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 for the period from 1994 to 2005. We find that banks that are represented on a firm's board promote their own business as lenders and as M&A advisors. They also seem to act as financial experts who help firms to obtain funding, especially in difficult times. We find little evidence that bankers monitor management and suggest that bankers on the board cause a decline in the valuations of non-financial firms. Banks' equity ownership declined sharply during our sample period and the German financial system lost some of its formerly distinctive features.

JEL classifications: G21, G34

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1. Introduction

In this paper, we document how German banks affect non-financial companies through board representation during the period from 1994 to 2005. Our main result is that banks benefit from being present on the boards of non-financial firms: they increase their lending to these firms and to other firms in the same industry, and they are more likely to be chosen as an advisor if these firms undertake an acquisition. We also present evidence that banks help non-financial firms to overcome financing restrictions. By contrast, they do not act in the interest of equity holders – even if they themselves hold an equity stake. Overall, having a banker on the board is associated with lower performance, and we argue that the causality is likely to run from bank presence to low performance.

The relationship between banks and non-financial companies in Germany has been the subject of continuing debate in the literature. Earlier comparative analyses in the 1980s and before have focused more on the advantages of the German bank-based system compared to the Anglo-Saxon market-based financial system. Banks were credited with providing a long-term view on investment, providing expertise to companies as well as improved corporate governance.[1] Many of these commentators inferred that the growth performance of post-war Germany was directly related to the superiority of the German financial system, characterized by house banks, representation of banks on companies' supervisory boards, and the ability of banks to vote the shares of their customers. The more recent literature provides a less favorable perspective and emphasizes the lower quality of governance in civil law countries like Germany (La Porta et al., 1997).

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. The most significant institutional 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. This change in legislation substantially reduced the costs of selling equity stakes, particularly those stakes banks held for a long time and with an accordingly low tax base. 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. At the same time, the number

[1] See for example Mayer (1988). A good survey of these opinions as well as an early critique of these views is offered by Edwards and Fischer (1994), in particular in their chapter 1. Jensen (1989) argues that LBOs and

of board seats held by bankers decreases only moderately from 9.6% to 5.6%. The number of boards where bankers are represented declined from 51% to 33% and seems to stabilize at around that value, which is also in line with findings for the U.S.

The increased disparity between equity ownership and board representation is puzzling and provides a backdrop against which we evaluate several hypotheses that explain the presence and effect of bankers on the boards of non-financial firms. We investigate three general hypotheses that have been developed in the literature to explain the presence of bankers on the boards of non-financial companies, in particular: (1) Bankers provide capital markets expertise and act as financial experts; (2) they monitor non-financial companies either because these companies are borrowers or because they hold an equity stake; (3) they promote their own business, either as commercial bankers (by increasing their lending to these firms or to other firms in the same industry) or as investment bankers (by selling more advisory services). We develop these hypotheses in more detail in the following section. Finally, we are also interested in the relationship between banks' board representation and firm value.

A major challenge for our study is to identify the direction of causality, because virtually all variables in our analysis are arguably endogenous. The negative relation between bank presence and performance, for instance, can be explained in three ways: (1) bankers cause low performance, (2) firms with low performance appoint bankers to their board, or (3) some additional variable (e.g., industry or corporate governance) affects performance and the attractiveness of board seats for bankers. To address the endogeneity problem, we take advantage of the time dimension in our panel data set, lag the explanatory 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 independent variables *beyond* the explanatory power included in lagged values of the dependent variable itself. This identifies causality in the sense of Granger (1969). We also use fixed effects to control for unobserved heterogeneity.

Our analysis is based on a unique, hand-collected panel data set for all firms that were among the largest 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. We also use data from *Deutsche Bundesbank,* which contains the total amount of loans that is provided by a given bank to a given firm. We find strong evidence that bankers on the board of German non-financial firms promote their own business: Banks lend more to the firms on whose

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similar going private transactions move the U.S. system towards the successful post-war Japanese system of corporate financing, which he also characterizes by close links between banks and non-financial companies.

boards they are represented, and they tend to lend more to other firms in the same industry. Also, banks are more likely to be chosen as M&A advisor when they are represented on the board. We also find substantial evidence that bankers are capital market experts who help companies to acquire external finance more easily or to fund capital expenditures. By contrast, we do not find any evidence (and sometimes even contradicting evidence) to support the notion that bankers on the board act as monitors. They do not act in their interests as equity-holders, a role that largely disappears during our sample period. Neither do they seem to protect their interests as lenders.

Finally, we investigate the relation between bank representation and firm value and find that this is consistently negative. We establish that performance deteriorates *after* bankers have been appointed to the board, which suggests that bankers cause low performance. We conclude that the board relationships between banks and non-financial firms are beneficial for the banks, while they are potentially harmful for non-financial firms. Our results suggest that German universal banks do not behave much differently from U.S. specialist banks: Their role as a shareholder in non-financial firms has disappeared and they are mainly interested in promoting their lending and investment banking business.[2] As a result, the German financial system has lost some of its formerly distinctive features.

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 environment, the construction of our data set, 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,. Section 6 addresses the question whether firms benefit from having a banker on their board, and Section 7 concludes.

2. Literature Review and Hypothesis Development

Several mutually non-exclusive hypotheses regarding bank representation have been advanced in the literature (see Kroszner and Strahan (2001), and Byrd and Mizruchi (2005)). We develop three hypotheses here in detail: (1) the argument that bankers are capital market experts, (2) that they act as monitors, and (3) that they promote their own business.

The **capital markets expertise** hypothesis emphasizes the demand side and therefore the characteristics of companies that actively seek bank representation on their boards. According

[2] Similar results have been found for the U.S. by Byrd and Mizruchi (2005) and Güner, Malmendier and Tate (2008).

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.[3]

Monitoring. Depending on the type of investment, there are two variants of the monitoring hypothesis. First, according to the **equity monitoring** hypothesis, bankers on boards simply represent their interests as shareholders, just as any other block owner may do. The second variant of the monitoring hypothesis, the **debt monitoring** hypothesis holds that 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.[4] 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.

Banks' promotion of their own business. 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 in order to promote their own business. We distinguish between three sub-hypotheses. First, bankers might seek board seats in order to sell debt to the firm (**debt selling** hypothesis).[5] In particular, they may wish to better screen loan applications and to obtain inside information on the financial status of (potential) borrowers.

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. For example, banks may be willing to advance credit lines to companies only if they learn sufficiently quickly if lending conditions in the industry deteriorate, so that they can make timely decisions to call back these credit lines.

Finally, 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, 2008). The firms in our sample

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[3] Ramirez (1995), Byrd and Mizruchi (2005), and Ciamarra (2006) 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).

[4] 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.

[5] 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.

are large and undertake mergers and acquisitions on a regular basis to complement their operations. Some 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.

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.

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 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 hostile takeover attempts in post-war Germany 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 (2006).

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. 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.

Under applicable German law, in particular the co-determination act (*Mitbestimmungsgesetz*) the supervisory board has a minimum and a maximum size, which depends on the number of employees of the firm, so board size is largely determined by law. We therefore do not use this variable in our empirical analysis. The codetermination act also requires that half of all board members are worker representatives.[6] 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

[6] 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.

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.

In January 2002, a capital gains tax reform became effective that was first proposed by the federal government in December 1999 and that was formally (and rather unexpectedly) finalized by a vote of the upper house (Bundesrat) in July 2000. Realized capital gains from the sales of shares in companies were taxable before January 2002 and 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.

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 IFRS or U.S. GAAP. While in 1994 all firms in our data set reported according to German GAAP, this number falls to 2% in 2005. As German GAAP is more conservative than IFRS or U.S. GAAP (see Harris, Lang, and Möller, 1994), we include a German GAAP dummy variable in all regressions where the dependent variable is likely to be affected by the accounting standard. In addition, we repeat all regressions that include accounting variables (as dependent or independent variables) for the smaller sample of all firm-year observations with German GAAP reporting. This robustness check does not yield substantially different results, so we do not report it in the tables.

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 137 non-banks. Financial services companies (SIC codes between 6000 and 6999) other than banks are excluded from both samples. For all these companies we compile the following data for the years 1994-2005. *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, as well as information about block holders and the total payments 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. *Deutsche Bundesbank* provided us with data for individual bank-firm credit relationships, which they collect according to Section 14 of the German Banking Act (*Kreditwesengesetz*).[7] Our final sample consists of 1,388 firm-year observations on non-financial firms and a further 110 firm-year observations for banks.

Insert Table I and Table II here.

Table I provides the definitions of all our variables at the firm-year level and reports their respective sources. Table II presents summary statistics for the sample of non-financial firms.

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.[8] 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 *PercentBankers*, which is 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 shareholder appointed supervisory board seats, and the median supervisory board in our sample has six shareholder representatives (see *BoardSize*, the mean is 7.1). As a robustness check, we repeat our analysis with *BankDummy* instead of *PercentBankers*. *BankDummy* assumes a value of

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[7] According to Section 14 of the German Banking Act (*Kreditwesengesetz*), German banks have to report on a quarterly basis all creditors whose total borrowing volume from the bank exceeds €1.5m. The total credit volume also includes bonds issued by the creditor and held by the bank. 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 interested in all borrowing relationships a firm has to one of our sample banks. The restriction of the database to borrowing 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.

[8] Note that unlike the U.S. literature on the influence of bankers on boards we do not distinguish between commercial bankers and investment bankers. Such a distinction 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), and Güner, Malmendier, and Tate (2008).

one if at least one member of the supervisory board is a banker, and zero otherwise. In order to conserve space, we only report these results if they are qualitatively different from our results for *PercentBankers*.

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 Edwards and Fischer (1994). The distribution of equity stakes is highly skewed: For only 18% of all our firm-year observations, *BankEquity* is positive and then it is 18.3% on average with a median of 13.2%. Therefore, banks hold substantial stakes in a few companies rather than small stakes in all of them.

Insert Table III 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 III, which reports the means of some of the major variables from our data set 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 III 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.[9] This suggests that banks held shares during the earlier sample period mainly in order to defer taxes and not for other economic reasons. 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

[9] The numbers in Tables II and III are not directly comparable because Table III is based on a subsample of 75 firms for which we have continuous data from 1994-2005. Of these firms, 16 have bank equity investments

years later, and the percentage of bankers on boards fell from 9.6% to 5.6% over this period. 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.[10] We interpret this development as part of the continuing unraveling of what used to be the distinctly German pattern of corporate governance and bank-firm relationships and as support of 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. Most of the change in board representation happened between 2002 and 2004. Board representation stabilized at 31% in 2004 and 2005 in the full sample (not shown in the table), which suggests that the weaker decline in board representation is not due to a mere time lag. In addition, Table II shows that bankers on the board without equity stakes outnumber bankers who represent an equity stake by three to one (compare the means of *PercentBankersWithEquity* and *PercentBankersWithoutEquity*). Hence, board representation and equity ownership are not closely related.

We do not have data on the proxy voting rights of banks. These voting rights are a specific part of German corporate governance that 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.[11] 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 PERFORMANCE MEASURES AND ADDITIONAL VARIABLES

Our measure of company valuation is Tobin's Q, which we define as the market value of the firm divided by the book value of total assets. 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.

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in 1994, of which three remain in 2005. The average size of a stake declines from 19.4% to 9.3% during this period.

[10] See Kroszner and Strahan (2001), referring to the Forbes 500 firms in 1992. Similar numbers have been reported by Byrd and Mizruchi (2005) and Güner, Malmendier, and Tate (2008).

[11] Edwards and Fischer (1994) report that banks vote 49.45% of the shares of companies in their sample 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.

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

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 III shows that management compensation increases steadily and more than doubles during the nine years for which we have data. However, compensation divided by firm value 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 (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 7, *BankDebt* can be overstated and in a few cases, it can be even higher than total debt. This is the reason why the maximum of *LeverageBanks* is bigger than the maximum of *LeverageMarket* in Table II. Apart from this, the numbers are very reasonable: average book leverage is 38%, average market leverage is 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.[12]

3.5 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

[12] We consolidate media, telecommunications, and transport with consumer, and software with technology. This leaves us with 12 non-financial industries (automobiles, basic resources, chemicals, construction, consumer, food, healthcare, industrial, machinery, retail, technology, utilities) and three financial industries

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. We address the endogeneity problem in three ways but are aware of the fact that they can only alleviate but not completely solve the problem.

First, all our explanatory variables are lagged by one year in order to remove the contemporaneous effect if the explanatory variable is endogenous. Many variables in our analysis (including banks' board representation) are highly correlated over time, so that this method is only of limited use here. Second, we include fixed effects that filter out year, industry, or firm effects and thereby any unobserved heterogeneity that is constant over time.

Third, we also include specifications with the lagged dependent variable as an additional right hand side variable:

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

This specification is a generalization of differencing the dependent variable, because β is not restricted to be equal to one. Formally, specification (1) is a Granger (1969) causality regression, which asks whether the lagged independent variables x^k have explanatory power for the dependent variable y beyond the explanatory power included in lagged values of y itself. The lagged dependent variable filters out most of the effect of missing variables, which will affect y_t and y_{t-1} in equal measure. The main advantage of this approach is that we can include the lags of endogenous variables because they are predetermined and need not distinguish them from exogenous variables.

Granger causality regressions are a very conservative method, because they remove much of the cross-sectional variation whenever the dependent variable changes only slowly over time. We therefore always also report OLS regressions with firm fixed effects and OLS or Tobit regressions with industry effects. While these fixed effects regressions do not help much to identify the direction of causality, they provide a more complete picture about the association between the dependent and the explanatory variables.

Granger causality has a few drawbacks. Jacobs, Leamer, and Ward (1979) show that Granger causality is not able to detect the *absence* of causality, but that it can be used to prove the

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(banks, finance, insurance). We need to consolidate industries in order to reduce the potential bias that is caused by the use of fixed (industry) effects in Tobit or Granger causality regressions.

existence of causality – given that the model is correctly specified. We check for correct specification in our analysis in two ways. First, we re-run all Granger causality regressions (1) with three lags y_{it-1}, …, y_{it-3}; we do not show the results in the tables as they are not substantially different from our main analysis. Typically, we observe an increase in the standard errors because we lose an additional 20% of our observations by including more lags. Second, we perform a unit-root test for all our dependent variables and find that we can reject the hypothesis of a unit-root for all of them (not shown in the tables; see He and Maekawa (2001) for a discussion of spurious Granger causality for integrated processes). Another problem occurs if one of the variables involves forward-looking behavior. Suppose that higher *PercentBankers* reduces firm value. As Tobin's Q involves market expectations, this variable will react immediately to any changes in *PercentBankers*, and the reaction will possibly even precede the cause if such a change is anticipated. Then it is possible that the test picks up a Granger causality from Tobin's Q to *PercentBankers* even though the true causality runs in the opposite direction. We therefore need to be cautious when interpreting the Granger causality regressions.

Other methods that are often used to tackle endogeneity in the literature do not work in our setting. The most obvious choice is instrumental variables regressions, but these regressions are only as good as the instruments used and all the variables in our analysis can be easily argued to be endogenous. We experimented with firm age and the distance of a firm's headquarters to Frankfurt, where most banks are based, but age seems to proxy for many unobserved factors and distance turns out to be a weak instrument. We also tried to take advantage of the tax law change in a differences-in-differences approach, but this change has a direct effect only on banks' equity holdings but not on their representation on the supervisory board.

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.

4. When do banks get involved?

We first address the question when banks are represented on the supervisory boards of non-financial German firms, so our dependent variable in Table IV is the percentage of bankers on the firm's supervisory board. We run Tobit regressions with year and industry dummies (models (1) and (2)) and OLS regressions with year and firm dummies (models (3) and (4)). Using a Tobit model here is appropriate because about half of the observations are censored at zero. However, Tobit models with firm fixed effects are biased and inconsistent when the time dimension is small, so we use OLS in the specifications with firm fixed effects. The table also shows two Tobit regressions with the lagged dependent variable as additional explanatory variable (models (5) and (6)).

Insert Table IV here.

Our analysis in Table IV yields some evidence for the **capital markets expertise hypothesis.** This hypothesis implies that companies that rely more on debt and that have higher funding requirements try to attract more bankers to their boards. If we assume that faster growing companies are also those with larger funding needs, then the positive and significant coefficient on *SalesGrowth* in specifications (3) to (6) can be explained by fast growing companies attempting to recruit directors to their boards who help them to reduce the costs of external financing. Predictions for Tobin's Q are ambiguous. Higher values for Tobin's Q may reflect that firms have more growth options and therefore more need for external capital, so that we would expect a positive coefficient on Tobin's Q under the capital markets expertise hypothesis. However, low values for Tobin's Q may also identify low performance firms that are more in need of external expertise, which would suggest a negative coefficient. Our coefficient estimates are not consistent across specifications and can therefore not lend support to either interpretation. To the extent that funding requirements are related to (past) capital expenditure, we should also see a positive relationship between *CapEx* and *PercentBankers*, but we find significant results here only for specifications (3) and (4) with firm fixed effects. 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 (Booth and Deli, 1999), but the coefficient on *LeverageMarket* is never significant. Overall, we find limited evidence that is consistent with the capital markets expertise hypothesis.

We also find some evidence for the **debt selling hypothesis,** which implies that bankers seek representation on the boards of companies that have large underutilized debt capacity. According to this hypothesis, bank representation should be higher for large, low-risk companies that have a large proportion of tangible assets. We find that size as measured by

sales has a highly significant positive impact on bank representation on the board in all specifications. Also, the negative relationships between *Volatility* and *PercentBankers*, which is significant in the two firm fixed effects regressions, is consistent with the debt selling hypothesis. The proportion of intangible assets is insignificant in all specifications. The significant positive effect of *LeverageBanks* on *PercentBankers* in two of the three specifications in Table IV is not conclusive because it is not clear whether bankers can leave after they have successfully sold their loans or if they must stay in order to make sure that their bank maintains its position if the debt matures and must be rolled over. Hence, some predictions of the debt selling hypothesis are borne out by our findings.

Table IV contains very little (and mixed) evidence for 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 are riskier and have a higher likelihood to enter financial distress, and where recovery in case of financial distress would be more difficult. Bank lending as measured by *LeverageBanks* is indeed significantly positively related to the percentage of bankers on the board in two out of three specifications in Table IV. The likelihood of financial distress should increase with volatility and decrease with interest cover. We find that the coefficients on *Volatility* are significantly negative in the two firm fixed effects regressions, which contradicts the debt monitoring hypothesis. The coefficients on *InterestCover* are 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, but *Intangibles* is insignificant in all specifications.

Finally, we find mixed evidence for the **equity monitoring hypothesis** which predicts that bankers should be represented on those boards where their banks also hold significant equity stakes and that they engage more in underperforming companies with lower valuations, as these companies seem to indicate a stronger need for intervention by their owners. Hence, we should see a negative association between the appointment of a banker and Tobin's Q. Table IV shows that the coefficients on *BankEquity* are significantly positive in the two Tobit specifications (1) and (2), although the relation is insignificant in the remaining four specifications. If bankers act in the interest of equity holders, other block holders should be happy to have a banker on the board, but the highly significant negative coefficient on *NonBankEquity* in specifications (1) to (4) suggests that this is not the case. This can be interpreted as indirect evidence against the equity monitoring hypothesis. If banks are concerned about their equity investments, then they should seek representation on those

boards where firm valuation is lower. In our regressions, we measure this by the cross effect of *TobinsQ* and *BankEquity* which is significantly positive in specifications (1), (2), and (4). This implies that banks get involved in those firms they have invested in that have *high* Tobin's Q and this directly contradicts the equity monitoring hypothesis. Alternatively, poor performance may be related to past stock returns and we ran all our regressions again with last year's stock return instead of Tobin's Q (results not tabulated). The coefficient on stock returns is consistently negative in all specifications, but significant only once at the 10% level. More importantly, the cross effect of past stock return with *BankEquity* is always positive and significantly so in the specifications that correspond to (4), (5), and (6) in Table IV, which again contradicts the equity monitoring hypothesis.

We also split the sample into two periods, 1994-1999 and 2000-2005, and find some noteworthy differences between the two periods regarding the equity monitoring hypothesis (results not tabulated). For the first period, we find results similar to those for the combined sample in Table IV. In the latter period (2000-2005), however, *BankEquity* is significantly positively related to *PercentBankers* not only in the Tobit regression, but also in the Granger causality regression. Many banks sold their equity stakes in non-financial firms after the capital gains tax reform in 2001 (see Table III) and then often withdrew their representatives from the board. The coefficient on the cross effect between *BankEquity* and *LogTobinsQ* remains significantly positive in the 2000-2005 subperiod, which contradicts the equity monitoring hypothesis.

5. What do bankers on the board do?

5.1 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 obtain the necessary financing more easily. We first investigate whether bankers on the board help firms to obtain better access to debt in general or bank debt in particular. Table V shows OLS regressions of *LeverageMarket* and *LeverageBanks* on *PercentBankers* and seven additional control variables. The regressions without lagged dependent variables show that there is a significant positive correlation between bank representation and both measures of leverage. In the Granger causality regressions, however, the coefficient on *PercentBankers* is only significant at the 10% level for *LeverageMarket* and insignificant for *LeverageBanks*. Tables IV and V therefore show that firms that rely more on debt and in particular on bank debt are more likely to have bankers on their boards. However, we cannot make any statement regarding the direction of causality.

Insert Table V here.

Access to (bank) debt financing will be most valuable in years in which firms experience financial difficulties (see Hoshi, Kashyap, and Scharfstein, 1990). We therefore also include *InterestCover* as a measure of financial strength in the regressions in Table V, and the cross effect of *InterestCover* with *PercentBankers*. If bankers facilitate debt financing in difficult times, the coefficient on this cross effect should be negative and this is indeed the case in the regressions without a lagged dependent variable. While this finding is consistent with the capital markets expertise hypothesis, we again cannot show causality. In Table VII further below, we also look at the debt obtained from the same bank that is represented on the board and obtain similar results. We can conclude that distressed firms receive more loans from the banks that are represented on their boards, but we cannot show that these banks were already represented on the board *before* the additional debt financing had been obtained. The evidence is consistent with the alternative explanation that the bank receives a board seat *when* the firm receives a loan, possibly as a condition.

A limitation of our analysis of leverage measures in Table V is that lower leverage is not necessarily a sign of being financially constrained. We therefore now turn to regressions of capital expenditure on cash flows and ask whether bankers on the board reduce the sensitivity of investment to cash flows. The argument relies on the assumption that if companies are financially constrained, then their capital expenditure should be responsive to their own cash flows (see Fazzari, Hubbard, and Petersen, 1988, and Hoshi, Kashyap, and Scharfstein, 1991). By contrast, if they are unconstrained, then cash flows and investment levels should be uncorrelated.[13] This is a broader test of the capital markets expertise hypothesis as it is not limited to debt financing.

Insert Table VI here.

Table VI performs standard tests of the investment-cash flow sensitivity, where we regress investment levels on cash flows, a number of controls, and an interactive coefficient of *CashFlow* with *PercentBankers*. This interactive 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

[13] 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.

they have smaller dividend payouts.[14] We therefore partition the sample into those firms whose payout ratio is above the median and those whose payout ratio is below the median of the sample. We repeat this analysis for the two subperiods 1994-1999 and 2000-2001, and Table VI shows our results.

For the full sample period 1994-2005, we do not find any significant results: all the interactive coefficients are insignificant, and they do not differ significantly between the two subsamples. There is also no evidence that bank representation has a direct effect on capital expenditures. When we look at the two subperiods, however, we find a significant difference in the cross effect *CashFlow*PercentBankers* between constrained and unconstrained firms for both subperiods. For the 1994-1999 subsample, bankers on the board facilitate financing and investment for financially constrained firms. For the 2000-2005 sample however, we obtain the opposite signs, which implies that bankers increase their lending to financially *unconstrained* firms rather than to constrained firms. Under one interpretation, German firms had many growth options in the earlier period, which they could not finance internally, so that they were constrained. By comparison, they had only few growth options in the latter period, where they were unconstrained. Under another interpretation, this result is consistent with the debt-selling hypothesis. Güner, Malmendier, and Tate (2008) find the same signs in their U.S. sample as we do in our 2000-2005 subsample, so Table VI can be seen as another indication that the German system of corporate governance has converged to the Anglo-Saxon model. Altogether, we cannot infer any consistent evidence from Table VI that would support the capital markets expertise hypothesis.

5.2 BANKERS ON BOARDS AS SALES AGENTS?

We investigate three 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. We then look at the debt provided by a bank to an industry and ask whether board representation in an industry helps to acquire industry expertise and to sell more debt to other firms in the industry. Finally, we investigate if bankers sell M&A advisory services to companies through their board representation.

Insert Table VII here.

[14] Kaplan and Zingales (1997) argue that payout policy and size may be poor proxies for financial constraints and develop an index of financial constraints for the U.S., but no similar index is available for Germany.

In Table VII, we consider individual bank-firm relations in more detail and turn to regressions of bank-firm-year observations in order to investigate the **debt selling** hypothesis. The table displays results of five Tobit regressions of $FirmBankDebt_{i,j,t}$, the debt provided by bank j to firm i in year t. The independent variables are the lagged dependent variable, $FirmBankDebt_{i,j,t-1}$, the dummy $ThisBankOnBoard_{i,j,t-1}$, which equals one if bank j has a banker on the board of firm i in year t–1, the dummy $AnotherBankOnBoard_{i,j,t-1}$, which indicates whether a bank other than j has a banker on the board of firm i, and a number of controls that describe firm i 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 VII.[15]

All specifications in Table VII 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. This effect is highly significant except in the Granger causality regression (5) with year, industry, and bank fixed effects, where *ThisBankOnBoard* becomes insignificant. This last regression sets the highest hurdle for finding significant results, so it is not surprising that we lose significance here. The fixed effects regressions (1) and (2) show that there is a positive relation between bank representation and lending of the same bank (even if we control for the identity of firm and bank), while regression (3) and (4) show that (Granger) causality runs from bank representation to lending. Note that the negative effect of *AnotherBankOnBoard* remains significant in all specifications. We therefore conclude that there is compelling evidence that banks on the board of non-financial firms increase lending to these firms and to some extend replace other banks as lenders.

Having bankers on the board who try to sell their own bank's debt need not be detrimental to the firm as the terms of these loans might be preferential. We do not have any data about the terms of the loans provided, but Table VII contains some indirect evidence: *NonBankEquity* has a significant negative effect on *FirmBankDebt* in all specifications. This finding might simply be due to the fact that firms with non-bank block holders generally have lower leverage (see Table V), possibly because these firms have better access to equity financing. Alternatively, it can be interpreted as an indication that debt sold through bankers on the board is not in the interest of the firm and is restricted if non-bank block holders are present.

Table VII also contains some evidence for the capital markets expertise hypothesis. In specification (1), the cross effect of *InterestCover* and *ThisBankOnBoard* has a highly

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

significant effect on *FirmBankDebt*, but this effect is insignificant in the remaining regressions. We obtain the same result if we use *PayoutRatio* or *ROA* as an indicator of financial difficulty instead of *InterestCover* (not shown in the tables). So in bad times firms that have bankers on their boards also hold more debt from the banks represented on the board, but our results are silent regarding the direction of causality.

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. 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. To the best of our knowledge, this hypothesis has not been formulated or tested in the literature before.[16] We therefore repeat our analysis from Table VII on the bank-industry level and average *FirmBankDebt* across those firms within each industry-year where the bank considered is *not* represented on the board of directors. This yields our new variable $IndustryBankDebt_{k,j,t}$, which is the average bank debt (scaled by total assets) that bank *j* provides to those firms in industry *k* in year *t*, where bank *j* has no representative on the board. Table VIII shows the results of four Tobit regressions of *IndustryBankDebt* on $PercentBankers\text{-}ThisBank_{k,j,t}$, the average proportion of board seats held by bank *j* in industry *k* and year *t*. The regressions include six additional, firm-specific variables that are all averaged across firms in each industry-year, and regressions (2) to (4) also include the lagged dependent variable.

Insert Table VIII here.

The coefficient on *PercentBankersThisBank* is always positive and statistically highly significant in two of the four specifications in Table VIII. In the specifications that involve bank dummies, however, the effect is insignificant. In contrast to Table VII, results also become insignificant in the bank fixed effects regression (1) without a lagged dependent variable. In our robustness checks (not shown in the tables), we obtain somewhat stronger results: If we consider only firm-year observations with German GAAP reporting, specification (1) becomes significant, and if we use *BankDummy* instead of *PercentBankers* as an indicator of bank involvement, all specifications are significant at least at the 10% level. Altogether, we find some evidence for the industry expertise hypothesis.

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[16] Mintz and Schwartz (1985) observe that banks in the U.S. seek board seats on other firms much more than non-financial companies and argue that the main function of these board representations is to provide the banks with sufficient intelligence about the lending conditions in the economy. However, they do not analyze any industry relationships and the later literature has not picked up their suggestion. Kroszner and Strahan

Finally, we turn to the hypothesis that bankers **sell M&A advisory services** to the firms on whose boards they are represented. In contrast to the United States, banks in Germany have always been universal banks that include investment banking divisions. 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 $PercentAcqAdvisor_{i,j,t}$ as the number of acquisitions of firm *i* in year *t*, where bank *j* was hired as the advisor, scaled by the total number of acquisitions for this firm-year. In Table IX, we regress *PercentAcqAdvisor* on *ThisBankOnBoard* and four other firm-specific control variables. Specification (1) does this for all banks in our sample. In specifications (2) and (3), we separately consider those two banks that have a large investment banking business, i.e. Dresdner Bank and Deutsche Bank. We use robust standard errors clustered at the firm-year level to compute significance levels for specification (1).

Insert Table IX here.

In all specifications, we observe a significant and positive relationship between bank representation and *PercentAcqAdvisor*, even though the number of uncensored observations is small in each case (15 for Dresdner Bank, 32 for Deutsche Bank). We can safely conclude that bankers on the boards of large, non-financial firms successfully promote the M&A advisory services of their employer.

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 X here.

Table X shows regressions that address the influence of bank representation on the payout ratio and on volatility. The **equity monitoring hypothesis** postulates that bankers on the board pursue the interests of their banks as equity-holders. In order to investigate this

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(2001) argue that banks learn through their lending relationships and then use this knowledge in the companies where they sit on the board.

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. There is virtually no evidence for this in Table X. The coefficient on *PercentBankersWithEquity* is always insignificant, and *BankEquity* becomes significant only once (specification (1)) and then with the opposite sign compared to what we would expect. A potential reason for the insignificant results for *Volatility* is that the leverage of our sample companies is not high enough (the median of *LeverageMarket* is 24.8% from Table II) 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 most coefficients are insignificant. The only exception is the effect of *PercentBankersWithoutEquity* on *Volatility,* which has the opposite sign than expected under the debt monitoring hypothesis. Hence, we cannot find any support for the debt monitoring hypothesis based on these results.

Insert Table XI here.

In Table XI, 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. 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 XI shows that the impact of bankers on average management compensation is negative if these bankers represent equity interests on the board, but this effect is significant at the 10% level only in specification (2). All other bankers, whose supervisory board seats are not associated with equity ownership, have an insignificant impact on average management compensation. The difference between the coefficients on *PercentBankersWithEquity* and *PercentBankersWithoutEquity* is statistically significant at the 10% level in the Granger causality regression (3) (the p-values are reported at the bottom of Table XI). This implies that managerial pay decreases in firms where bankers with equity interests are on the board

compared to firms where bankers without equity interests are on the board. Note that *NonBankEquity* has a highly significant negative effect on average compensation in all specifications. This suggests that lower compensation does not reflect lower managerial skills but rather lower managerial rents. Altogether, 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 firm performance, where we use Tobin's Q and return on assets (ROA) as performance measures.[17] Some of our hypotheses have ambiguous implications for the relationship between bank representation and firm value. Relaxing financial constraints may move investment levels closer to or further away from their optimum, depending on agency costs. Debt monitoring may reduce adverse selection costs, which increases the value of the firm, or reduce payouts, which has the opposite effect. However, monitoring equity interest should unambiguously improve performance, whereas bankers who promote their own business are probably more likely to have a negative impact on firm value.

Table XII regresses *LogTobinsQ* on *PercentBankers*, ownership variables, and a range of controls. Here it is conventional to also control for some value drivers (productivity, sales growth, R&D), 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), (3), and (5) in Table XII, but we include the regressions with more controls (2), (4), and (6) for better comparison with the literature. As R&D expenditures need not be reported according to German GAAP, we set this item equal to zero if it is missing. In Table XIII, we repeat this analysis with *ROA* instead of *LogTobinsQ* as the dependent variable.

Insert Tables XII and XIII here.

Specifications (1) and (2) in both tables show that there is a significant negative relation between bankers on the board and firm performance. This result is reflected in specifications (1) and (2) in Table IV, where we regress *PercentBankers* on *LogTobinsQ*. In the firm fixed

[17] 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).

regressions (3) and (4) in Tables XII and XIII, however, *PercentBankers* is insignificant, which implies that the negative relationship only holds between firms but not necessarily within firms. In the Granger causality regression (5) in Table XIII, *PercentBankers* has a negative effect on *ROA* that is significant at the 10% level. With the additional controls in regression (6), this effect becomes insignificant. Here, the additional control *LeverageBook* becomes significant, and from Table V we know that bankers have a positive effect on leverage.[18] Hence, Table XIII provides weak evidence that bank representation Granger causes lower firm performance.

The result of the Granger causality regressions for Tobin's Q in Table XII is puzzling. This result persists in all our robustness checks with the only exception that it becomes insignificant in the 2000-2005 subsample (not shown in the table). At face value, it implies that *PercentBankers* has a significant negative effect on *LogTobinsQ*. However, note that Tobin's Q is a forward-looking measure. So, with efficient markets Tobin's Q should adjust immediately if there is causality from bank representation to Tobin's Q, so that $PercentBankers_{t-1}$ should have no impact on $LogTobinsQ_t$ if we control for the lagged value $LogTobinsQ_{t-1}$. There are two possible ways to interpret the negative effect of *PercentBankers* on *LogTobinsQ* in Table XII (specifications (5) and (6)) and the insignificant effect of *LogTobinsQ* on *PercentBankers* in Table IV (specifications (5) and (6)). First, if the market does not immediately and fully incorporate the information of a new board appointment, the evidence suggests that bank representation indeed causes lower Tobin's Q. Alternatively, the appointment of bankers could be forward looking, so that firms that expect lower Tobin's Q appoint bankers (presumably to improve performance) or bankers choose firms with lower expected Tobin's Q. This second interpretation also presupposes that the market does not correctly infer the information contained in the appointment of a banker. The evidence is not consistent, however, with the hypothesis that performance *first* deteriorates and bankers are *then* appointed to the board. So while we cannot distinguish the direction of causality econometrically, we consider the possibility that bankers are generally appointed when low performance is anticipated but not when low performance occurs as rather remote. We therefore interpret Tables XII and XIII as weak evidence that bankers on the boards of non-financial firms have a negative effect on performance as measured by Tobin's Q and ROA. The size of this effect is substantial: For a board with average size of seven, the decrease in

[18] These results are robust if we include three lags of the dependent variable or if we consider observations with German GAAP reporting only. However, if we use *BankDummy* instead of *PercentBankers* or if we consider the two periods 1994-1999 and 2000-2005 separately, the impact of bank presence on ROA becomes insignificant in the Granger causality regressions (5) and (6), although it remains significant in the OLS regressions (1) and (2).

ROA caused by an additional banker ranges from 0.4 to 1.1 percentage points while Tobin's Q decreases by 1.9% to 8%.

7. Conclusions

This paper analyses the network of cross shareholdings and board representations between banks and non-banks in Germany between 1994 and 2005. We discuss three main hypotheses, namely that bankers monitor firms, that they provide capital markets expertise, and that they promote their own business. We cannot find much evidence for the hypothesis that bankers are on the boards of other firms as monitors, neither as lenders nor as equity holders. In fact, by the end of our sample period, banks are not owners of any significant equity interests anymore. In contrast, we find some evidence that bankers are on the boards of non-financial firms as capital market experts and that they help these firms to overcome financial constraints. Our strongest results, however, suggest that bankers on the board successfully promote their employer's business:

- Banks sell more debt to firms where they are represented on the board, and somewhat less debt to firms where other banks are represented on the board.
- Banks also sell more debt to firms in industries where they hold more board seats, even to firms where they are not represented on the board. This implies that bankers gain important information through their board memberships and that they use this industry expertise to increase their lending to the whole industry.
- Banks that are represented on the board are more likely to be chosen as M&A advisor if the firm undertakes an acquisition.

Consistent with these findings, we find evidence that suggests a negative causal effect of the presence of a banker on the firm's board on firm performance. Our results make us 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 own business.

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Table I. 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 *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*)
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.
BankEquity	Sum of all voting blocks held by banks (*Hoppenstedt*)
BoardSize	Number of supervisory board members appointed by shareholders (*Hoppenstedt*)
CapEx	= Capital expenditure [04601] / total assets [02999]
CashFlow	= (Earnings before extraordinary items [01751] + depreciation [01151]) / total assets [02999]
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 [08256]
PercentBankers	Number of Bankers on the supervisory board divided by *BoardSize* (*Hoppenstedt*). See *BankDummy* for a definition of a banker.
PercentBankers WithEquity	Number of Bankers on the supervisory board that come from banks which do hold voting blocks, divided by *BoardSize* (*Hoppenstedt*)
PercentBankers WithoutEquity	Number of Bankers on the supervisory board that come from banks which hold no 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] / {(total $assets_t$ [02999] + total $assets_{t-1}$)/2}
Sales	= Net sales or revenues [01001]
SalesGrowth	= (net $sales_t$ [01001] – net $sales_{t-1}$) / net $sales_{t-1}$
TobinsQ	= (market capitalization [08001] + total assets [02999] – common equity [03501]) / total assets
TotalAssets	= total assets [02999]
Volatility	Standard deviation of daily excess returns (from market model) over the preceding calendar year (own computations; data from *Datastream*)

Table II. 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	5,676.6
BankDebt (in million €)	1367	377.5	79.5	767.1	0	8,395.2
BankDummy	1388	0.46	0.00	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
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%	2,840.4%
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	0.337	0.312	0.165	0.047	2.372

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

This table displays annual means of 9 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 I for a definition of the variables. Compensation data is generally not available before 1997.

Year	Board Size	Bank Dummy	Percent Bankers	Bank Equity	NonBank Equity	Free Float	TobinsQ	AvgManComp	
								'000 €	scaled by firm value
1994	6.92	0.507	0.096	0.041	0.554	0.405	1.52		
1995	6.93	0.533	0.101	0.036	0.559	0.405	1.50		
1996	6.93	0.493	0.093	0.054	0.550	0.397	1.48		
1997	6.96	0.507	0.093	0.043	0.541	0.415	1.62	616.4	0.0690%
1998	6.92	0.533	0.103	0.037	0.543	0.420	1.64	676.2	0.0773%
1999	7.08	0.533	0.103	0.036	0.520	0.444	1.52	715.6	0.0799%
2000	7.08	0.547	0.106	0.031	0.528	0.441	1.53	856.0	0.0947%
2001	7.05	0.520	0.100	0.041	0.518	0.440	1.49	899.5	0.0847%
2002	7.05	0.507	0.099	0.025	0.519	0.456	1.26	953.2	0.0882%
2003	6.97	0.400	0.073	0.028	0.529	0.443	1.40	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	58	58

Table IV. Determinants of the percentage of bankers on the board

The table presents results for Tobit and OLS regressions with *PercentBankers* as dependent variable. All explanatory variables are lagged by one year. See Table I for a definition of all variables. For each explanatory variable, the table displays the slope estimate and, in parentheses, the t-statistic of the two-sided test for zero slope.

	(1)	(2)	(3)	(4)	(5)	(6)
Method	Tobit		OLS		Tobit	
Lagged PercentBankers					1.1595	1.1570
					(39.98)	*(39.74)*
BankEquity	0.2401	0.2077	-0.0016	-0.0192	0.0500	0.0502
	(2.85)	*(2.45)*	*(-0.04)*	*(-0.46)*	*(1.23)*	*(1.23)*
NonBankEquity	-0.0823	-0.0778	-0.0553	-0.0534	-0.0057	-0.0059
	(-3.88)	*(-3.68)*	*(-4.58)*	*(-4.49)*	*(-0.55)*	*(-0.57)*
LogSales	0.0444	0.0438	0.0286	0.0285	0.0131	0.0130
	(9.60)	*(9.54)*	*(5.28)*	*(5.36)*	*(5.80)*	*(5.80)*
CapEx	0.1021	0.1383	0.0899	0.0864	0.0619	0.0679
	(1.06)	*(1.44)*	*(1.98)*	*(1.92)*	*(1.31)*	*(1.43)*
Intangibles	0.0320	0.0731	-0.0310	-0.0143	-0.0315	-0.0229
	(0.50)	*(1.14)*	*(-0.87)*	*(-0.41)*	*(-1.01)*	*(-0.73)*
Volatility	-0.0303	-0.0380	-0.0378	-0.0408	-0.0292	-0.0263
	(-0.70)	*(-0.89)*	*(-2.53)*	*(-2.67)*	*(-1.39)*	*(-1.26)*
LeverageMarket	0.0233		0.0215		0.0186	
	(0.64)		*(1.29)*		*(1.04)*	
LeverageBanks		0.0684		0.0888		0.0055
		(2.79)		*(5.79)*		*(0.48)*
InterestCover	-0.0003	-0.0003	0.0000	0.0000	-0.0002	-0.0002
	(-1.50)	*(-1.40)*	*(-0.81)*	*(-0.66)*	*(-1.20)*	*(-1.21)*
SalesGrowth	0.0063	0.0065	0.0038	0.0039	0.0087	0.0086
	(1.13)	*(1.18)*	*(1.93)*	*(2.01)*	*(3.48)*	*(3.43)*
LogTobinsQ	-0.0640	-0.0603	0.0147	0.0192	0.0052	0.0003
	(-2.56)	*(-2.73)*	*(1.43)*	*(2.00)*	*(0.41)*	*(0.03)*
BankEquity*LogTobinsQ	0.9657	1.0543	0.2237	0.2762	-0.0327	-0.0463
	(2.62)	*(2.87)*	*(1.51)*	*(1.90)*	*(-0.19)*	*(-0.26)*
Fixed Effects	Year, Industry		Year, Firm		Year, Industry	
Observations	1,133	1,122	1,133	1,122	1,133	1,122
Uncensored observations	533	533			533	533

Table V. The effect of bank representation on leverage

The table presents results for OLS regressions with market leverage and (sample) bank leverage as dependent variables. All explanatory variables are lagged by one year. All regressions also contain a German GAAP dummy variable (not shown) that indicates whether the financial statements adhered to the local German accounting standard. See Table I for a definition of all variables. For each dependent variable, the table displays the slope estimate and, in parentheses, the t-statistic of the two-sided test for zero slope based on robust heteroscedasticity consistent standard errors, which also allow for autocorrelation of one lag (Newey-West).

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	LeverageMarket			LeverageBanks		
Lagged dependent variable			0.8667			0.8595
			(47.72)			*(15.04)*
PercentBankers	0.2813	0.2510	0.0664	0.3323	0.2686	-0.0310
	(3.54)	*(2.64)*	*(1.82)*	*(1.99)*	*(2.24)*	*(-0.65)*
BankEquity	-0.0167	-0.2112	-0.0652	0.0837	0.0046	-0.0374
	(-0.18)	*(-2.29)*	*(-1.26)*	*(0.57)*	*(0.06)*	*(-0.53)*
NonBankEquity	-0.0635	-0.0944	-0.0213	-0.1137	-0.0159	-0.0234
	(-2.17)	*(-2.79)*	*(-1.79)*	*(-4.44)*	*(-0.61)*	*(-1.93)*
LogSales	0.0224	0.0409	-0.0004	0.0122	0.0242	0.0019
	(3.69)	*(2.99)*	*(-0.14)*	*(1.90)*	*(2.23)*	*(0.72)*
CapEx	0.1835	-0.3591	0.1117	-0.4484	-0.1119	-0.0374
	(1.46)	*(-3.30)*	*(1.83)*	*(-3.80)*	*(-1.24)*	*(-0.95)*
Intangibles	0.1982	0.3933	0.0288	-0.4512	0.0324	-0.0418
	(2.70)	*(5.08)*	*(0.89)*	*(-6.52)*	*(0.74)*	*(-1.52)*
Volatility	0.1730	-0.0025	-0.0089	0.2206	-0.0433	0.0067
	(2.30)	*(-0.08)*	*(-0.41)*	*(2.63)*	*(-1.55)*	*(0.34)*
InterestCover	-0.00068	-0.00002	-0.00008	-0.00050	-0.00006	-0.00010
	(-4.98)	*(-0.52)*	*(-3.10)*	*(-7.77)*	*(-1.67)*	*(-3.18)*
InterestCover*PercentBankers	-0.0209	-0.0095	-0.0015	-0.0164	-0.0051	-0.0004
	(-6.60)	*(-3.25)*	*(-1.43)*	*(-4.65)*	*(-2.78)*	*(-0.37)*
Fixed Effects	Year, Industry	Year, Firm	Year, Industry	Year, Industry	Year, Firm	Year, Industry
Observations	1129	1129	1126	1118	1118	1112

Table VI. 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. Specifications (1) to (3) show the results for the full sample period 1994-2005, while specifications (4) to (7) look at the two subperiods 1994-1999 and 2000-2005. All regressions also contain a German GAAP dummy variable (not shown) that indicates whether the financial statements adhered to the local German accounting standard. See Table I for a definition of all variables. For each explanatory variable, the table displays the slope estimate and, in parentheses, the t-statistic of the two-sided test for zero slope based on robust heteroscedasticity consistent standard errors, which also allow for autocorrelation of one lag (Newey-West). 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.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Period	1994-2005			1994-1999		2000-2005	
Subsample	Full Sample	PayoutRatio		PayoutRatio		PayoutRatio	
		low	high	low	high	low	high
CashFlow	0.3076	0.3014	0.5786	0.4825	0.4039	0.1027	0.7172
	(3.14)	*(2.34)*	*(4.44)*	*(3.32)*	*(2.54)*	*(1.38)*	*(2.68)*
PercentBankers	0.0232	0.0218	-0.0075	0.1182	-0.1383	-0.0256	0.2068
	(0.57)	*(0.42)*	*(-0.11)*	*(1.90)*	*(-1.66)*	*(-0.67)*	*(1.93)*
CashFlow*PercentBankers	-0.0696	-0.5090	0.4555	-1.2832	2.0453	0.2605	-1.9795
	(-0.14)	*(-0.86)*	*(0.61)*	*(-1.77)*	*(2.17)*	*(0.67)*	*(-1.74)*
LogTotalAssets	-0.0019	0.0024	-0.0026	-0.0004	-0.0034	0.0009	-0.0009
	(-1.25)	*(0.92)*	*(-1.37)*	*(-0.13)*	*(-1.21)*	*(0.32)*	*(-0.41)*
TobinsQ	-0.0014	0.0025	-0.0172	-0.0007	-0.0213	0.0035	-0.0142
	(-0.51)	*(0.85)*	*(-3.06)*	*(-0.30)*	*(-2.24)*	*(0.87)*	*(-1.71)*
Fixed Effects	Year, Industry	Year, Industry	Year, Industry	Year, Industry	Year, Industry	Year, Industry	Year, Industry
Test of equality of cross-effect (p-value)		30.97%		0.42%		5.56%	
Observations	1267	546	547	272	273	274	274

Table VII. The effect of bank representation on bank debt

For each of the 1,118 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 Tobit regressions of *FirmBankDebt* 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 I. All dependent variables are lagged by one year. All regressions also contain a German GAAP dummy variable (not shown) that indicates whether the financial statements adhered to the local German accounting standard. For each dependent variable, the table displays the slope estimate and, in parentheses, the t-statistic of the two-sided test for zero slope. The t-statistics are based on robust standard errors with firm-year clusters.

	(1)	(2)	(3)	(4)	(5)
Lagged FirmBankDebt			0.9084	0.9060	0.7269
			(5.01)	*(4.98)*	*(4.55)*
ThisBankOnBoard	0.0146	0.0139	0.0186	0.0185	0.0037
	(8.45)	*(7.90)*	*(3.43)*	*(3.41)*	*(1.34)*
AnotherBankOnBoard	-0.0081	-0.0059	-0.0041	-0.0044	-0.0035
	(-5.93)	*(-3.81)*	*(-2.68)*	*(-2.94)*	*(-2.51)*
BankEquity	0.0130	-0.0152	0.0025	0.0020	0.0053
	(1.64)	*(-1.59)*	*(0.49)*	*(0.43)*	*(0.94)*
NonBankEquity	-0.0208	-0.0102	-0.0067	-0.0069	-0.0106
	(-7.57)	*(-3.09)*	*(-2.73)*	*(-2.63)*	*(-3.52)*
LogSales	0.0028	0.0069	0.0028	0.0030	0.0033
	(4.05)	*(3.68)*	*(4.33)*	*(4.70)*	*(4.43)*
CapEx	-0.0318	0.0152	-0.0173	-0.0120	-0.0146
	(-2.05)	*(1.15)*	*(-2.06)*	*(-1.33)*	*(-1.34)*
Intangibles	-0.0454	0.0138	-0.0163	-0.0145	-0.0209
	(-5.66)	*(2.01)*	*(-3.06)*	*(-2.53)*	*(-3.03)*
Volatility	0.0098	-0.0032	-0.0010	-0.0009	0.0014
	(1.89)	*(-1.06)*	*(-0.32)*	*(-0.30)*	*(0.40)*
InterestCover	-0.00011	-0.00004	-0.00004	-0.00005	-0.00006
	(-6.65)	*(-3.45)*	*(-3.37)*	*(-3.52)*	*(-3.87)*
InterestCover*ThisBankOnBoard	-0.00057	-0.00007	-0.00008	-0.00006	-0.00014
	(-4.20)	*(-0.65)*	*(-0.61)*	*(-0.51)*	*(-1.18)*
Fixed Effects	Year, Industry, Bank	Year, Firm, Bank	Year	Year, Industry	Year, Industry, Bank
Observations	11180	11180	11140	11140	11140
Uncensored observations	4501	4501	4490	4490	4490

Table VIII. The effect of a bank's board representation on their lending activity to the same industry

For each of the 132 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. We only average across those firms where this bank is *not* represented on the board. The table presents results for four Tobit regressions of *IndustryBankDebt* 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 six additional variables that are averaged across each industry-year and are identical for each bank. See Table I for a definition of these variables. For each dependent variable, the table displays the slope estimate and, in parentheses, the t-statistic of the two-sided test for zero slope. The t-statistics are based on robust standard errors with industry-year clusters.

	(1)	(2)	(3)	(4)
Lagged IndustryBankDebt		0.9130	0.9055	0.6845
		(21.38)	*(21.04)*	*(13.69)*
PercentBankersThisBank	0.0334	0.0735	0.0788	0.0255
	(1.17)	*(6.07)*	*(6.29)*	*(1.53)*
BankEquity	0.0196	-0.0103	-0.0035	0.0046
	(1.55)	*(-1.47)*	*(-0.35)*	*(0.44)*
NonBankEquity	-0.0026	-0.0001	0.0003	-0.0006
	(-0.92)	*(-0.07)*	*(0.15)*	*(-0.26)*
LogSales	0.0014	-0.0002	0.0021	0.0021
	(1.62)	*(-0.60)*	*(2.01)*	*(2.09)*
CapEx	0.0263	0.0035	0.0096	0.0152
	(1.84)	*(0.54)*	*(0.88)*	*(1.32)*
Intangibles	0.0014	-0.0033	0.0044	0.0028
	(0.16)	*(-1.04)*	*(0.64)*	*(0.38)*
Volatility	-0.0074	0.0033	0.0041	0.0008
	(-1.39)	*(0.61)*	*(0.90)*	*(0.17)*
Fixed Effects	Year, Industry, Bank	Year	Year, Industry	Year, Industry, Bank
Observations	1316	1315	1315	1315
Uncensored observations	885	884	884	884

Table IX. 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 three 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 four additional independent variables that are described in Table I. For each dependent variable, the table displays the slope estimate and, in parentheses, the t-statistic of the two-sided test for zero slope. For model (1), the t-statistics are based on robust standard errors with firm-year clusters.

	(1)	(2)	(3)
Sample	All banks	Deutsche Bank	Dresdner Bank
ThisBankOnBoard	0.6992	*0.32*	*0.38*
	(5.15)	*(2.49)*	*(2.45)*
LogSales	0.1209	0.1308	0.1073
	(3.48)	*(2.87)*	*(1.87)*
CapEx	0.0003	0.4693	-2.3788
	(0.00)	*(0.40)*	*(-1.03)*
Intangibles	1.0261	1.1282	0.4332
	(2.46)	*(2.49)*	*(0.85)*
Volatility	-1.0814	-1.2718	4.1932
	(-0.36)	*(-0.19)*	*(0.64)*
Fixed Effects	Year, Industry	None	None
Observations	7,000	700	700
Uncensored observations	52	32	15

Table X. The effect of bank representation on payout ratio and volatility

The table presents results for OLS regressions with payout ratio and volatility as dependent variables. All explanatory variables are lagged by one year. All regressions also contain a German GAAP dummy variable (not shown) that indicates whether the financial statements adhered to the local German accounting standard. See Table I for a definition of all variables. For each explanatory variable, the table displays the slope estimate and, in parentheses, the t-statistic of the two-sided test for zero slope, based on robust heteroscedasticity consistent standard errors, which also allow for autocorrelation of one lag (Newey-West). Additionally, the p-value of the F-test for the equality of the coefficients on *PercentBankersWithoutEquity* and *PercentBankersWithEquity* is displayed.

	(1)	(2)	(3)	(7)	(8)	(9)
Dependent variable	Payout Ratio			Volatility		
Lagged dependent variable			0.5710			0.0217
			(16.96)			*(4.14)*
PercentBankersWithoutEquity	-0.0873	-0.1828	-0.0547	0.0042	0.0094	0.0003
	(-0.89)	*(-1.19)*	*(-0.76)*	*(1.05)*	*(1.97)*	*(0.15)*
PercentBankersWithEquity	0.0065	0.0741	0.0122	-0.0159	-0.0131	-0.0117
	(0.04)	*(0.47)*	*(0.10)*	*(-1.65)*	*(-1.16)*	*(-1.46)*
BankEquity	-0.2362	-0.0453	-0.1573	0.0143	0.0059	0.0068
	(-2.14)	*(-0.31)*	*(-1.62)*	*(1.61)*	*(0.63)*	*(0.94)*
NonBankEquity	0.0545	-0.0672	0.0335	0.0000	0.0005	-0.0017
	(1.55)	*(-1.30)*	*(1.32)*	*(-0.03)*	*(0.28)*	*(-2.20)*
LogSales	0.0126	0.0445	-0.0016	-0.0022	-0.0023	-0.0012
	(1.57)	*(2.04)*	*(-0.30)*	*(-8.78)*	*(-3.16)*	*(-4.89)*
CapEx	0.4717	0.4255	-0.0029	-0.0049	-0.0169	-0.0053
	(3.32)	*(2.30)*	*(-0.03)*	*(-0.86)*	*(-3.04)*	*(-1.17)*
Intangibles	0.0819	0.2303	0.0874	0.0039	-0.0028	-0.0004
	(0.87)	*(1.36)*	*(1.29)*	*(0.88)*	*(-0.65)*	*(-0.17)*
Volatility	-0.3624	-0.0946	-0.2609			
	(-3.17)	*(-1.63)*	*(-4.08)*			
Fixed Effects	Year, Industry	Year, Firm	Year, Industry	Year, Industry	Year, Firm	Year, Industry
Test of equality of PercentBankers with and without equity (p-value)	62.07%	19.39%	62.51%	6.13%	9.26%	15.93%
Observations	968	968	848	1159	1159	1130

Table XI. The effect of bank representation on management compensation

The table presents results for OLS regressions of *LogAvgManComp*, the logarithm of average management compensation as the dependent variable. All explanatory variables are lagged by one year. See Table I for a definition of all variables. For each dependent variable, the table displays the slope estimate and, in parentheses, the t-statistic of the two-sided test for zero slope, based on robust heteroscedasticity consistent standard errors, which also allow for autocorrelation of one lag (Newey-West). Additionally, the p-value of the F-test for the equality of the coefficients on *PercentBankersWithoutEquity* and *PercentBankersWithEquity* is displayed.

	(1)	(2)	(3)
Lagged LogAvgManComp			0.5082
			(7.96)
PercentBankersWithout Equity	0.2392	-0.3396	0.1370
	(1.15)	*(-1.19)*	*(0.87)*
PercentBankersWithEquity	-0.2653	-0.9008	-0.5419
	(-0.78)	*(-1.86)*	*(-1.59)*
BankEquity	0.1186	0.0664	0.2887
	(0.50)	*(0.31)*	*(1.29)*
NonBankEquity	-0.3473	-0.4021	-0.2036
	(-4.53)	*(-3.58)*	*(-3.88)*
LogSales	0.2411	0.4024	0.1197
	(15.00)	*(3.43)*	*(6.96)*
TobinsQ	0.1161	0.1090	0.0566
	(4.31)	*(3.06)*	*(2.92)*
Intangibles	-0.0906	0.5237	-0.0559
	(-0.49)	*(1.91)*	*(-0.40)*
Volatility	0.1260	0.1130	0.0341
	(1.00)	*(1.28)*	*(0.42)*
Fixed Effects	Year, Industry	Year, Firm	Year, Industry
Test of equality of PercentBankers with and without equity (p-value)	19.84%	24.65%	6.10%
Observations	954	954	851

Table XII. The effect of bank representation on Tobin's Q

The table presents results for OLS regressions with the logarithm of Tobin's Q as the dependent variable. All explanatory variables are lagged by one year. All regressions also contain a German GAAP dummy variable (not shown) that indicates whether the financial statements adhered to the local German accounting standard. See Table I for a definition of all variables. For each dependent variable, the table displays the slope estimate and, in parentheses, the t-statistic of the two-sided test for zero slope, based on robust heteroscedasticity consistent standard errors, which also allow for autocorrelation of one lag (Newey-West).

	(1)	(2)	(3)	(4)	(5)	(6)
Lagged LogTobinsQ					0.8017	0.7945
					(31.14)	*(30.91)*
PercentBankers	-0.5019	-0.5601	0.0497	0.1035	-0.1338	-0.1409
	(-4.31)	*(-5.35)*	*(0.58)*	*(1.19)*	*(-2.49)*	*(-2.68)*
BankEquity	-0.0967	0.0077	0.0073	0.0183	0.0138	0.0287
	(-0.97)	*(0.08)*	*(0.08)*	*(0.19)*	*(0.34)*	*(0.68)*
NonBankEquity	0.0184	0.0258	0.1114	0.1208	0.0116	0.0202
	(0.46)	*(0.66)*	*(2.50)*	*(2.73)*	*(0.60)*	*(1.04)*
LogTotalAssets	-0.0264	-0.0080	-0.1092	-0.1088	0.0008	0.0032
	(-2.41)	*(-0.81)*	*(-3.91)*	*(-3.76)*	*(0.17)*	*(0.74)*
CapEx	0.4094	0.3879	0.6703	0.5331	0.0264	0.0099
	(2.02)	*(1.90)*	*(3.18)*	*(2.99)*	*(0.18)*	*(0.08)*
Intangibles	-0.1678	0.1818	-0.2575	-0.2054	-0.0395	-0.0157
	(-1.23)	*(1.20)*	*(-1.70)*	*(-1.35)*	*(-0.61)*	*(-0.23)*
Volatility	-0.0661	0.0037	0.0143	0.0138	-0.0936	-0.1000
	(-0.66)	*(0.04)*	*(0.27)*	*(0.25)*	*(-2.17)*	*(-2.19)*
LeverageBook		-0.4539		0.0075		-0.0583
		(-6.72)		*(0.13)*		*(-2.05)*
Productivity		0.0001		0.0005		0.0000
		(2.09)		*(6.75)*		*(-0.61)*
SalesGrowth		-0.0006		-0.0055		-0.0025
		(-0.05)		*(-1.89)*		*(-1.25)*
R&D		1.8339		0.8161		0.4862
		(3.75)		*(1.25)*		*(2.02)*
Fixed Effects	Year, Industry	Year, Industry	Year, Firm	Year, Firm	Year, Industry	Year, Industry
Observations	1115	1102	1115	1102	1104	1101

Table XIII. The effect of bank representation on ROA

The table presents results for OLS regressions with ROA as the dependent variable. All explanatory variables are lagged by one year. All regressions also contain a German GAAP dummy variable (not shown) that indicates whether the financial statements adhered to the local German accounting standard. See Table I for a definition of all variables. For each dependent variable, the table displays the slope estimate and, in parentheses, the t-statistic of the two-sided test for zero slope, based on robust heteroscedasticity consistent standard errors, which also allow for autocorrelation of one lag (Newey-West).

	(1)	(2)	(3)	(4)	(5)	(6)
Lagged LogTobinsQ					0.5224	0.5765
					(6.46)	*(9.75)*
PercentBankers	-0.0720	-0.0771	-0.0312	-0.0393	-0.0379	-0.0297
	(-2.73)	*(-3.03)*	*(-0.76)*	*(-1.12)*	*(-1.93)*	*(-1.57)*
BankEquity	0.0045	-0.0215	0.1265	0.0646	0.0185	-0.0324
	(0.11)	*(-0.57)*	*(1.51)*	*(1.01)*	*(0.46)*	*(-0.84)*
NonBankEquity	0.0035	-0.0020	0.0069	0.0005	0.0030	0.0010
	(0.38)	*(-0.22)*	*(0.43)*	*(0.03)*	*(0.43)*	*(0.16)*
LogTotalAssets	-0.0058	-0.0010	-0.0173	-0.0129	-0.0020	-0.0002
	(-2.44)	*(-0.47)*	*(-1.51)*	*(-1.00)*	*(-1.17)*	*(-0.11)*
CapEx	0.1172	0.1395	0.1349	0.1444	0.0128	0.0315
	(2.72)	*(3.32)*	*(2.76)*	*(3.07)*	*(0.40)*	*(1.01)*
Intangibles	-0.0575	-0.0010	-0.0278	0.0094	-0.0414	-0.0173
	(-1.99)	*(-0.03)*	*(-0.66)*	*(0.22)*	*(-1.95)*	*(-0.78)*
Volatility	-0.0308	-0.0194	0.0195	0.0146	-0.0137	-0.0203
	(-1.22)	*(-0.84)*	*(1.00)*	*(0.75)*	*(-0.71)*	*(-1.02)*
LeverageBook		-0.0990		-0.0379		-0.0342
		(-6.60)		*(-1.69)*		*(-2.79)*
Productivity		0.0000		0.0001		0.0000
		(3.07)		*(3.98)*		*(1.22)*
SalesGrowth		0.0019		0.0005		0.0006
		(0.55)		*(0.33)*		*(0.37)*
R&D		0.0258		-0.0509		-0.0142
		(0.21)		*(-0.30)*		*(-0.17)*
Fixed Effects	Year, Industry	Year, Industry	Year, Firm	Year, Firm	Year, Industry	Year, Industry
Observations	1124	1106	1124	1106	1119	1106

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