a capital gains tax reform became effective in January 2002. However, indicators of board representation fell by only 30-40% during the same period. Even the values of the measures of bank ownership and board representation at the beginning of our sample period are much lower than those reported in earlier studies of the 1970s and the 1980s, and we therefore conclude that the German model of corporate financing and corporate governance witnessed a slow and steady decline and has by now largely adjusted to international standards.

This development gives us the unique opportunity to study the relationship between bank ownership, bank representation on the board, non-financial firms' financial policies, and the implications these have for valuation. We find little support for conventional explanations of these relationships:

- Bankers are not on the boards of other firms as monitors. There is no evidence that they safeguard either their interests as lenders or their interests as equity holders. In fact, by the end of our sample period, banks are not owners of any significant equity interests at all, even though they still hold a substantial number of board seats.
- Bankers are not on the boards of other firms as capital market experts. They do not help other firms to overcome financial constraints, and they do not help firms to invest more. However, they seem to gain important information through their board memberships to adjust their lending strategies, and they seem to gain industry expertise that influences their ability to lend to the whole sector.
- Bankers do not sell loans to other companies through their board memberships, but they do promote the M&A-services of their own investment banking divisions.
- Bankers do extract private benefits in the form of higher social status and higher board compensation through their representations on the boards of non-financial companies.

None of these explanations makes suggests that non-financial firms benefit from having bankers on their supervisory boards. We cannot find evidence for any hypothesis (capital markets expertise, monitoring) that suggests that bankers provide a valuable service to the companies where they have board seats. We could only identify two beneficiaries of this relationship: the banks, through the promotion of their investment banking services, and the bankers themselves, through enhanced social status. By contrast, the net benefits to the non-financial firms on whose boards they are represented suffer a decline in value. Through our methodology of regressing on lagged dependent variables, we can clearly establish the direction of causality: Bankers on the board have a negative impact on the valuation of non-financial firms, and this negative correlation is not explained by reverse causality.

Our findings make us very critical of the ability of German banks to use the power of their proxy voting rights to have their own managers elected to the boards of non-financial companies. This arrangement gives the banks the power to influence non-financial firms without having any equity incentives themselves. The minority shareholders can evidently not overcome their collective action problem. However, the bankers seem to extract private benefits as well as important information and expertise through their board seats.

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Table 1: Definitions of variables used in the study

This table defines the most important variables used in this paper. A director is classified as a "banker" if she currently is or previously was member of the management board of one of the banks in our sample. An ex-banker is not classified as a banker any longer if she becomes member of the management board of a non-bank in our sample. Board data are taken from *Hoppenstedt company profiles*, accounting data from *Worldscope* and market data from *Datastream*. The numbers in brackets refer to *Worldscope* items, taken from the *Worldscope Data Definition Guide*. Bank debt data was provided by the *Deutsche Bundesbank*, it includes all individual (sample) bank-firm credit relations that exceed €1.5 million.

Variable	Description
AvgBoardComp.	Total supervisory board compensation divided by sum of shareholder and worker representatives (in thousand €) (*Hoppenstedt*)
AvgMan.Comp.	Total managment board compensation divided by the number of managers (in thousand €) (*Hoppenstedt*)
BankEquity	Sum of all voting blocks held by banks (*Hoppenstedt*)
BankEquityIn	Sum of all voting blocks held by banks with board representation
BankEquityOut	Sum of all voting blocks held by banks without board representation
BankDebt	Total volume of credit relations between the respective firm and all sample banks that exceed €1.5m (*Deutsche Bundesbank*)
BankDebtIn	Total volume of credit relations between the respective firm and all banks represented on the supervisory board that exceed €1.5m (*Deutsche Bundesbank*)
BankDebtOut	Total volume of credit relations between the respective firm and all banks not represented on the supervisory board that exceed €1.5m (*Deutsche Bundesbank*)
BankDummy	= 1 if one or more members of the company's supervisory board are classified as Bankers (*Hoppenstedt*)
BoardSize	Number of supervisory board members appointed by shareholders (*Hoppenstedt*)
CapEx	= Capital expenditure [04601] / total assets [02999]
Cashflow	= Earnings before extraordinary items [01751] + depreciation [01151] / total assets [02999]
ΔCash	= Change in cash and short-term investments [02001 – lag(02001)] / total assets [02999]
DeutscheBankDummy	= 1 if one or more members of the company's supervisory board are classified as Deutsche Bank Bankers (*Hoppenstedt*)
DresdnerBankDummy	= 1 if one or more members of the company's supervisory board are classified as Dresdner Bank Bankers (*Hoppenstedt*)
FreeFloat	= 1 – *BankEquity – NonBankEquity*
Herfindahl	Herfindahl index (sum of squares) of all individual voting blocks
Intangibles	= Intangible assets [02649] / total assets [02999]
InterestCover	= EBIT [18191] / interest expense on debt [01251]
LeverageBanks	= BankDebt / (total debt [03255]+ market capitalization [08001])
LeverageBook	= Total debt [03255] / (total debt + common equity [03501])
LeverageMarket	= Total debt [03255] / (total debt + market capitalization [08001])
Variable	**Description**
NonBankEquity	Sum of all voting blocks held by non-banks (*Hoppenstedt*)
PayoutRatio	= Common dividends (cash) / Net Income after preferred * 100 [08256]

PercentBank AcqAdvisor	= Number of acquisitions with a sample bank as advisor / Total number of acquisitions of one firm in the respective year; this variable is calculated for each bank separately (*SDC Platinum*)
PercentBankers	Number of Bankers on the supervisory board divided by *BoardSize* (*Hoppenstedt*)
PercentBankers WithoutEquity	Number of Bankers from banks which hold no voting blocks on the supervisory board divided by *BoardSize* (*Hoppenstedt*)
PercentBankers WithEquity	Number of Bankers from banks which hold voting blocks on the supervisory board divided by *BoardSize* (*Hoppenstedt*)
Productivity	= Net sales or revenues [01001] / number of employees [07011]
R&D	= Research and Development expenditure [01201] / total assets [02999]
ROA	Return on Assets: $EBIT_t$ [18191] / 0.5 * (total $assets_t$ [02999] + total $assets_{t-1}$)
Sales	= Net sales or revenues [01001]
SalesGrowth	= (net $sales_t$ [01001] - net $sales_{t-1}$) / net sales $_{t-1}$
TobinsQ	= (market capitalization [08001] + total assets [02999] – common equity [03501]) / total assets
Volatility	Standard deviation of daily excess returns (from market model) over the preceding calendar year (own computations; data from *Datastream*)

Table 2: Summary statistics

This table displays descriptive statistics for 25 variables used in our analysis. Board data are taken from *Hoppenstedt* company profiles, accounting data from *Worldscope*, and market data from *Datastream*. Bank debt data was provided by the *Deutsche Bundesbank*, it includes all individual (sample) bank-firm credit relations that exceed €1.5 million. Only non-financial firm year observations are used.

Variable	N	Min	Max	Mean	Median	Standard deviation
BankDummy	1388	0	1	0.46	0	0.50
PercentBankers	1388	0.0%	50.0%	8.8%	0.0%	10.9%
BoardSize	1388	2	15	7.06	6	2.13
AvgBoardComp. ('000 €)	1063	0.0	498.7	36.8	25.2	38.2
AvgMan.Comp. ('000 €)	1051	5.0	5676.6	833.6	636.0	645.0
BankEquity	1388	0.0%	91.0%	3.3%	0.0%	9.3%
BankEquityIn	1388	0.0%	55.6%	2.6%	0.0%	8.2%
BankEquityOut	1388	0.0%	91.0%	0.7%	0.0%	4.3%
NonBankEquity	1388	0.0%	100.0%	53.8%	56.0%	32.1%
FreeFloat	1388	0.0%	100.0%	42.9%	42.0%	30.2%
Herfindahl	1388	0	1.00	0.33	0.25	0.32
TobinsQ	1282	0.67	12.53	1.54	1.24	1.03
ROA	1321	-44.9%	67.1%	7.9%	6.8%	8.2%
Productivity ('000 €/employee)	1333	32	7,988	237	177	332
Sales (in million €)	1338	13	162,384	8,219	1,910	17,987
SalesGrowth	1322	-94.8%	2840.4%	9.7%	5.4%	81.5%
R&D	1338	0	0.231	0.020	0.000	0.036
Intangibles	1332	0	0.754	0.091	0.042	0.116
LeverageBook	1324	0	0.996	0.379	0.379	0.239
LeverageMarket	1296	0	0.980	0.274	0.248	0.211
LeverageBanks	1279	0	3.042	0.146	0.067	0.251
InterestCover	1336	0	858.672	15.365	3.961	59.434
CapEx	1328	0	0.680	0.071	0.056	0.064
PayoutRatio	1139	0.0%	99.9%	31.8%	29.9%	25.7%
Volatility	1308	0.003	0.149	0.021	0.020	0.010

Table 3: Trends for interlocking directorships, ownership structure, Tobin's Q and compensation

This table displays annual means of 13 variables on interlocking directorships, ownership structure, Tobin's Q and Compensation. See Table 1 for a definition of the variables. "TobinsQ (German GAAP)" refers to the Tobin's Q of those firms that report according to German GAAP. Since most firms switch from German GAAP to international accounting standards between 2000 and 2003 we do not report TobinsQ (German GAAP) for 2004 and 2005. For each column, the means are calculated only from those firms for which the corresponding variable was available for all years. Compensation data is generally not available before 1997.

Year	Board Size	Bank Dummy	Percent Bankers	Herfin-dahl	Bank Equity	NonBank Equity	Free Float	TobinsQ	TobinsQ (German GAAP)	Avg BoardComp. ('000 €)	Avg BoardComp. scaled by firm value	AvgMan.Comp. ('000 €)	AvgMan.Comp. scaled by firm value
1994	6.92	0.507	0.096	0.388	0.041	0.554	0.405	1.52	1.46				
1995	6.93	0.533	0.101	0.376	0.036	0.559	0.405	1.50	1.32				
1996	6.93	0.493	0.093	0.346	0.054	0.550	0.397	1.48	1.31				
1997	6.96	0.507	0.093	0.326	0.043	0.541	0.415	1.62	1.40	32.1	0.0026%	616.4	0.0690%
1998	6.92	0.533	0.103	0.342	0.037	0.543	0.420	1.64	1.50	32.2	0.0030%	676.2	0.0773%
1999	7.08	0.533	0.103	0.307	0.036	0.520	0.444	1.52	1.37	37.0	0.0034%	715.6	0.0799%
2000	7.08	0.547	0.106	0.302	0.031	0.528	0.441	1.53	1.33	47.9	0.0033%	856.0	0.0947%
2001	7.05	0.520	0.100	0.310	0.041	0.518	0.440	1.49	1.35	47.1	0.0031%	899.5	0.0847%
2002	7.05	0.507	0.099	0.272	0.025	0.519	0.456	1.26	1.17	48.7	0.0035%	953.2	0.0882%
2003	6.97	0.400	0.073	0.290	0.028	0.529	0.443	1.40	1.25	52.9	0.0032%	1142.6	0.0786%
2004	6.93	0.360	0.064	0.280	0.014	0.475	0.511	1.43		56.3	0.0031%	1258.5	0.0809%
2005	6.93	0.333	0.056	0.278	0.004	0.477	0.519	1.48		68.4	0.0035%	1377.0	0.0656%
Number of firms	75	75	75	75	75	75	75	59	22	59	59	58	58

Table 4: Determinants of the percentage of bankers on the board

The table presents results for Tobit and Arellano-Bond regressions with PercentBankers as the dependent variable and lagged explanatory variable. See Table 1 for a definition of all variables. For each dependent variable, the table displays the slope estimate and in parentheses the p-values of the two-sided t-test for zero slope. Models (3) and (4) include year and industry dummies which are based on the prime sector classification of Deutsche Börse. Models (5) and (6) include year dummies. Estimates of the coefficients on the dummy variables are not displayed. Only firm-year observations with German GAAP reporting were used.

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable			**PercentBankers**			
Method	Tobit		Tobit		Arellano-Bond	
$PercentBankers_{t-1}$	1.1595	1.1544	1.1531	1.1500	0.5426	0.5280
	(0.00%)	(0.00%)	(0.00%)	(0.00%)	(0.00%)	(0.00%)
$TobinsQ_{t-1}$	0.0040	0.0029	0.0090	0.0061	0.0111	0.0093
	(53.87%)	(66.47%)	(19.01%)	(37.92%)	(13.69%)	(24.06%)
$BankEquity_{t-1}$	-0.0210	-0.0245	0.0021	-0.0053	-0.0175	-0.0294
	(50.42%)	(44.17%)	(95.06%)	(87.72%)	(69.66%)	(54.38%)
$NonBankEquity_{t-1}$	-0.0225	-0.0228	-0.0084	-0.0095	0.0232	0.0134
	(8.35%)	(7.90%)	(53.43%)	(48.32%)	(34.05%)	(60.18%)
$Sales_{t-1}$	0.0056	0.0051	0.0071	0.0064	-0.0011	0.0028
	(19.17%)	(24.01%)	(11.19%)	(15.73%)	(88.17%)	(70.28%)
$CapEx_{t-1}$	-0.0058	0.0129	0.0600	0.0748	0.0214	0.0291
	(91.88%)	(82.17%)	(32.23%)	(22.34%)	(70.99%)	(63.64%)
$Intangibles_{t-1}$	-0.1354	-0.1202	-0.1033	-0.0987	-0.1143	-0.0904
	(0.16%)	(0.61%)	(2.78%)	(3.01%)	(0.13%)	(2.95%)
$Volatility_{t-1}$	-0.7738	-0.6101	-0.8441	-0.6283	-0.2246	-0.2021
	(10.47%)	(18.81%)	(8.52%)	(19.25%)	(39.71%)	(52.92%)
$BoardSize_{t-1}$	0.0059	0.0062	0.0057	0.0062	0.0063	0.0065
	(3.91%)	(3.17%)	(6.91%)	(4.86%)	(32.10%)	(28.10%)
$LeverageMarket_{t-1}$	0.0313		0.0499		0.0693	
	(12.65%)		(2.01%)		(0.79%)	
$LeverageBanks_{t-1}$		0.0126		0.0171		0.0245
		(29.16%)		(19.15%)		(42.55%)
ROA_{t-1}	0.0256	0.0145	0.0412	0.0207	-0.0026	-0.0255
	(67.55%)	(81.37%)	(50.97%)	(74.49%)	(94.30%)	(46.38%)
$Productivity_{t-1}$	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(70.57%)	(57.61%)	(83.34%)	(95.25%)	(16.72%)	(40.03%)
$SalesGrowth_{t-1}$	0.0086	0.0085	0.0080	0.0079	0.0050	0.0049
	(0.05%)	(0.06%)	(0.12%)	(0.15%)	(0.00%)	(0.00%)
$R\&D_{t-1}$	0.0179	0.0356	0.0326	0.0351	0.1092	0.0741
	(88.32%)	(77.43%)	(82.12%)	(80.98%)	(37.77%)	(54.61%)
$InterestCover_{t-1}$	-0.0001	-0.0002	-0.0002	-0.0003	0.0000	0.0000
	(38.43%)	(36.25%)	(23.07%)	(21.29%)	(75.03%)	(88.50%)
Year dummies	No	No	Yes	Yes	Yes	Yes
Industry dummies	No	No	Yes	Yes	No	No
Observations	660	653	660	653	531	526
Uncensored observations	331	331	331	331		

Table 5: The effect of bank representation on leverage

The table presents results for OLS and Arellano-Bond regressions with market leverage and (sample) bank leverage as dependent and lagged explanatory variables. See Table 1 for a definition of all variables. For each dependent variable, the table displays the slope estimate and in parentheses the p-values of the two-sided t-test for zero slope. Models (2) and (5) include year and industry dummies which are based on the prime sector classification of Deutsche Börse. Models (3) and (6) include year dummies. Estimates of the coefficients on the dummy variables are not displayed. Only firm-year observations with German GAAP reporting were used.

	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Dependent variable	**LeverageMarket**			**LeverageBanks**		
Method	OLS	OLS	Arellano-Bond	OLS	OLS	Arellano-Bond
Lagged dependent variable	0.9027	0.9074	0.6806	0.9130	0.8790	-0.1215
	(0.00%)	(0.00%)	(0.00%)	(0.00%)	(0.00%)	(2.57%)
$PercentBankers_{t-1}$	0.0820	0.0686	0.1215	0.0038	-0.0185	0.1943
	(3.62%)	(7.80%)	(25.70%)	(94.93%)	(75.57%)	(25.49%)
$BankEquity_{t-1}$	-0.0643	-0.0699	-0.1946	-0.0235	-0.0259	-0.0183
	(9.83%)	(7.62%)	(0.20%)	(69.07%)	(66.61%)	(77.06%)
$NonBankEquity_{t-1}$	-0.0117	-0.0143	0.0280	-0.0142	-0.0148	0.0561
	(42.31%)	(33.58%)	(61.53%)	(51.97%)	(51.44%)	(29.19%)
$Sales_{t-1}$	-0.0018	0.0010	-0.0042	-0.0008	0.0042	0.0149
	(69.66%)	(83.28%)	(75.58%)	(90.48%)	(55.17%)	(60.12%)
$CapEx_{t-1}$	0.0792	0.0542	-0.2208	-0.0483	-0.0219	0.1943
	(17.21%)	(37.46%)	(10.61%)	(58.97%)	(81.51%)	(8.15%)
$Intangibles_{t-1}$	0.0003	0.0235	-0.1699	-0.0884	-0.0591	0.0131
	(99.51%)	(63.12%)	(27.02%)	(19.65%)	(43.58%)	(83.41%)
$Volatility_{t-1}$	0.2451	-0.5919	-1.4020	-0.0813	0.3092	-0.9214
	(60.09%)	(26.49%)	(1.78%)	(90.97%)	(71.25%)	(48.54%)
$BoardSize_{t-1}$	-0.0027	-0.0041	0.0046	0.0008	0.0009	0.0281
	(39.65%)	(22.40%)	(74.27%)	(87.05%)	(86.10%)	(6.34%)
Year dummies	No	Yes	Yes	No	Yes	Yes
Industry dummies	No	Yes	No	No	Yes	No
Observations	673	673	549	665	665	543
R^2 (adjusted)	0.784	0.797		0.762	0.775	

Table 6: The effect of bank representation on bank debt

The table presents results for change of bank debt in firms with and without bankers on board. ΔBankDebt is calculated as the logarithmic difference of $BankDebt_t$ and $BankDebt_{t-1}$. ΔBankDebtIn is the change in BankDebt from period t-1 to t that is provided by those banks that were represented on the board in period t-1. Analogously, ΔBankDebtOut is the change in BankDebt from period t-1 to t that is provided by those banks that were not represented on the board in period t-1. The test of equality of means is a standard two sample t-test. The equality of medians is tested by the Wilcoxon rank-sum test. All firm-year observations were used.

Comparison of firms with and without bankers on the board		
all observations with board information and positive BankDebt (N=1290)		
	Mean	**Median**
ΔBankDebt if PercentBanker=0 (N=673)	-0.0373	-0.0292
ΔBankDebt if PercentBanker>0 (N=617)	0.0445	0.0195
Test of equality (p-value)	(14.0%)	(3.4%)
Comparison of debt provided by insider bankers and outside bankers		
all observations with at least one banker on the board and positive BankDebtIn as well as positive BankDebtOut (N=462)		
	Mean	**Median**
ΔBankDebtIn	0.0249	-0.0118
ΔBankDebtOut	0.0399	-0.0082
Test of equality (p-value)	(77.7%)	(80.0%)
subsample with positive ΔBankDebt (N=229)		
ΔBankDebtIn	0.4742	0.2862
ΔBankDebtOut	0.3824	0.2273
Test of equality (p-value)	(25.6%)	(6.1%)
subsample with negative ΔBankDebt (N=233)		
ΔBankDebtIn	-0.4168	-0.2388
ΔBankDebtOut	-0.2967	-0.1746
Test of equality (p-value)	(8.2%)	(2.2%)
Comparison of firms with and without bankers on the board		
all observations with positive BankDebt and ΔBankDebt unequal zero (N=1130)		
	Mean	**Median**
BankDebtIn / BankDebt	0.2474	0.0000
ΔBankDebtIn / ΔBankDebt	0.5363	0.0000
Test of equality (p-value)	(9.2%)	(1.3%)

Table 7: The effect of bank representation on mergers and acquisitions advisory

The table presents results for Tobit regressions with the percentage of annual acquisitions advised by all sample banks (PercentBankAcqAdvisor), Deutsche Bank (PercentDeutscheBankAcqAdvisor = Number of acquisitions with Deutsche Bank as advisor / Total number of acquisitions) and Dresdner Bank (PercentDresdnerBankAcqAdvisor = Number of acquisitions with Dresdner Bank as advisor / Total number of acquisitions) as dependent variables. PercentBankAcqAdvisor is calculated individually for each sample bank across the complete dataset. Then all bank specific datasets are used in a pooled regression in Model (1). Data on number of annual acquisitions and names of acquisition advisors for all non-financial sample firms is obtained from *SDC Platinum*. See Table 1 for a definition of all explanatory variables. For each dependent variable, the table displays the slope estimate and in parentheses the p-values of the two-sided t-test for zero slope. Model (1) includes year and industry dummies which are based on the prime sector classification of Deutsche Börse. Estimates of the coefficients on the dummy variables are not displayed. All observations with at least one acquisition in the respective year were used.

	(1)	**(2)**	**(3)**
Dependent variable	**PercentBank AcqAdvisor**	**Percent DeutscheBank AcqAdvisor**	**Percent DresdnerBank AcqAdvisor**
Method		Tobit	
BankDummy	0.6893		
	(0.00%)		
DeutscheBankDummy		0.2980	
		(2.40%)	
DresdnerBankDummy			0.3481
			(2.25%)
Sales	0.0878	0.1109	0.0503
	(8.19%)	(4.99%)	(47.68%)
CapEx	0.1390	0.5887	-2.1434
	(90.58%)	(62.16%)	(35.08%)
Intangibles	1.1085	1.2046	0.6290
	(0.69%)	(1.21%)	(25.09%)
Volatility	-1.2244	-1.2679	4.4370
	(83.25%)	(85.03%)	(48.66%)
BoardSize	0.0384	0.0266	0.0665
	(33.67%)	(57.82%)	(27.51%)
Year dummies	Yes	No	No
Industry dummies	Yes	No	No
Observations	7000	700	700
uncensored Observations	52	32	15

Table 8: The effect of bank representation on capital expenditures

The table presents results for OLS regressions with capital expenditure as the dependent variable. See Table 1 for a definition of all variables. The table displays slope estimates, p-values of the two-sided t-test for zero slope (in parentheses), the adjusted R^2, and the number of observations. All models include year and industry dummies, which are based on the prime sector classification of Deutsche Börse. Estimates of the coefficients on the dummy variables are not displayed. The test of equality of coefficients is a standard t-test. Only firm-year observations with German GAAP reporting were used.

	(1)	(2)	(3)	(4)	(5)
Dependent variable			**CapEx**		
Method			OLS		
Subsample	All	PayoutRatio		TotalAssets	
		(<50%)	(>50%)	(<50%)	(>50%)
Cashflow	0.1988	0.1795	0.3223	0.0558	0.1985
	(0.00%)	(0.00%)	(0.02%)	(14.12%)	(2.42%)
PercentBankers	0.0128	0.0509	-0.1698	0.0030	0.0740
	(70.17%)	(25.45%)	(0.72%)	(95.08%)	(12.75%)
CashFlow*PercentBankers	0.2694	-0.4448	2.0624	0.1591	-0.0037
	(37.14%)	(24.52%)	(0.04%)	(67.83%)	(99.40%)
TotalAssets	-0.0044	-0.0019	-0.0025	-0.0016	-0.0050
	(0.80%)	(48.42%)	(23.22%)	(75.78%)	(10.72%)
TobinsQ	0.0014	0.0043	-0.0129	0.0013	-0.0051
	(61.86%)	(23.77%)	(0.86%)	(75.51%)	(43.00%)
Test of equality (p-value)		(0.03%)		(79.33%)	
Observations	796	336	356	399	396
R^2 (adjusted)	0.560	0.581	0.709	0.733	0.439

Table 9: The effect of bank representation on mean sector bank debt volume

The table presents results for Tobit regressions with mean sector bank debt volume scaled by total assets (SectorBankDebtVolume) as the dependent variable and lagged explanatory variable. All sector means are calculated individually for each sample bank across the complete dataset. Then all bank specific datasets are pooled. Sector definitions follow the prime sector classification of Deutsche Börse. See Table 1 for a definition of original variables. For each dependent variable, the table displays the slope estimate and in parentheses the p-values of the two-sided t-test for zero slope. Models (2) and (3) include year and industry dummies which are based on the prime sector classification of Deutsche Börse. Models (3) also include bank dummies. Estimates of the coefficients on the dummy variables are not displayed. All firm-year observations were used to calculate the sector means.

	(1)	**(2)**	**(3)**
Dependent variable	**SectorBankDebtVolume**		
Method	Tobit		
Lagged dependent variable	0.9061	0.8902	0.6757
	(0.00%)	(0.00%)	(0.00%)
$SectorPercentBankers_{t-1}$	0.0654	0.0723	0.0280
	(0.00%)	(0.00%)	(1.35%)
$SectorBankEquity_{t-1}$	-0.0031	-0.0072	0.0023
	(54.76%)	(50.73%)	(83.46%)
$SectorNonBankEquity_{t-1}$	-0.0015	-0.0020	-0.0029
	(33.73%)	(38.49%)	(20.43%)
$SectorSales_{t-1}$	-0.0008	0.0006	0.0010
	(3.53%)	(46.44%)	(23.84%)
$SectorVolatility_{t-1}$	-0.0615	0.0792	0.0202
	(2.36%)	(12.96%)	(70.18%)
$SectorBoardSize_{t-1}$	0.0005	0.0002	0.0002
	(6.53%)	(64.94%)	(71.33%)
Year dummies	No	Yes	Yes
Industry dummies	No	Yes	Yes
Bank dummies	No	No	Yes
Observations	1700	1700	1700
Uncensored observations	1077	1077	1077

Table 10: The effect of bank representation on financing decisions and volatility

The table presents results for OLS and Arellano-Bond regressions with payout ratio, interest cover, capital expenditures, and volatility as dependent and lagged explanatory variables. See Table 1 for a definition of all explanatory variables. For each dependent variable, the table displays the slope estimate and in parentheses the p-values of the two-sided t-test for zero slope. Models (2), (5), (8) and (11) include year and industry dummies which are based on the prime sector classification of Deutsche Börse. Models (3), (6), (9) and (12) include year dummies. Estimates of the coefficients on the dummy variables are not displayed. Only firm-year observations with German GAAP reporting were used.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Dependent variable	**Payout Ratio**			**Interest Cover**			**Capital Expenditure**			**Volatility**		
Method	OLS	OLS	Arellano-Bond	OLS	OLS	Arellano-Bond	OLS	OLS	Arellano-Bond	OLS	OLS	Arellano-Bond
Lagged dependent variable	0.6153	0.5938	0.2277	0.6424	0.6415	0.4934	0.6966	0.6609	0.0137	0.6411	0.5279	0.0941
	(0.00%)	(0.00%)	(0.42%)	(0.00%)	(0.00%)	(0.52%)	(0.00%)	(0.00%)	(94.20%)	(0.00%)	(0.00%)	(38.40%)
$PercentBankers_{t-1}$	-0.0235	-0.0430	0.0371	-13.1015	-13.5234	-21.2656	-0.0196	-0.0245	-0.0826	-0.0031	-0.0019	-0.0023
	(78.89%)	(62.95%)	(89.21%)	(41.32%)	(41.30%)	(28.44%)	(30.56%)	(20.48%)	(31.60%)	(24.59%)	(46.10%)	(68.00%)
$BankEquity_{t-1}$	-0.1790	-0.1707	-0.3570	7.0967	6.4255	-1.2555	-0.0031	0.0037	-0.0178	0.0023	0.0003	-0.0177
	(3.06%)	(5.10%)	(2.71%)	(65.37%)	(69.99%)	(94.06%)	(86.95%)	(84.82%)	(43.26%)	(38.29%)	(89.75%)	(0.04%)
$NonBankEquity_{t-1}$	0.0421	0.0288	-0.0593	2.2069	3.1108	13.0093	0.0054	0.0033	-0.0092	0.0002	-0.0003	-0.0080
	(17.36%)	(38.64%)	(65.37%)	(70.92%)	(62.11%)	(22.08%)	(43.93%)	(65.70%)	(49.32%)	(84.32%)	(76.07%)	(1.94%)
$LeverageBanks_{t-1}$	-0.0362	-0.0494	-0.0408	-4.2168	-5.0151	-4.3401	-0.0146	-0.0120	0.0405	0.0042	0.0043	0.0095
	(24.36%)	(13.99%)	(46.10%)	(47.66%)	(44.52%)	(20.94%)	(4.00%)	(11.73%)	(12.96%)	(0.00%)	(0.00%)	(1.95%)
$Sales_{t-1}$	-0.0134	-0.0060	0.0412	-0.2551	-0.0151	21.3625	0.0085	0.0079	-0.0092	-0.0001	-0.0003	-0.0001
	(19.06%)	(57.35%)	(29.12%)	(89.14%)	(99.39%)	(2.09%)	(0.01%)	(0.06%)	(12.11%)	(65.98%)	(34.33%)	(91.26%)
$CapEx_{t-1}$	0.1086	0.0928	-0.1985	-16.4435	-14.5149	-12.0707				-0.0029	-0.0041	-0.0160
	(43.22%)	(53.20%)	(46.82%)	(49.36%)	(57.64%)	(44.00%)				(46.78%)	(31.44%)	(5.12%)
$Intangibles_{t-1}$	0.1920	0.2310	0.3535	-14.6179	-5.9197	15.5304	-0.0499	-0.0410	-0.0174	0.0021	-0.0013	0.0069
	(5.54%)	(4.23%)	(18.35%)	(42.59%)	(77.83%)	(51.89%)	(2.17%)	(9.48%)	(76.23%)	(49.38%)	(68.57%)	(45.31%)
$Volatility_{t-1}$	-2.2092	-3.3984	-2.0529	-338.4578	-263.5611	-714.0996	0.6930	0.9741	0.7647			
	(3.14%)	(0.57%)	(47.39%)	(7.82%)	(25.79%)	(34.67%)	(0.25%)	(0.03%)	(21.75%)			
$BoardSize_{t-1}$	0.0131	0.0065	0.0275	-0.9881	-0.9966	-2.2174	-0.0043	-0.0047	0.0085	-0.0004	-0.0003	-0.0009
	(6.56%)	(40.93%)	(40.37%)	(44.42%)	(48.68%)	(18.44%)	(0.45%)	(0.44%)	(48.61%)	(7.40%)	(17.97%)	(31.36%)
Year dummies	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Industry dummies	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes	No
Observations	514	514	374	665	665	543	663	663	542	666	666	544
R^2 (adjusted)	0.477	0.481		0.553	0.547		0.565	0.574		0.477	0.524	

Table 11: The effect of bank representation on compensation

The table presents results for OLS and Arellano-Bond regressions with average board and management compensation as the dependent variable and lagged explanatory variable. See Table 1 for a definition of all variables. For each dependent variable, the table displays the slope estimate and in parentheses the p-values of the two-sided t-test for zero slope. Additionally the p-value of the F-test for the equality of $PercentBankersWithoutEquity_{t-1}$ and $PercentBankersWithEquity_{t-1}$ is displayed. Models (1) and (3) include industry dummies which are based on the prime sector classification of Deutsche Börse. Models (2) and (4) include year and industry dummies. Estimates of the coefficients on the dummy variables are not displayed. Only firm-year observations with German GAAP reporting were used.

	(1)	**(2)**	**(3)**	**(4)**
Dependent variable	**AvgMan.Comp.**		**AvgBoardComp.**	
Method	OLS			
Lagged dependent variable	0.6530	0.6120	0.4113	0.3983
	(0.00%)	(0.00%)	(7.64%)	(8.13%)
$PercentBankersWithoutEquity_{t-1}$	16.4527	91.4110	16.0044	19.6812
	(92.55%)	(59.99%)	(4.98%)	(9.43%)
$PercentBankersWithEquity_{t-1}$	-881.3088	-950.9790	-9.1110	-10.1096
	(1.40%)	(0.99%)	(68.29%)	(64.36%)
$BankEquity_{t-1}$	411.7711	474.2569	-0.3208	1.5711
	(12.69%)	(8.82%)	(97.72%)	(88.65%)
$NonBankEquity_{t-1}$	-95.0140	-86.2237	-8.8088	-8.3158
	(26.92%)	(29.94%)	(3.65%)	(4.70%)
$Sales_{t-1}$	65.2432	70.6600	5.6264	5.8874
	(0.05%)	(0.02%)	(0.97%)	(0.83%)
$TobinsQ_{t-1}$	14.4097	26.4012	2.0315	2.4995
	(67.01%)	(45.83%)	(6.38%)	(4.31%)
$Intangibles_{t-1}$	99.5892	23.8980	0.7383	-3.0471
	(52.65%)	(87.30%)	(93.95%)	(76.39%)
$Volatility_{t-1}$	-116.5887	-2584.3820	-168.0079	-268.5516
	(94.88%)	(23.29%)	(12.21%)	(1.03%)
$BoardSize_{t-1}$	-13.1704	-12.3069	-0.9470	-0.9821
	(37.76%)	(40.16%)	(20.92%)	(19.20%)
$PercentBankersWithoutEquity_{t-1}$= $PercentBankersWithEquity_{t-1}$	(1.44%)	(1.75%)	(14.73%)	(24.04%)
Year dummies	No	Yes	No	Yes
Industry dummies	Yes	Yes	Yes	Yes
Observations	406	406	415	415
R^2 (adjusted)	0.492	0.493	0.440	0.449

Table 12: The effect of bank representation on Tobin’s Q

The table presents results for OLS and Arellano-Bond regressions with Tobin's Q as the dependent variable and lagged explanatory variable. See Table 1 for a definition of all variables. For each dependent variable, the table displays the slope estimate and in parentheses the p-values of the two-sided t-test for zero slope. Models (2) and (5) include year and industry dummies which are based on the prime sector classification of Deutsche Börse. Models (3) and (6) include year dummies. Estimates of the coefficients on the dummy variables are not displayed. Only firm-year observations with German GAAP reporting were used.

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable			**TobinsQ**			
Method	OLS		OLS		Arellano-Bond	
$TobinsQ_{t-1}$	0.9145	0.8903	0.8521	0.8461	-0.0188	-0.0183
	(0.00%)	(0.00%)	(0.00%)	(0.00%)	(89.21%)	(89.20%)
$PercentBankersWithoutEquity_{t-1}$	-0.4453	-0.3690	-0.5370	-0.4653	0.2052	0.1764
	(3.45%)	(7.01%)	(1.31%)	(2.66%)	(60.70%)	(69.51%)
$PercentBankersWithEquity_{t-1}$	-0.2105	-0.1744	-0.2304	-0.2056	-0.2387	-0.1650
	(56.56%)	(62.59%)	(53.94%)	(57.88%)	(44.35%)	(56.39%)
$BankEquity_{t-1}$	0.0476	0.1261	-0.0286	-0.0005	0.0938	0.0159
	(86.31%)	(64.03%)	(91.83%)	(99.86%)	(63.41%)	(93.68%)
$NonBankEquity_{t-1}$	0.0509	0.1186	0.0737	0.0967	0.2154	0.2320
	(47.06%)	(8.67%)	(31.44%)	(17.59%)	(16.73%)	(10.75%)
$Sales_{t-1}$	0.0202	0.0167	-0.0091	0.0211	-0.0089	0.0281
	(35.96%)	(46.69%)	(69.62%)	(37.83%)	(94.49%)	(82.23%)
$CapEx_{t-1}$	0.2689	0.1118	0.7400	0.3154	1.0909	-0.3024
	(33.09%)	(70.04%)	(3.38%)	(37.63%)	(22.90%)	(59.92%)
$Intangibles_{t-1}$	-0.1902	-0.2078	-0.3030	-0.2878	-0.7455	-0.8673
	(37.59%)	(33.29%)	(21.53%)	(23.58%)	(27.36%)	(20.46%)
$Volatility_{t-1}$	-5.5860	-5.2715	-5.1610	-4.6241	-3.2114	-2.4068
	(1.07%)	(1.89%)	(4.79%)	(8.13%)	(25.59%)	(37.97%)
$BoardSize_{t-1}$	0.0013	0.0034	0.0298	0.0084	0.0156	0.0304
	(93.20%)	(82.26%)	(7.64%)	(62.04%)	(68.26%)	(26.20%)
$LeverageBook_{t-1}$		0.0003		-0.0633		-0.0284
		(99.72%)		(51.09%)		(87.11%)
ROA_{t-1}		0.4187		0.3857		0.1030
		(15.49%)		(21.20%)		(61.84%)
$Productivity_{t-1}$		0.0001		-0.00022		-0.00042
		(48.50%)		(14.28%)		(28.80%)
$SalesGrowth_{t-1}$		-0.0027		-0.0026		-0.0045
		(86.14%)		(86.61%)		(58.75%)
$R\&D_{t-1}$		2.1155		0.9662		-2.7971
		(0.10%)		(22.34%)		(39.81%)
Year dummies	No	No	Yes	Yes	Yes	Yes
Industry dummies	No	No	Yes	Yes	No	No
Observations	653	651	653	651	526	523
R^2 (adjusted)	0.737	0.757	0.747	0.767		