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

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Abstract

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 1994 to 2005. We find that banks that are represented on a firm's board promote their investment banking services and increase their lending to firms in the same industry. We also find evidence that the presence of bankers on the board causes a decline in the valuations of non-financial firms. We do not find convincing evidence for standard explanations that bankers use board seats to monitor their equity interests or their interests as lenders, or that bankers are capital market experts and help firms to overcome financial constraints. We conclude that board representation in non-financial firms is in the interest of banks, but not in the interest of the non-bank shareholders in these firms.

JEL classifications: G21, G34

Keywords: Banks, Boards, Corporate Governance, Germany

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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 1994 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, which allowed banks to divest their equity holdings without paying capital gains taxes. As a result, bank equity holdings in non-financial firms vanish almost completely by 2005, whereas board representation declines only moderately. This setting allows us to investigate a number of hypotheses regarding bank involvement that have been formulated in the literature. We hand-collect a panel 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 boards of non-financial firms is clearly beneficial for the banks, but results in low valuations of the non-financial firms.

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 and emphasize 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 protect their loans to the same firms. The usual counter argument is that such a behavior would destroy a bank's reputation, which is arguably its most valuable asset.[3] However, specialist banking also *creates* conflicts of

1 See Section 2 for a detailed discussion of the literature on this subject.

2 See for example Mayer (1988).

3 Kroszner and Rajan (1994) show that there is no evidence that banks deceived U.S. investors before the introduction of the Glass Steagall act in 1933. De Long (1991) and Ramirez (1995) provide evidence

interest as board-appointed commercial bankers have been shown to be detrimental to firm value.[4] By contrast, a universal bank that also owns a stake in the firm has interests that are much more aligned with those of shareholders. We contribute to the discussion on universal vs. specialist banking by investigating a number of hypotheses for the presence of universal banks on the boards of German non-financial firms:

- Bankers act as monitors, either of their equity interests or of their interests as lenders
- Bankers are capital market 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 from 1994 to 2005. This provides us with a data set for 137 non-financial firms and 11 banks.

Our main result is that banks clearly benefit from being present on the boards of non-financial firms, whereas the non-financial firms do not gain from such an arrangement. Banks that are represented on a firm's board are more successful than other banks in increasing their future lending to the same industry. They are also more likely to be chosen as an advisor if the firm undertakes an acquisition. Moreover, we find evidence that bank representation reduces the non-financial firm's market valuation whereas we do not find any evidence for the opposite direction of causation. Our results therefore support the hypothesis that bankers seek board seats in order to promote their own business, either directly, as in the case of M&A advisory services, or via acquiring industry-expertise and lending to other firms in the same industry.

We do not find any evidence (and sometimes even conflicting evidence) that bankers on the board act as monitors. They neither act in their interests as lenders, nor in their interests as equity-holders, where the latter role largely disappears during our sample period. Also, we

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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.

cannot find much evidence that bankers are capital market experts who help companies to acquire external finance more easily.

A major challenge of our study is to identify the direction of causality. We address the endogeneity problem by taking advantage of the time dimension in our panel dataset: We lag the independent variables in our regressions and include the lagged dependent variable as an additional right-hand-side variable. Hence, we only analyze the explanatory power of the dependent variables *beyond* the explanatory power included in lagged values of the dependent variable itself. Our approach therefore allows us to distinguish between mere correlations and causality (in the sense of Granger, 1969).

Our dataset facilitates this type of analysis because of its comparatively large time dimension of 12 years (1994 to 2005) and because a tax reform in 2002 led to an increased time series variation of the variables that measure bank representation. 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. Mostly because of this legal change, average equity ownership of banks in non-financial companies in Germany declined by a factor of 10, from 4.1% in 1994 to 0.4% in 2005. During the same period, the number of top 100 firms where bankers are represented on the board declined from 51% to 33%, while the number of board seats held by bankers declined from 9.6% to 5.6%.

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 whether firms benefit from having a banker on their board. Section 7 integrates our findings and relates them to the hypotheses developed in Section 2. Section 8 concludes.

2 Literature Review and Hypothesis Development

Several mutually non-exclusive hypotheses regarding bank representation have been advanced in the literature.[5] We develop these hypotheses here in detail. In all cases, we

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

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.[6]

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.[7] 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.[8] 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 managers to overinvest or to waste resources.

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,

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6 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).

7 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 capital markets expertise hypothesis (pp. 229-30).

8 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).

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.[9] Hence, we should see a negative association between the appointment of a banker and Tobin's Q.[10] 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. As a consequence, we should observe improving performance and higher 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 equity interests. In particular, bankers might seek board seats in order to sell debt to the firm (**debt selling** hypothesis).[11] 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

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9 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.

10 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.

11 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.

borrowing from other sources.[12] 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.

A closely related argument, the **industry expertise** hypothesis states 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.[13] This hypothesis implies that a bank's representation on the boards within an industry is positively related to future lending of this bank to firms in this industry.

Banks may also sell other services to their clients and we label this hypothesis **selling M&A advisory services** (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.

Finally, 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.[14] 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 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

[12] 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.

[13] 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.

[14] 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.

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.

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 (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.[15]

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 1994, 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 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 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]

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[15] This statement is correct for our context where banks represent their interests on the board of directors. Banks may be held liable for interventions in a company if they obtain the right to do so after a breach of covenants by a creditor.

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

[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

Under applicable German law, in particular the co-determination act (*Mitbestimmungs-gesetz*) 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 2005, an 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 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. We show below that this change in legislation increases the time-series variation of bank involvement in our dataset.

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.

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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.

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 information about block holders, and the total payments to members of the supervisory board and to members of the management board. 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 relationships, which they collect according to Section 14 of the German Banking Act (*Kreditwesengesetz*).[20] 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 our variables at the firm-year level and reports their respective sources. Table 2 presents summary statistics for the sample of non-financial firms.

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

20 According to Section 14 of the German Banking Act (*Kreditwesengesetz*), German banks have to report all creditors whose total credit volume exceeds €1.5m on a quarterly basis. The aim of this regulation is to track the financial liabilities of a firm, so a bank loan for which two firms are liable (e.g., because it is given to a joint venture of the two firms) appears twice in the database. While this double counting is a serious limitation of this database in general, it is less important in our case, because we are explicitly interested in all borrowing relationships a firm has to one of our sample banks. Also, the limitation of the database to lending in excess of €1.5m should not result in a substantial bias as we consider only large firms. We match the Bundesbank and Worldscope data manually based on the names of the firms and banks.

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.[21] 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 bank 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 7.06). 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 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).[22]

The average equity ownership of German banks, *BankEquity*, is only 3.3% during this period, again much reduced compared to the 7.3% reported for the earlier sample by

[21] 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).

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

Edwards and Fischer (1994).[23] The distribution of equity stakes is highly skewed: For only 19% of all our firm-year observations, *BankEquity* is positive and then it is 18.3% on average with a median of 13.2%. So, banks hold substantial stakes in a few companies rather than small stakes in all of them.

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, which reflects a substantial reduction in the number of firms where banks hold equity as well as in the average size of the remaining equity stakes.[24] 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 the percentage of bankers on boards fell from 9.6% to 5.6% over this period. Most of these changes happened between 2002 and 2004. This reduction is dramatic

[23] 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.

[24] The numbers in Tables 2 and 3 are not directly comparable because Table 3 is based on a subsample of 75 firms for which we have continuous data from 1994-2005. Of these firms, 26 have bank equity investments in 1994, of which 6 are left in 2005. The average size of one stake declines from 19.4% to 8.6% during this period.

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 boards 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.[25] The figures in these studies are not directly comparable, but they agree on the fact that banks' voting power derives to a 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.[26] 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 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

[25] 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.

[26] 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).

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 executive compensation are notoriously scant in Germany and we have no data on these variables before 1997. 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. Table 3 shows that management compensation increases steadily and more than doubles during the nine years for which we have data. This increase seems to 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 compensation divided by firm value even declines by 5% from 1997 to 2005. In our analysis, we also look at – and control for – firms' funding decisions as proxied by capital expenditure, research and development (both scaled by total assets), and the payout ratio, which is the percentage of net income paid out to shareholders. In addition to market leverage and book leverage, we use a third measure of leverage: *LeverageBanks* is the ratio of *BankDebt* to the sum of total debt and market capitalization and measures the part of market leverage that is provided by the banks in our sample. Due to the double

counting problem discussed in Footnote 22, *BankDebt* can be overstated and in a few cases it can be even higher than total debt.[27] This is the reason why the maximum of *LeverageBanks* is bigger than the maximum of *LeverageMarket* in Table 2. Apart from this, the numbers are very reasonable: average book leverage is 38%, average market leverage 27%, and average bank leverage is 15%. Finally, we also include three variables that proxy for the debt capacity of the firm: interest cover, defined as the ratio of EBIT to interest expense, the amount of intangible assets scaled by total assets, and the firm's stock price volatility.

We use dummy variables for calendar years and for industries. Our industry definition uses the definition of prime sectors of the German stock exchange, and we aggregate some sectors with a small number of firm-years in our sample to obtain 15 different industries.[28]

3.6 Methods

Endogeneity is a major problem in our analysis, because firm value, bank involvement, and firm policies 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. Similarly, some hypotheses predict that certain firm policies (like leverage or capital expenditure) should affect the board representation of bankers while other hypotheses imply the opposite direction of causality. Alternatively, we could estimate simultaneous equations with instrumental variables. However, we lack good instruments, and it is difficult to argue that any variable in our dataset is truly exogenous. Take for example *TotalAssets*, which is usually regarded as exogenous in simultaneous regressions involving Tobin's Q. In our context, *TotalAssets* would be endogenous under the capital markets expertise hypothesis, because bankers could raise capital expenditure and thereby total assets. Moreover, we consider variables that describe firms' policies (leverage, capital expenditure, payout ratio, interest cover, volatility, board compensation) also as endogenous and use them as dependent variables.

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[27] This bias is likely to affect only the level of *LeverageBanks*, but not the covariation of *LeverageBanks* with bank representation, which is the focus of our study.

[28] We consolidate media, telecommunications, and transport with consumer, and software with technology. This leaves us with 13 non-financial industries (automobiles, basic resources, chemicals, construction, consumer, finance, food, healthcare, industrial, machinery, retail, technology, utilities) and three financial industries (banks, finance, insurance). We need to consolidate industries in order to reduce the potential bias that is caused by the combination of fixed (industry) effects and lagged dependent variables (see Section 3.6 for more details).

We then do not have sufficiently many observations and remaining exogenous variables in order to reliably estimate such a large system of simultaneous equations.

We therefore resort to two alternative methods to address the endogeneity problem. First, in most of our regressions, we lag the independent variables by one year, and include the lagged dependent variable on the right hand side:

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

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. The main advantage of this approach is that we need not distinguish between exogenous and endogenous variables, so that we can analyze many potentially endogenous variables by putting them on the left-hand-side of Equation (1).

The second way in which we address endogeneity is to additionally include fixed effects that filter out year, industry, or firm effects and thereby any effect of missing variables that does not vary much across time or across firms. While year fixed effects are unproblematic, standard regressions with firm fixed effects and a lagged dependent variable as in Equation (1) generate biased estimates (see Baltagi, 2001, p. 129-131). In our firm fixed effects regressions, we therefore use the method proposed by Arellano and Bond (1991), which works with first differences and yields unbiased estimates. As this method cannot be used to estimate regressions with industry fixed effects, we make sure that the individual industries in our sample are not too small, so that the potential bias of the standard methods is small. Our smallest industry after this consolidation has 4 firms.

Our Granger causality approach described in Equation (1) works well for all our specifications, except for regressions with Tobin's Q as a dependent variable. Unlike our remaining variables, Tobin's Q incorporates market expectations. If we regress Tobin's Q on its own lag, then any other lagged independent variable (like last period's bank representation) should be insignificant if markets are informationally efficient. The reason is that last period's Tobin's Q already reflects all information from the other lagged

independent variables. Therefore, we use 2SLS instead of the Granger causality method in Tobin's Q regressions. These results must be interpreted with care as many of the explanatory variables in these regressions are possibly endogenous.

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 major 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.

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

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 M&A 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 potential bias that is introduced by the combination of fixed (industry) effects and lagged dependent variables (see Section 3.6), although this bias is likely to be very moderate because the number of industries is small. The table also shows two Arellano-Bond

regressions with firm and year fixed effects. Note, however, that this method does not take into account censoring.

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 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, 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 have 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 *TobinsQ* and on *BankEquity* are both insignificant. This last finding is consistent with 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.

Our finding that bankers can be found more often on the boards of firms with larger board size and stronger sales growth suggests that bankers prefer to sit on those boards where they can extract more private benefits, because these board seats are presumably associated with more social prestige, power, and the opportunity to form networks.[29] 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

[29] Guedj and Barnea (2007) and Nguyen-Dang (2005) document the benefits of director networks to CEOs as well as to the directors themselves. We are not aware of a study for Germany on this question.

hypothesis and find nothing to support the equity-monitoring hypothesis. We find some, but not conclusive evidence for the capital markets expertise 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

So far, we have looked only at firm-year observations where the bank-related variables are aggregated across banks. We now look at individual bank-firm relations in more detail and turn to regressions of bank-firm-year observations. Table 6 displays results of three Tobit and one Arellano-Bond regression of $FirmBankDebt_{i\,j\,t}$, the debt provided by bank *i* to firm *j* in year *t*. The independent variables are the lagged dependent variable, $FirmBankDebt_{i\,j\,t\text{-}1}$, the dummy $ThisBankOnBoard_{i\,j\,t\text{-}1}$, which equals one if bank *i* has a banker on the board of firm *j* in year $t - 1$, the dummy $AnotherBankOnBoard_{i\,j\,t\text{-}1}$, which indicates whether a bank other than *i* has a banker on the board of firm *j*, and a number of controls that describe firm *j* in more detail. As the controls do not vary across the ten banks within one firm-year

section, we report robust standard errors with firm-year clusters for the Tobit specifications in Table 6.[30]

Specifications (1) and (2) indicate that a given bank sells more debt to firms where it is represented on the board, and less to firms where another bank is represented on the board. The positive effect of *ThisBankOnBoard* vanishes however, if bank fixed effects or fixed effects for all bank-firm combinations are introduced in the regression (specifications (3) and (4)). This suggests that there are some banks that simply sell more debt and, at the same time, are represented more often on the boards of non-financial firms, but that these two variables are not significantly correlated when we control for the identity of the bank. In contrast, the negative effect *AnotherBankOnBoard* remains significant (although only marginally so in specification (4)). We therefore conclude that there is some, although not conclusive evidence that banks on the board of non-financial firms replace other banks as lenders.

Insert Table 7 here

In Table 7 we perform a similar analysis and investigate the hypothesis that bankers **sell M&A advisory services** to the firms on whose boards they are represented. From *SDC Platinum*, we collect data on 4,097 acquisitions undertaken by 115 of the non-financial firms in our sample. For only 67 acquisitions undertaken by 28 sample firms is the advisor also one of the sample banks; most acquisitions are small and therefore done without an advisor. We delete all firm-year observations without any acquisition and construct the variable $PercentAcqAdvisor_{ijt}$ as the number of acquisitions of firm *j* in year *t*, where bank *i* was hired as the advisor, scaled by the total number of acquisitions for this firm-year. In Table 7, we regress *PercentAcqAdvisor* on *ThisBankOnBoard* and five other firm-specific control variables. Specifications (1) and (2) do this for, respectively, the 4,260 observations with German GAAP, and all 7,000 observations irrespective of the firm's reporting standard used. In specifications (3) and (4), we separately consider those two banks that have a large investment banking business, i.e. Dresdner Bank and Deutsche Bank. In all specifications, we observe a significant and positive relationship between bank representation and *PercentAcqAdvisor*, even though the number of observations is small in each case (15 for Dresdner Bank, 32 for Deutsche Bank). We can safely conclude that

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

bankers on the boards of large, non-financial firms successfully promote the M&A advisory services of their employer.

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.[31] We therefore regress investment levels on cash flows and a number of controls and on an 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 investment 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.[32] 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.

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[31] 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.

[32] However, Güner, Malmendier and Tate (2007) argue that payout policy and size may be poor proxies for financial constraints. Kaplan and Zingales develop an index of financial constraints for the U.S., but no similar index is available for Germany.

For the high-payout sample, the coefficient on the interactive term is positive and highly significant (p-value = 0.0004). This suggests 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)), 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 therefore repeat our analysis from Table 6 on the bank-industry level and average *FirmBankDebt* across each industry-year in order to arrive at our new variable $IndustryBankDebt_{k,j,t}$ which is the average bank debt (scaled by total assets) that bank j provides to the firms in industry k in year t. Table 9 shows the results of three Tobit regressions and one Arellano-Bond regression of *IndustryBankDebt* on last year's *IndustryBankDebt*, and on $PercentBankersThisBank_{k,j,t}$, the average proportion of board seats held by bank j in industry k and year t. The regressions also include five additional, firm-specific variables that are all averaged across firms in each industry-year. The regression does not include variables like capital expenditures or intangibles, so we can use all observations irrespective of the accounting standard used.

Insert Table 9 here

The coefficient on *PercentBankersThisBank* is statistically significant in all specifications in Table 9. Hence, if a bank is represented more on the supervisory boards in a certain industry in year $t - 1$, then it will lend more to this industry in year t. This is true even though we cannot show conclusively that the bank will actually lend more to the exact company where it is represented on the board (see Table 6). Therefore, bankers seem to benefit from the knowledge they have about certain industries through their representation on the supervisory boards of companies within these industries. However, this may not affect the particular companies on whose board bankers 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 that address the influence of bank representation on the payout ratio, interest cover, and volatility. The **equity-monitoring hypothesis** postulates that bankers on the boards pursue the interests of their banks as equity-holders. In order to investigate this 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*). We should then see that banks that also own equity use their influence to increase the payout ratio and to shift risk and thereby increase volatility. The first implication is clearly refuted. The coefficient on *BankEquity* in the *PayoutRatio* regressions is negative and significant at the 10%-level (it becomes significant at the 5%-level if we do not distinguish between bankers with and without equity, which is not shown in the table). The coefficient on *PercentBankersWithEquity* has the sign predicted by the hypothesis, but it is not significant. These results do not support the equity-monitoring hypothesis. The effect of *BankEquity* and *PercentBankersWithEquity* on *Volatility* are mostly insignificant. Only in specification (9) do we find a significant negative effect of *BankEquity* on *Volatility*, so these regressions do not lend any support to the equity-monitoring hypothesis either. Note, however, that *NonBankEquity* also has no or a negative 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 of the **debt monitoring hypothesis** 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.

Insert Table 11 here

In Table 11, we investigate the relationship between equity ownership and 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 therefore cannot evaluate pay for performance sensitivities. Instead, we resort to *LogAvgManComp*, which is the logarithm of 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.

Table 11 shows that 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 an insignificant impact on average management compensation. The difference between the coefficients on *PercentBankersWithEquity* and *PercentBankersWithoutEquity* is statistically significant at least at the 10%-level, and even at the 2% level in specification (2) (the p-values are reported at the bottom of Table 11). Note that also *NonBankEquity* has a highly significant negative effect on average compensation. This suggests that lower compensation does not reflect lower managerial skills but rather lower managerial rents. Altogether, Table 11 provides some evidence in favor of the equity monitoring hypothesis. 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.

6 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*, 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. Specifications (1) and (2) show OLS results, and specifications (3) and (4) show 2SLS regressions, where *PercentBankers* is assumed to be endogenous and *BankEquity*, *NonBankEquity*, *InterestCover*, and the ratio of bank debt to total debt are used as additional explanatory variables in the regression of *PercentBankers* (results for this auxiliary regression are not shown in Table 12). As argued in Section 3.6 above, we perform 2SLS regressions only because the Granger causality regressions used so far do not work for *TobinsQ*, since *TobinsQ* contains market valuations that immediately reflect all available information. We interpret the results in Table 12 cautiously, because we do not believe that the explanatory variables in these regressions are truly exogenous.

According to the results in Table 12, the presence of bankers on the board has a highly significant and negative effect on Tobin's Q for all specifications. As expected, controlling for value drivers removes a part of this effect. As *BankEquity* is insignificant, these regressions do not lend any support to the **equity monitoring hypothesis,** which predicts a positive relationship between bank representation and Tobin's Q. We also split *PercentBankers* into those bankers who represent an equity stake and those without, but could still not find a positive effect of bankers with equity on Tobin's Q (results not shown in the table). On the other hand, these results are consistent with the **debt selling hypothesis**.

The economic significance of the numbers in Table 12 is surprising: If an average board with seven shareholder representatives adds one additional banker, the OLS specification (2) predicts a reduction in Tobin's Q by 0.12 and the 2SLS specification (4) by 0.7. Especially the estimates for the 2SLS-specification are far too large to be plausible, and we take this as an additional indication that we lack good instruments and that the instrumental

variable approach is inappropriate here. Note that we can clearly exclude the possibility of substantial reverse causation: In Table 4, *TobinsQ* has no significant effect on *PercentBankers*. Hence, we can rule out the alternative hypothesis that the negative correlation between Tobin's Q and variables that measure bank influence can 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 rule out the **debt monitoring hypothesis**. It cannot explain what motivates 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. The only finding consistent with the debt-monitoring hypothesis is the positive relationship between leverage and bank representation on the board, and this result can also be explained by the capital markets expertise hypothesis. We found no evidence for any of the other implications.

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 conclude that both monitoring hypotheses do not have any explanatory power for our data set; 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 effect of leverage on bank representation on the board even contradicts it. We then investigate this hypothesis using more detailed data and find some evidence that bankers reduce borrowing from other banks, but we cannot conclusively show that they increase borrowing from their own bank (Table 6). We therefore find at best weak evidence for this hypothesis.

We find strong support for the hypothesis that bankers on the board **sell M&A advisory services** of their own investment banking divisions. Some large companies in our sample regularly acquire smaller companies, and the M&A-advisory work is often 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. By contrast, we do find clear 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 industry is followed by a significantly higher lending volume to that industry, even though we cannot find such a relationship at the individual company level.

8 Conclusions

This paper analyses the network of cross shareholdings and 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 influence in non-financial firms (as measured by bank ownership and bank representation on the board), these firms' financial policies, and the performance of these non-financial firms. 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 anymore, 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 use this industry expertise to increase their lending to the whole industry.
- Bankers do not sell loans directly to other companies through their board memberships, but they do promote the much more profitable M&A-services of their own investment banking divisions.

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. Consistent with this, we find evidence for a negative causal effect on firm performance of the presence of a banker on the firm's board. The main beneficiaries of this relationship seem to be the banks who promote their investment banking services and increase their lending to firms in the same industry. Our evidence also suggests that bankers seek appointments to larger boards that provide better networking opportunities, and to companies that grow faster and therefore offer more visibility and social prestige. Private benefits might therefore be an important part of the relationship between banks and non-financial firms.

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 banks the power to influence non-financial firms without having any equity incentives themselves. Minority shareholders can evidently not overcome their collective action problem, while bankers use their board seats to promote their business and, possibly, to extract private benefits.

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Table 1: Definitions of variables used in the study

This table defines all variables at the firm-year level used in this paper. 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
AvgManComp.	Total management board compensation divided by the number of managers (in thousand €) (*Hoppenstedt*)
BankEquity	Sum of all voting blocks held by banks (*Hoppenstedt*)
BankDebt	Total volume of credit relations between the respective firm and all sample banks that exceed €1.5m (*Deutsche Bundesbank*)
BankDummy	= 1 if one or more members of the company's supervisory board are classified as Bankers (*Hoppenstedt*). A director is classified as a "banker" if she currently is or previously was a member of the management board of one of the banks in our sample. A former banker is not classified as a banker any longer if she becomes member of the management board of a non-bank in our sample.
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]
FreeFloat	= 1 – *BankEquity* – *NonBankEquity*
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])
MarketCap	= Market capitalization [08001]
NonBankEquity	Sum of all voting blocks held by non-banks (*Hoppenstedt*)
PayoutRatio	= Common dividends (cash) / Net Income after preferred * 100 [08256]
PercentBankers	Number of Bankers on the supervisory board divided by *BoardSize* (*Hoppenstedt*). See *BankDummy* for a definition of a banker.
PercentBankers WithoutEquity	Number of Bankers on the supervisory board that come from banks which hold no voting blocks, divided by *BoardSize* (*Hoppenstedt*)
PercentBankers WithEquity	Number of Bankers on the supervisory board that come from banks which do hold voting blocks, 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. * (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 $_{t-1}$
TotalAssets	= total assets [02999]
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 27 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	No. of Obs.	Mean	Median	Standard deviation	Minimum	Maximum
AvgMan.Comp. ('000 €)	1051	833.6	636.0	645.0	5.0	5676.6
BankDummy	1388	0.46	0	0.50	0	1
BankEquity	1388	3.3%	0.0%	9.3%	0.0%	91.0%
BankEquity if BankEquity>0	251	18.3%	13.2%	14.3%	0.5%	91.0%
BoardSize	1388	7.06	6	2.13	2	15
CapEx	1328	0.071	0.056	0.064	0	0.680
CashFlow	1338	0.090	0.090	0.070	-0.291	0.950
FreeFloat	1388	42.9%	42.0%	30.2%	0.0%	100.0%
Intangibles	1332	0.091	0.042	0.116	0	0.754
InterestCover	1336	15.365	3.961	59.434	0	858.672
LeverageBanks	1279	0.146	0.067	0.251	0	3.042
LeverageBook	1324	0.379	0.379	0.239	0	0.996
LeverageMarket	1296	0.274	0.248	0.211	0	0.980
MarketCap (in million €)	1296	4,850	780	12,293	4	213,794
NonBankEquity	1388	53.8%	56.0%	32.1%	0.0%	100.0%
PayoutRatio	1139	31.8%	29.9%	25.7%	0.0%	99.9%
PercentBankers	1388	8.8%	0.0%	10.9%	0.0%	50.0%
PercentBankersWithEquity	1388	2.0%	0.0%	7.0%	0.0%	50.0%
PercentBankersWithoutEquity	1388	6.0%	0.0%	9.0%	0.0%	50.0%
Productivity ('000 €/employee)	1333	237	177	332	32	7,988
R&D	1338	0.020	0.000	0.036	0	0.231
ROA	1321	7.9%	6.8%	8.2%	-44.9%	67.1%
Sales (in million €)	1338	8,219	1,910	17,987	13	162,384
SalesGrowth	1322	9.7%	5.4%	81.5%	-94.8%	2840.4%
TobinsQ	1282	1.54	1.24	1.03	0.67	12.53
TotalAssets (in million €)	1338	9,664	1,405	25,427	24	206,985
Volatility	1308	0.021	0.020	0.010	0.003	0.149

Table 3: Trends for bankers on the board, ownership structure, Tobin's Q, and compensation

This table displays annual means of 12 variables that describe bank's board representation, ownership structure, Tobin's Q, and compensation. For each column, the means are calculated only from those firms for which the corresponding variable was available for all years shown in the table. The corresponding number of firms is shown in the last row. 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. Compensation data is generally not available before 1997.

Year	Board Size	Bank Dummy	Percent Bankers	Bank Equity	NonBank Equity	Free Float	TobinsQ	TobinsQ (German GAAP)	AvgManComp	
									'000 €	scaled by firm value
1994	6.92	0.507	0.096	0.041	0.554	0.405	1.52	1.46		
1995	6.93	0.533	0.101	0.036	0.559	0.405	1.50	1.32		
1996	6.93	0.493	0.093	0.054	0.550	0.397	1.48	1.31		
1997	6.96	0.507	0.093	0.043	0.541	0.415	1.62	1.40	616.4	0.0690%
1998	6.92	0.533	0.103	0.037	0.543	0.420	1.64	1.50	676.2	0.0773%
1999	7.08	0.533	0.103	0.036	0.520	0.444	1.52	1.37	715.6	0.0799%
2000	7.08	0.547	0.106	0.031	0.528	0.441	1.53	1.33	856.0	0.0947%
2001	7.05	0.520	0.100	0.041	0.518	0.440	1.49	1.35	899.5	0.0847%
2002	7.05	0.507	0.099	0.025	0.519	0.456	1.26	1.17	953.2	0.0882%
2003	6.97	0.400	0.073	0.028	0.529	0.443	1.40	1.25	1,142.6	0.0786%
2004	6.93	0.360	0.064	0.014	0.475	0.511	1.43		1,258.5	0.0809%
2005	6.93	0.333	0.056	0.004	0.477	0.519	1.48		1,377.0	0.0656%
# Firms	75	75	75	75	75	75	59	22	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. All other explanatory variables are also lagged by one year. See Table 1 for a definition of all variables. For each dependent variable, the table displays the slope estimate and, in parentheses, the p-value of the two-sided t-test for a zero slope. Only firm-year observations with German GAAP reporting are used.

	(1)	(2)	(3)	(4)	(5)	(6)
Method	**Tobit**		**Tobit**		**Arellano-Bond**	
Lagged PercentBankers	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	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	-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	-0.0225	-0.0228	-0.0084	-0.0095	0.0232	0.0134
	(8.35%)	(7.90%)	(53.43%)	(48.32%)	(34.05%)	(60.18%)
LogSales	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	-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	-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	-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	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	0.0313		0.0499		0.0693	
	(12.65%)		(2.01%)		(0.79%)	
LeverageBanks		0.0126		0.0171		0.0245
		(29.16%)		(19.15%)		(42.55%)
ROA	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	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	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	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	-0.0001	-0.0002	-0.0002	-0.0003	0.0000	0.0000
	(38.43%)	(36.25%)	(23.07%)	(21.29%)	(75.03%)	(88.50%)
Fixed Effects	None		Year, Industry		Year, Firm	
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. All other explanatory variables are also lagged by one year. See Table 1 for a definition of all variables. For each dependent variable, the table displays the slope estimate and, in parentheses, the p-value of the two-sided t-test for a zero slope. Only firm-year observations with German GAAP reporting are 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	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	-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	-0.0117	-0.0143	0.0280	-0.0142	-0.0148	0.0561
	(42.31%)	(33.58%)	(61.53%)	(51.97%)	(51.44%)	(29.19%)
LogSales	-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	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	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	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	-0.0027	-0.0041	0.0046	0.0008	0.0009	0.0281
	(39.65%)	(22.40%)	(74.27%)	(87.05%)	(86.10%)	(6.34%)
Fixed Effects	None	Year, Industry	Year, Firm	None	Year, Industry	Year, Firm
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

For each of the 667 firm-years in our sample and for each of the 10 banks in our sample, we calculate *FirmBankDebt*, i.e. the debt (scaled by total assets) provided by this bank to this firm. The table presents results for three Tobit and one Arellano-Bond regression of *FirmBankDebt* on the lagged value of *FirmBankDebt* and on the dummy variable *ThisBankOnBoard,* which equals one if the bank for which *FirmBankDebt* has been calculated is represented on the board. The regression also contains the dummy variable *AnotherBankOnBoard,* which equals one if another bank is represented on the board, as well as seven additional variables that are described in Table 1. All dependent variables are lagged by one year. For each dependent variable, the table displays the slope estimate and, in parentheses, the p-value of the two-sided t-test for a zero slope. For the Tobit specifications, the p-values are based on robust standard errors with firm-year clusters. The Arellano-Bond regression uses a fixed effect for each firm-bank combination. Only observations with German GAAP reporting are used.

	(1)	(2)	(3)	(4)
Method	**Tobit**	**Tobit**	**Tobit**	**Arellano-Bond**
Lagged FirmBankDebt	0.8747	0.8657	0.6748	-0.0238
	(0.01%)	(0.01%)	(0.03%)	(69.86%)
ThisBankOnBoard	0.0203	0.0202	0.0045	0.0010
	(0.25%)	(0.24%)	(17.52%)	(69.31%)
AnotherBankOnBoard	-0.0062	-0.0066	-0.0062	0.0015
	(0.39%)	(0.16%)	(0.19%)	(10.51%)
BankEquity	0.0072	0.0056	0.0111	0.0038
	(26.34%)	(33.36%)	(14.42%)	(34.71%)
NonBankEquity	-0.0063	-0.0062	-0.0096	0.0013
	(4.57%)	(5.03%)	(0.71%)	(64.71%)
LogSales	0.0041	0.0053	0.0061	0.0003
	(0.18%)	(0.04%)	(0.06%)	(49.78%)
CapEx	-0.0226	-0.0071	-0.0052	0.0299
	(5.75%)	(55.35%)	(72.10%)	(0.64%)
Intangibles	-0.0214	-0.0145	-0.0232	0.0085
	(0.95%)	(6.50%)	(2.35%)	(4.93%)
Volatility	0.0002	0.1575	0.2421	-0.0775
	(99.79%)	(15.73%)	(6.39%)	(25.09%)
BoardSize	-0.0003	-0.0008	-0.0010	0.0003
	(59.19%)	(13.88%)	(12.76%)	(37.70%)
Fixed Effects	None	Year, Industry	Year, Industry, Bank	Year, Firm *Bank
Observations	6,670	6,670	6,670	5,450
Uncensored observations	2,629	2,629	2,629	

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

For each of the 700 firm-years in our sample in which a firm did at least one acquisition and for each of the 10 banks in our sample, we calculate *PercentAcqAdvisor*, i.e. the percentage of the acquisitions for which this bank was hired as an advisor. This table presents results for four Tobit regressions of *PercentAcqAdvisor* on the dummy variable *ThisBankOnBoard,* which equals one if the bank for which *PercentAcqAdvisor* has been calculated is represented on the board. The regressions include five additional independent variables that are described in Table 1. For each dependent variable, the table displays the slope estimate and, in parentheses, the p-value of the two-sided t-test for a zero slope. For models (1) and (2), the p-values are based on robust standard errors with industry-year clusters.

	(1)	(2)	(3)	(4)
Sample	**All banks, German GAAP**	**All banks, all reporting stds.**	**Deutsche Bank all reporting stds.**	**Dresdner Bank all reporting stds.**
ThisBankOnBoard	0.7693	0.6893	0.2980	0.3481
	(0.05%)	(0.00%)	(2.40%)	(2.25%)
LogSales	0.1530	0.0878	0.1109	0.0503
	(1.97%)	(5.34%)	(4.99%)	(47.68%)
CapEx	1.8242	0.1390	0.5887	-2.1434
	(24.89%)	(89.59%)	(62.16%)	(35.08%)
Intangibles	3.8129	1.1085	1.2046	0.6290
	(0.20%)	(1.48%)	(1.21%)	(25.09%)
Volatility	-1.5782	-1.2244	-1.2679	4.4370
	(73.04%)	(69.26%)	(85.03%)	(48.66%)
BoardSize	0.0966	0.0384	0.0266	0.0665
	(6.67%)	(34.74%)	(57.82%)	(27.51%)
Fixed Effects	Year, Industry	Year, Industry	None	None
Observations	4,260	7,000	700	700
Uncensored observations	27	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. Results are shown for the full sample and for two sample split-ups. "PayoutRatio=low" is the subsample for which the payout ratio is smaller or equal to the sample median, while "PayoutRatio = high" is the subsample for which the payout ratio is larger than the sample median. The two subsamples "TotalAssets = low" and "TotalAssets = high" are similarly defined. See Table 1 for a definition of all variables. For each dependent variable, the table displays the slope estimate and, in parentheses, the p-value of the two-sided t-test for a zero slope. All models include year and industry dummies. The table also reports the p-value of the standard t-test that the coefficients of the cross effect "CashFlow*PercentBankers" is identical between the two corresponding subsamples. Only firm-year observations with German GAAP reporting are used.

	(1)	(2)	(3)	(4)	(5)
Subsample	**Full Sample**	**PayoutRatio**		**TotalAssets**	
		low	**high**	**low**	**high**
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%)
LogTotalAssets	-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 of cross-effect (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 a bank's board representation on their lending activity to the same industry

For each of the 170 industry-years in our sample and for each of the 10 banks in our sample, we calculate *IndustryBankDebt*, i.e. industry-year average of the debt (scaled by total assets) provided by this bank to a firm in this industry-year. The table presents results for three Tobit and one Arellano-Bond regression of *IndustryBankDebt* on the lagged value of *IndustryBankDebt* and on *PercentBankersThisBank*, which is the industry-year average of the percentage of supervisory board seats occupied by this bank. The regressions also contain the lagged values of five additional variables that are averaged across each industry-year and are identical for each bank. See Table 1 for a definition of these variables. For each dependent variable, the table displays the slope estimate and, in parentheses, the p-value of the two-sided t-test for a zero slope. For the Tobit specifications, the p-values are based on robust standard errors with industry-year clusters. The Arellano-Bond regression uses a fixed effect for each industry-bank combination. All observations are used, irrespective of the reporting standard the firms applied.

	(1)	(2)	(3)	(4)
Method	**Tobit**	**Tobit**	**Tobit**	**Arellano-Bond**
Lagged IndustryBankDebt	0.9061	0.8902	0.6757	0.5178
	(0.00%)	(0.00%)	(0.00%)	(0.00%)
PercentBankersThisBank	0.0654	0.0723	0.0280	0.0335
	(0.00%)	(0.00%)	(3.15%)	(4.23%)
BankEquity	-0.0031	-0.0072	0.0023	-0.0011
	(67.14%)	(45.08%)	(82.91%)	(92.97%)
NonBankEquity	-0.0015	-0.0020	-0.0029	-0.0012
	(41.14%)	(26.97%)	(13.22%)	(66.52%)
LogSales	-0.0008	0.0006	0.0010	0.0019
	(4.95%)	(37.94%)	(17.56%)	(5.11%)
Volatility	-0.0615	0.0792	0.0202	-0.0059
	(2.40%)	(11.64%)	(68.98%)	(89.56%)
BoardSize	0.0005	0.0002	0.0002	0.0009
	(7.67%)	(61.30%)	(69.98%)	(20.50%)
Fixed Effects	None	Year, Industry	Year, Industry, Bank	Year, Industry *Bank
Observations	1,700	1,700	1,700	1540
Uncensored observations	1,077	1,077	1,077	

Table 10: The effect of bank representation on payout ratio, interest cover, 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. All other explanatory variables are also lagged by one year. See Table 1 for a definition of all variables. For each dependent variable, the table displays the slope estimate and, in parentheses, the p-value of the two-sided t-test for a zero slope. Additionally, the p-value of the F-test for the equality of the coefficients on *PercentBankersWithoutEquity* and *PercentBankersWithEquity* is displayed. Only firm-year observations with German GAAP reporting are used.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent variable	**Payout Ratio**			**Interest Cover**			**Volatility**		
Method	OLS	OLS	Arellano-Bond	OLS	OLS	Arellano-Bond	OLS	OLS	Arellano-Bond
Lagged dependent variable	0.6159	0.5944	0.3111	0.6423	0.6411	0.4938	0.6397	0.5211	0.0919
	(0.00%)	(0.00%)	(0.03%)	(0.00%)	(0.00%)	(0.51%)	(0.00%)	(0.00%)	(39.52%)
PercentBankersWithout Equity	-0.0523	-0.0595	0.0443	-14.9899	-18.1227	-26.8223	-0.0026	-0.0004	-0.0055
	(58.84%)	(54.64%)	(90.27%)	(40.40%)	(33.23%)	(23.33%)	(38.12%)	(89.03%)	(34.14%)
PercentBankersWithEquity	0.0789	0.0161	0.0809	-6.9899	1.0358	-9.9861	-0.0046	-0.0067	0.0039
	(63.93%)	(92.70%)	(79.85%)	(82.03%)	(97.43%)	(67.88%)	(36.53%)	(18.41%)	(58.18%)
BankEquity	-0.2307	-0.1989	-0.3172	3.4271	-1.9739	-3.0608	0.0032	0.0031	-0.0192
	(3.64%)	(7.97%)	(7.94%)	(87.81%)	(93.18%)	(86.03%)	(38.60%)	(39.22%)	(0.01%)
NonBankEquity	0.0416	0.0288	-0.0379	2.1436	3.0746	12.8061	0.0002	-0.0003	-0.0081
	(17.89%)	(38.65%)	(77.40%)	(71.77%)	(62.54%)	(22.39%)	(83.15%)	(76.84%)	(1.84%)
LeverageBanks	-0.0353	-0.0483	-0.0291	-4.1934	-4.9139	-4.3886	0.0042	0.0043	0.0094
	(25.57%)	(15.07%)	(59.50%)	(47.94%)	(45.49%)	(20.42%)	(0.00%)	(0.00%)	(2.04%)
LogSales	-0.0127	-0.0057	0.0404	-0.2104	0.0759	21.1591	-0.0001	-0.0003	-0.0002
	(21.65%)	(59.74%)	(30.38%)	(91.09%)	(96.94%)	(2.13%)	(63.51%)	(29.70%)	(85.09%)
CapEx	0.1055	0.0921	-0.2458	-16.9030	-14.8651	-12.5224	-0.0028	-0.0040	-0.0161
	(44.60%)	(53.52%)	(39.04%)	(48.34%)	(56.76%)	(43.21%)	(48.69%)	(32.78%)	(5.00%)
Intangibles	0.1916	0.2302	0.3535	-14.7627	-6.1034	17.4469	0.0021	-0.0013	0.0078
	(5.61%)	(4.32%)	(20.10%)	(42.19%)	(77.18%)	(47.33%)	(48.73%)	(69.87%)	(39.57%)
Volatility	-2.1338	-3.3328	-2.1201	-332.9490	-243.1584	-714.7228	0.0000	0.0000	0.0000
	(3.87%)	(0.72%)	(49.37%)	(8.58%)	(30.33%)	(34.60%)	(0.00%)	(0.00%)	(0.00%)
BoardSize	0.0128	0.0064	0.0371	-0.9993	-0.9913	-2.1018	-0.0004	-0.0003	-0.0009
	(7.22%)	(41.32%)	(26.96%)	(43.97%)	(48.94%)	(20.84%)	(7.64%)	(17.60%)	(34.13%)

Table 10: continued

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Fixed Effects	None	Year, Industry	Year, Firm	None	Year, Industry	Year, Firm	None	Year, Industry	Year, Firm
P-value of comparison PercentBankers with vs. without equity	(47.62%)	(69.61%)	(92.91%)	(81.61%)	(59.79%)	(51.83%)	(72.51%)	(26.83%)	(3.77%)
Observations	514	514	374	665	665	543	666	666	544
R^2 (adjusted)	0.476	0.480		0.553	0.546		0.477	0.524	

Table 11: The effect of bank representation on management compensation

The table presents results for OLS and Arellano-Bond regressions of *LogAvgManComp*, the logarithm of average management compensation as the dependent variable and lagged explanatory variable. All other explanatory variables are also lagged by one year. See Table 1 for a definition of all variables. For each dependent variable, the table displays the slope estimate and, in parentheses, the p-value of the two-sided t-test for a zero slope. Additionally, the p-value of the F-test for the equality of the coefficients on *PercentBankersWithoutEquity* and *PercentBankersWithEquity* is displayed. Only firm-year observations with German GAAP reporting are used.

	(1)	(2)	(3)
Method	**OLS**	**OLS**	**Arellano-Bond**
Lagged LogAvgManComp	0.4625	0.3856	0.0094
	(0.00%)	(0.00%)	(90.30%)
PercentBankersWithout Equity	-0.1149	0.0841	-0.7664
	(59.45%)	(70.36%)	(23.43%)
PercentBankersWithEquity	-0.8753	-1.0671	-2.5967
	(2.90%)	(0.93%)	(0.89%)
BankEquity	0.3569	0.5057	0.0692
	(17.03%)	(5.25%)	(81.41%)
NonBankEquity	-0.2018	-0.2430	-0.5261
	(0.37%)	(0.12%)	(0.24%)
LogSales	0.1224	0.1062	0.1061
	(0.00%)	(0.00%)	(24.37%)
TobinsQ	0.0640	0.0717	0.0598
	(0.87%)	(0.41%)	(21.43%)
Intangibles	0.1124	-0.0614	0.6615
	(56.24%)	(78.21%)	(22.85%)
Volatility	0.7767	-0.7114	-2.0201
	(74.00%)	(78.97%)	(50.27%)
BoardSize	-0.0274	-0.0053	0.0324
	(7.70%)	(75.12%)	(48.61%)
P-value of comparison PercentBankers with vs. without equity	(8.53%)	(1.19%)	(6.76%)
Fixed Effects	None	Year, Industry	Year, Firm
Observations	406	406	293
R^2 (adjusted)	0.489	0.523	

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

The table presents results for OLS and two-stage-least-squares regressions with Tobin's Q as the dependent variable. All explanatory or exogenous variables are lagged by one year. See Table 1 for a definition of all variables. In the 2SLS specification, we assume that *PercentBankers* is endogenous and use *BankEquity*, *NonBankEquity*, *InterestCover*, and the ratio of bank debt to total debt as additional exogenous instruments (all of which we also lag by one year). For each dependent variable, the table displays the slope estimate and, in parentheses, the p-value of the two-sided t-test for a zero slope. Only firm-year observations with German GAAP reporting are used.

	(1)	(2)	(3)	(4)
Method	**OLS**		**2SLS**	
PercentBankers	-1.1786	-0.8527	-5.4677	-4.8992
	(0.02%)	(0.29%)	(0.00%)	(0.00%)
BankEquity	0.0553	0.0076		
	(86.38%)	(97.98%)		
NonBankEquity	0.1464	0.2231		
	(22.43%)	(4.28%)		
Sales	-0.1365	-0.0475	-0.0531	0.0383
	(0.03%)	(19.56%)	(26.15%)	(42.02%)
CapEx	1.7849	1.1817	2.4390	2.0119
	(0.19%)	(3.12%)	(0.02%)	(0.15%)
Intangibles	-0.1743	0.2172	-0.2367	0.2269
	(66.66%)	(56.08%)	(60.81%)	(59.75%)
Volatility	-5.4808	2.4006	-13.9301	-2.7893
	(19.29%)	(54.91%)	(0.58%)	(56.15%)
BoardSize	0.0726	0.0464	0.0924	0.0484
	(0.89%)	(7.49%)	(0.32%)	(10.36%)
LeverageBook		-0.4911		-0.5932
		(0.08%)		(0.04%)
ROA		4.0634		3.1808
		(0.00%)		(0.00%)
Productivity		-0.0005		-0.0008
		(4.77%)		(0.40%)
SalesGrowth		-0.0111		0.0916
		(64.44%)		(43.92%)
R&D		4.5123		5.1992
		(0.02%)		(0.01%)
Fixed Effects	Year, Industry	Year, Industry	Year, Industry	Year, Industry
Observations	662	652	641	631
R^2 (adjusted)	0.297	0.444		