The Impact of Boards with Financial Expertise on Corporate Policies[*]

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November 4, 2004

Abstract

We analyze whether and how board members with financial expertise affect corporate finance and investment decisions. Employing a novel data set of FORBES 500 companies with detailed demographic information on the individual directors of corporate boards from 1988 to 2001, we first investigate whether bankers on the board help firms to overcome financial constraints. We find that the presence of commercial bankers on corporate boards increases the size of loans to the corporation and decreases investment to cash flow sensitivity, particularly when the director's bank has a lending relationship with the firm. However, the increased access to finance affects mostly firms that have good credit, little financial constraints, and relatively poor investment opportunities, suggesting that banker directors do not act in the interest of shareholders but rather in the interest of creditors. Second, we analyze the impact of investment bankers on the board on a range of activities such as securities issues and mergers. We find that the presence of investment bankers on the board is associated with more frequent outside financing, larger public debt issues—as well as poorer stock and earnings performance after acquisitions. The impact of board composition on firm policies is significant after accounting for firm fixed effects and instrumenting for bankers by the number of senior board members. Our findings suggest financial experts on corporate boards do not necessarily improve shareholder value.

Recent regulation changes and press coverage following the accounting scandals have stressed the need for financial expertise on corporate boards. The implicit assumption behind the reforms is that "an understanding of the responsibilities for and nature of the financial disclosures" will lead to better board oversight.[1] A significant portion of a director's time, however, is spent on advising rather than monitoring the management.[2] Through these less formal channels, therefore, financial expertise of directors on board might affect firm policies in more ways than regulators have in mind. Our aim is to better understand how finance experts on the board influence the firm's decisions on its investments and finances. In particular, we focus on the presence of commercial and investment bankers on the board. We first show that there are indeed empirical links between the presence of bankers on the board and firm policies, and then analyze whether these effects are in the best interest of the firm's shareholders.

To conduct these tests, we hand-collect biographical data on the directors of Forbes 500 companies from 1988 to 2001. The fourteen year time series allows us to identify many of our effects using only within-firm variation, side-stepping the endogeneity issues that arise in cross-sectional analysis.

First, we investigate whether bankers lower the financial constraints of firms on whose board they are serving. We find that firms with commercial bankers on board display less investment to cash flow sensitivity and tend to obtain larger loans. Both effects depend positively on the existence of a lending relationship between the director's

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[1] Section 101 of the Sarbanes-Oxley (2002) Act on board composition. Similarly, all major stock exchanges have introduced listing requirements on director financial literacy. Aggrawal and Gupta (2003) find that the presence of directors with a CPA, CFA, or other finance experience on audit committees translates into lower frequency of earnings restatements.

[2] Fama and Jensen (1983), Adams (2003), Booth and Deli (1999), and Rosenstein and Wyatt (1990).

bank and the firm. Yet, these patterns need not be value maximizing for the firm. On the one hand, if financial constraints due to information asymmetries induce firms to underinvest (in the spirit of Myers and Majluf (1984) and Fazzari, Hubbard, Petersen (1988)), then the presence of bankers on the board might increase the firm's access to outside financing. This effect in turn should benefit the firm's shareholders. On the other hand, banker directors are more likely to act in the best interest of creditors rather than shareholders by, for example, increasing lending business with firms that have very good credit standing but no shareholder-value increasing projects. Further findings suggest that the conflict of interest prevails. The increased access to financing affects mostly those firms that are least financially constrained. Moreover, these firms typically have lower investment opportunities (Tobin's q) and profitability, which persist several years after the borrowing.

Second, we analyze the effect of investment bankers' presence on the board on firm policies. We find that their presence is associated with more frequent outside financing in general and with larger public bond issues, particularly if the director's bank is involved in the deal. Investment bankers are able to reduce the cost of underwriting through lower underwriting fees. Yet, this helping hand is visible only when their bank is *not* involved in the deal. We also observe a tendency of boards with investment banker directors to approve (or induce) acquisitions that are potentially value destroying for shareholders; firms with investment bankers on board acquire at about the same frequency as do others, but lose more stock value conditional on an acquisition. Our findings suggest that banker directors do have significant impact on firm policies; however, this impact appears to maximize bank profits rather than the shareholder value.

We also address directly the issue of endogenous board composition. In particular, it is conceivable that the causality between board composition and firm financial policies runs in the reverse direction. The firm's financing needs may determine the representation of financial institutions on the board. Stearns and Mizruichi (1993), Pfeffer (1992), and Booth and Deli (1999) all find significant correlations between firm leverage and the presence of bankers on the board. They interpret these findings as evidence for firms' tendency to hire financial directors for their debt market expertise. In our paper, endogeneity has less power to explain our results since it is unclear why firms with less investment to cash flow sensitivity would be more likely to employ bankers on their boards. Nevertheless, we address the endogeneity concerns in two ways. First, we employ firm fixed effects. We can thus rule out that our findings are driven by heterogeneity across industries or firms. This leaves us only with the possibility that omitted within-firm variation drives the variation in finance directors and financing (differently for constrained and unconstrained firms). To address such concerns we employ an instrumental variable approach. We exploit the (negative) variation in financial expertise as a function of the "number of board members above age 70" to instrument for the number of commercial bankers on the board. Our main results survive these robustness checks.

By considering the non-monitoring roles of the board, our study differs from most of the prior literature, which tests the relation between director independence and specific board oversight actions such as adopting anti-takeover defense mechanisms, approving

mergers, or hiring and firing of the CEO.[3] We shift the focus from the number of outsiders to the financial industry expertise of these outsiders, and also from board-specific actions to firm financial policies in general. Ours is not the only paper to test the implications of the presence of bankers on board for firm financial decisions, however. Ramirez (1995) finds that firms that had J.P. Morgan executives on their boards displayed lower investment to cash flow sensitivity at the turn of the century. Similarly in Japan, firms with bank ties through membership in a group of companies belonging to a keiretsu (corporate group affiliated to a bank) show less investment to cash flow sensitivity than do non-keiretsu firms (Hoshi, Kashyap, and Scharfstein (1991)). Kaplan and Minton (1994) argue that bankers play a more important role in corporate governance in Japan than they do in the U.S. In Japan, poor stock and earnings performance predicts the appointment of commercial bank executives to boards, but in the U.S., it does not. Morck and Nakamura (1999) confirm this finding; however, they also point to the possibility that banker-directors act in the best interest of creditors rather than shareholders. The downsizing that accompanies the appointment of a banker to a firm board is observed only when the firm is not a member of a keiretsu. The authors conclude that banks "act mainly to prop up weak firms to defend creditors' interests."

Prior research typically attributes the existence of banks to their efficiency in screening and monitoring their borrowers.[4] This production of soft information on

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[3] Studies in this context are numerous. See, for instance, surveys like Hermalin and Weisbach (2003), and Bhagat and Black (1999).

[4] See Diamond (1984), Campbell and Kracaw (1980), and Boyd and Prescott (1986). Hadlock and James (2002) show empirically that firms with more information asymmetry are more likely to rely on bank loans than public debt. The empirical literature on the (positive) announcement effects of bank loans provides

borrowers is particularly effective and valuable when the bank has a relationship with the firm through prior lending or through membership in the same group of companies.[5] A natural extension of this argument would suggest that bank-borrower relationships through board ties also work to increase credit availability, thus benefiting the borrower shareholders. Focusing on the conflicts of interest that can lead to troubles for the bank, Kroszner and Strahan (2001a, b) document that commercial bankers avoid lending to risky firms on whose boards they serve. When banks instead lend to stable (financially unconstrained) firms with board ties, however, we find that loan size indeed tends to be larger. Yet, this increased credit availability does not seem value maximizing for shareholders; we conclude, like Morck and Nakamura (1999), that banker-directors seem to emphasize policies that benefit the creditors rather than the shareholders. This is consistent with the findings of Kracaw and Zenner (1998) that stock prices respond negatively to the announcement of a bank loan to firms that have a representative of the lending bank on the firm's board.

The rest of the paper proceeds as follows. In Section I, we describe the data. Section II presents the tests on investment to cash flow sensitivity and board financial expertise. Section III relates the results to the borrowing policies of the firm. Section IV documents corporate policies affected by the presence of investment bankers. Section V concludes.

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further support for the view that banks are unique information producers on borrowers (see James and Smith (2000) for a survey).

[5] For instance, Petersen and Rajan (1994) show that lending relationships benefit small firms by increasing credit availability. Hoshi, Kashyap, and Scharfstein (1991) document that membership in a "keiretsu" reduces the firm's dependency on internal funds for investments.

I. Data

We analyze a sample of publicly traded companies from 1988 to 2001. We build on the data employed in Hall and Liebman (1998) and Yermack (1995) merged with CEO demographic information from Malmendier and Tate (2004). To be included in the sample, a firm must be in a non-financial industry and appear at least four times on one of the lists of largest US companies published by the Forbes magazine from 1984 to 1994. We collect biographical information on the board members of these companies using the annual proxy statements (1988−1997) and the IRRC database (1998−2001) and code each outside director's job into one the following categories according to her main employer: (1) commercial bank executive, (2) investment bank executive, (3) executive of a non-bank financial institution, (4) consultant, (5) lawyer, (6) current or past executive of a non-financial firm that falls outside these categories, and (7) non-corporate worker, which includes careers such as those in academia, nonprofit or civil activist organizations, and politics.

With additional data collection, we refine the identification of the first two career types. The distinction between commercial and investment banker is often unclear, for example if the description of the director's employer is vague or missing. In these cases, we compare the employer name to the list of US chartered commercial banks compiled by the FDIC. If this step returns no hit, we then search the list of investment banks in the Carter−Manaster IPO underwriter reputation rankings updated by Loughran and Ritter (2004). Note that to be considered a banker, the director has to be a current executive of the bank; board membership does not count. The exception to this rule is when the director retains a seat on the bank's board upon retiring from her executive position.

The initial data collection yields more than 33,000 observations after dropping firm−years that have no data on investment and cash flow. Table I presents the summary statistics on the directors sample. 27% of the directors are insiders (those that are current or former employees of the firm or relatives of executives), 45% are former or current executives in non-financial industries, and 10% are in non-corporate careers. As shown in Table II, respectively 25% and 16% of the firm-years have a director from a commercial or an investment bank. We denote a commercial banker as affiliated if her bank has lent to the firm in the past (and if the loan is observed in the Dealscan.) According to this construction, 22% of the commercial banker−years involve an affiliated banker. The four columns on the right describe the variables in subsamples split by the presence of bankers on the board.

We supplement our board data set with accounting and financial information from COMPUSTAT. The resulting sample contains 288 different firms and about 2900 firm−year observations. We measure investment as capital expenditures (item 128), capital as property, plants, and equipment (item 8), and cash flow as earnings before extraordinary items (item 18) plus depreciation (item 14). We normalize cash flow by the lagged capital. Tobin's Q is the market value of firm's assets normalized by total book assets (item 6), where the market value is approximated as total assets plus market equity (item 25 multiplied by item 199) minus book equity. Book equity in turn is equal to assets (item 6) minus liabilities (item 181) minus preferred stock liquidating value (item 10) plus balance sheet deferred taxes and investment tax credit (item 35) plus convertible debt (item 79). If this computation yields no result, we measure book equity as item 60. Cash flow normalized by capital inevitably contains a few extreme values.

To avoid the confounding effect of outliers on our results, we trim the sample at the one percent level.

We further supplement our sample with data from various sources such as the CRSP monthly (for stock returns), I/B/E/S (for analyst coverage), SDC (for public debt and equity issues, and acquisitions), and the Loan Pricing Corporation's Dealscan (bank loans). Firm CUSIPs suffice for matching our sample to the former three datasets; for merging to Dealscan, we hand-match the individual firm names.

II. Finance Experts on the Board and Corporate Investment

The core question of this paper is whether and how board members with financial expertise affect corporate policies. We first investigate whether bankers on the board help firms to overcome financial constraints. Our analysis follows a top-down approach; we first examine the net effect of financial experts on the board on the firm's real investment decisions, and then consider directly their impact on the firm's financing decisions.

A. Investment to Cash Flow Sensitivity

To test the effect of the presence of bankers on the board on the firm's investment decisions, we estimate the following model where firm investment is determined as a function of firm and board characteristics:

$$I_{it} = \alpha + \beta_1 Q_{it-1} + \beta_2 CF_{it} + \beta_3' FIN_{it} + \beta_4' FIN_{it} * CF_{it} + \beta_5' X_{it} + \beta_6' X_{it} * CF_{it} + \varepsilon_{it}$$

where CF stands for cash flow, Q is market value of assets over book value of assets, FIN is the set of proxies for board financial expertise (the presence of investment and

commercial bankers on the board), and X is the array of other controls. X includes logarithms of firm and board size, and fixed effects for year, S&P rating, firm, and industry, where industry is defined according to Fama and French's seventeen industry groups.

In Column I of Table III, we present the baseline regression results without the banker indicators (and firm fixed effects), and in Column II we include the banker variables in the model. The interaction term on the commercial banker, (COMBANKER)*(CF), is negative and statistically significant at the 5% level, suggesting that firms with at least one commercial banker on board demonstrate less sensitivity of investment to cash flow. Unreported estimations show that this finding is robust to using the number of commercial bankers on the board scaled by the size of the board, or using the number of commercial bankers without scaling. The coefficient estimate on investment banker and cash flow interaction is also negative, but statistically insignificant.

Since a prime concern for our results is the possibility that unobserved firm heterogeneity drives the board effects, we also estimate models with firm fixed effects to minimize the effect of omitted firm characteristics. In Column III, we include indicators for each firm, but do not interact them with cash flow. In Column IV, we raise the hurdle and also include in the model (firm)*(cash flow) interactions (while dropping industry fixed effects to avoid perfect collinearity). The commercial banker effect survives both of these robustness checks.

To judge the economic significance of (COMBANKER)*(CF), we estimate the model of Column II excluding all cash flow interaction terms but the one with

commercial banker. The coefficient estimate is 0.206 for cash flow and –0.122 for (COMBANKER)*(CF). At the sample mean of cash flow (0.35), these estimates imply an investment–cash flow sensitivity of 7.2 cents per dollar for firms with no commercial banker on their boards, and of 2.9 cents per dollar for firms with at least one commercial banker on their boards. As an alternative method, we estimate the baseline model (without cash flow interactions) separately once for those firms with a commercial banker on board, and once for those without. We find that cash flow has a coefficient estimate of 0.218 in the non-banker sample, and an estimate of 0.037 in the banker sample. At the sample mean of cash flow, these values correspond to investment–cash flow sensitivity levels of 7.6 cents per dollar for the non-banker sample, and 1.1 cents per dollar for the banker sample.

To further address the possibility that the presence of commercial bankers on the board and investment cash flow sensitivity are determined endogenously, we instrument for the presence of bankers using the age structure of boards. The following observations help us identify director age as a feasible instrument for commercial bankers:

1) Directors that are older than 70 are less likely to be commercial bankers (Table 1); in fact, there are 892 commercial-banker directors in our sample that are younger than 70, compared with only 10 that are older than 70. This is also apparent at the board level. As Figure 1 illustrates, the number of directors over the age of 70 is negatively correlated with the number of commercial bankers on the board.

2) Average board size is quite stable over time (Figure 1), leading us to think that firms in general are reluctant to increase their board size due to potential inefficiencies involved

(e.g., Yermack (1996)). Thus, if a firm wishes to add a finance expert to the board, another director has to leave.

3) Senior directors have typically served for a while (Figure 2); their mean tenure is significantly higher than that of younger directors. Therefore, a board with lots of senior people, who are likely to be more entrenched and harder to fire, may have exogenously less financial expertise on the board than boards that can more quickly turn over their directors.

4) In Figure 2, we show supportive evidence that boards with many senior directors (and thus with few commercial bankers) indeed desire more finance experts on the board; the number of directors over the age of 70 predicts a future increase in the number of commercial bankers.

In Table IV, we present the results of the two-stage regressions where the number of directors over the age of 70 instrument for the number of commercial bankers. We thus instrument for COMBANKER and (COMBANKER)*(CF) with (#Age>70) and (#Age>70)*(CF). We also include the mean age and tenure of the directors of the board as a further control to alleviate the potential concern that the age instrument somehow correlates with firm characteristics that in turn affect investment decisions.[6] In Column I, we report the results for the baseline regression with the actual number of commercial bankers used in the model. In Columns II and III, we report the first stage regressions to verify that the instruments are indeed (negatively) correlated with the variables for which they instrument. Finally, in Column IV, we show that the (COMBANKER)*(CF) is still

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[6] When calculating the mean age, we exclude those directors above the age 70, so that the resulting variable is not highly correlated with (#Age>70). Note that the results are robust to employing the median and minimum values of age and tenure, instead of the mean values.

negative and statistically significant at the 5% level, when COMBANKER and its interaction with cash flow are instrumented by (#Age>70) and its interaction with cash flow. These results strengthen the argument that bankers on the board decrease the firm's dependency on internal funds for investment purposes.

B. Do Bankers on the Board Maximize Value for Shareholders?

If costly external financing due to capital-market imperfections is driving the investment-cash flow sensitivity (Fazzari, Hubbard, and Peterson, 1988), then our findings point to the potential benefit of appointing commercial bankers to boards of directors. The reality might be less simple, however. On the one hand, the boardroom presence might indeed enhance the bank's ability to reduce agency and information costs, leading to increased access to outside finance for the firm. On the other hand, the bank has little incentive to act in the best interest of the firm's shareholders, because its shareholdings (in the U.S.) are insignificant compared to its existing or potential loans to the firm (Gorton and Winton, 2003). The interests of creditors and shareholders may coincide in a beneficial way for both types of stakeholders if the firm is initially underinvesting due to financing constraints. But this need not be the case. Creditors would prefer to increase exposure to a firm particularly when the firm is less risky. If more stable firms tend to be less financially constrained, then increased outside financing has no marginal benefit to shareholders. In the worst case, if overinvestment is the norm—at least for some firms— then shareholders might lose at the expense of creditors.

Assuming that the wedge between internal and external financing is not the same for all firms, it is thus a useful exercise to measure the banker effect as a function of the

cross-sectional variation in financial constraints. We thus split our sample according to a priori measures of financial constraints. Empirically, this is no straightforward task. As Kaplan and Zingales (1997; KZ from hereon) point out, simple proxies like firm size and dividend payout do not necessarily correlate well with financing constraints.[7] KZ instead measure financial constraints by using both quantitative (accounting variables) and qualitative data (annual proxies, interviews with managers, etc). They then estimate a logit regression to construct an index that captures financial constraints as a weighted average of several firm characteristics. We construct the KZ index for our sample firms, as have done several other studies (Baker, Stein, and Wurgler (2003), Lamont, Polk, and Saá-Requejo (2001), Malmendier and Tate (2004)). The firm-year specific KZ measure is thus computed as:

$$KZ_{it} = -1.001909 * \frac{CF_{it}}{K_{it-1}} - 0.2826389 * Q_{it} + 3.139193 * Leverage_{it}$$

$$- 39.3678 * \frac{Dividends}{K_{it-1}} - 1.314759 * \frac{C_{it}}{K_{it-1}},$$

where CF stands for cash flow, K for capital, Q for Tobin's q, and C for cash and short-term investments. Higher values of KZ index indicate more financial constraints.

We also check our results' robustness to several other proxies for financial constraints: (1) credit ratings, (2) financial analyst coverage, and (3) standard deviation of quarterly analyst earnings estimates. We consider investment-grade rating (BBB and above) as an indicator that the firm has minimal difficulty accessing the external capital markets. The number of analysts covering the stock and the degree of disagreements

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[7] Using model-generated data, Moyen (2004) shows that firms with low dividend payout—considered to be more financially constrained in several studies—are in fact more likely to come from the unconstrained sample than the constrained one.

among them serve as proxies for a main source of financial constraints, the degree of information asymmetry associated with the firm.[8]

Table V summarizes the results of the split-sample regressions. For brevity, we report only the coefficient estimates of the banker-cash flow interactions, while the model we estimate is the one shown in Column II of Table III. We start by re-estimating this model in subsamples split according to the sample median of the (lagged) KZ index, where KZ values above the median denote the constrained firms. The results in Column I show that commercial bankers decrease investment cash flow sensitivity, but only for those firms that are likely to be financially unconstrained. The coefficient estimate on the interaction term is insignificant and *positive* among the constrained firms. The findings are similar when the sample is split according to the investment grade criterion, or by the sample median of the number of analysts covering the firm stock, or by the sample median of the standard deviation of the quarterly earnings estimates on the stock.

We thus find that bankers are effective for firms that are least likely to suffer from information asymmetries and financial constraints. A possible channel through which this effect is realized is the banker's ability to increase loan availability to the firm using her bank. If this is the case, we should observe that the effects are stronger when the firm has a lending relationship with the director's bank. To test this conjecture, we consider a commercial banker as an affiliated one if her bank has lent to the firm in the past (this could involve participating in a syndicate). Using indicators for affiliated and unaffiliated bankers on the board, we re-estimate the investment-cash flow model and report the results in Table VI. As Column I demonstrates, (affiliated commercial banker)*(CF) has a larger negative coefficient estimate than (unaffiliated commercial

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[8] For analyst and forecast data, we use the quarter that ends before the annual proxy meeting.

banker)*(CF). (The coefficients are statistically different from each other at the 1% confidence level.) In Columns II and III, we repeat the estimation among KZ-constrained and unconstrained firms subsamples. Once again, we detect no commercial banker effect among the constrained firms. Among the unconstrained firms, only the interaction term on the affiliated commercial banker retains statistical significance. Column III shows the estimation results with firm fixed effects. (Affiliated COMBANKER)*(CF) has a coefficient estimate of −0.241 (t−statistic = 3.01), compared with −0.07 (t−statistic = 1.56) for the estimate on (Unaffiliated COMBANKER)*(CF), where the difference between the two estimates is significant at the 5% level. In other words, the banker effect on the investment-cash flow sensitivity seems to depend strongly on the existence of a lending relationship between the firm and the director's bank. We now turn to examine this lending relationship more closely; namely, we shall analyze the frequency, cost, and size of bank loans obtained as a function of the banker's presence on the board and in the deal.

III. Bankers and Outside Financing: A Closer Look at The Lending Channel

We obtain detailed contractual data on a bank loans on our sample firms from The Loan Pricing Corporation's Dealscan. The director's affiliation indicates the presence of the director's bank in the lending syndicate. Table VII summarizes the data. Of the 1314 loans where the loan size is available, 99 are obtained by firms with an affiliated commercial banker on the board (in 53 of these deals the director's bank acts as a lead manager), 200 by those with an unaffiliated commercial banker, and 1015 by those without a commercial banker at all. The affiliated deals tend to involve larger and

cheaper loans than do others, as the statistics on tranche ($ millions), and drawn and undrawn spreads (in basis points) indicate. However, firm characteristics other than the board composition may potentially explain these results; for instance, affiliated loans also tend to go to larger firms. A multivariate test, therefore, appears necessary to analyze these patterns.

A. Bankers on the Board, Loan Size, and the Cost of Borrowing

We regress the loan size on board financial expertise, controlling for an array of firm, board, and contract characteristics. We include the logarithm of firm total assets, Tobin's q, plant, property, and equipment over assets, stock volatility, leverage, log board size, the ratio of independent directors on the board, and fixed effects for S&P credit ratings, year, and industry, in order to control for firm and board heterogeneity. As controls for contract features, we use the logarithm of the days between the contract initiation and maturity, a dummy that indicates that the deal is originated by a syndicate rather than a sole lender, number of lenders in the syndicate, and indicators for seniority and security of the loan. (See the appendix, reproduced from Güner (2004), for more details on these variables.)

In Column I of Table VIIIA, we show that the presence of commercial bankers on the board is positively associated with loan size, even after including all the controls. The results in Column II demonstrate that the effects are driven by affiliated deals, as the coefficient estimate on the indicator for unaffiliated commercial banker is insignificant. In Columns III and IV, we repeat the estimations in subsamples split by the KZ index. As is evident, the loan size effect exists only for financially unconstrained firms when the

director's bank is involved in the deal. Affiliated loans are on average $552 million larger (t = 2.17) than loans obtained by firms without a commercial banker on board. In contrast, the coefficient estimate on Unaffiliated COMBANKER is only $187 million, statistically insignificant (t = 0.87), and significantly different from the coefficient on Affiliated COMBANKER at the 10% level.[9]

To deal with the confounding effects of endogeneity on the interpretation of the results, we do robustness checks using firm fixed effects and the instrumental variables approach (discussed in Section II.A). Column V of Table VIII shows that the loan-size effect of commercial bankers is robust to instrumenting for bankers with the number of directors over the age of 70. In Column VI, we introduce the firm fixed effects to the model, and find that Affiliated COMBANKER is still positive with a sizeable magnitude of $938 million and marginal statistical significance (t-statistic = 1.63).

Finally, we analyze whether the effect is stronger when the director's bank is the lead manager in a syndicate. Since terms of loan contracts are mostly determined by the lead managers, we conjecture that the effect should be more pronounced when the larger loan size indeed reflects the bank's choice. The results in Panel VII confirm this hypothesis; Affiliated LEAD COMBANKER has a coefficient of $754 million (t-statistic = 1.90), compared with only $87 million for Affiliated PARTICIPANT BANK. In Panel VIII, we verify the pattern's robustness to the inclusion of the firm fixed effects.[10]

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[9] The result is robust to scaling the loan size by total firm value.

[10] These results should be interpreted with caution, however, since there are 30 observations where the director's bank is a lead manager, and 16 where it is a participant among the sample of loans to KZ-unconstrained firms. Also, note that the results in Columns V through VIII are similar in the full sample.

In Table VIIIB, we report the results of regressing the two components of the cost of borrowing, drawn and undrawn spread, on the logarithm of deal size and the set of controls employed above. We find that commercial bankers on the board, regardless of affiliation, have no significant association with loan prices.[11] Note that this absence of a banker effect is consistent with the result documented in Krozsner and Strahan (2001b), where they use a smaller sample of firms that borrow around the year 1992. This non-result on loan pricing alleviates a potential concern about the results on loan size. Namely, if loan size is negatively correlated with firm risk, and if inadequate controls for firm risk were driving the estimated banker effect, then we would also expect to observe lower interest rates for the affiliated deals.

B. Is More Outside Financing More Efficient?

So far, the results on both investment-cash flow sensitivity and loan availability have demonstrated that the presence of bankers on the board affects financially unconstrained firms the most. This finding suggests that banker-directors need not act in the best interests of shareholders; they would rather increase lending to more stable firms than to firms that are likely to be underinvesting due to their financial constraints. Compared to the first-best situation, bankers may not be doing the optimal thing; however, they may not necessarily be inducing inefficient investments either. Within the unconstrained

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[11] Interestingly, however, the coefficient estimate on affiliated bankers, albeit statistically insignificant with t-statistics of 1.27 and 1.62, is positive with sizeable magnitudes for both components of the loan pricing among financially constrained firms. Going back to Table VIIIA, we notice that the coefficient estimate on Affiliated COMBANKER shown in Column III has a negative coefficient estimate among the constrained firms. These firms, that would potentially benefit the most from increased access to outside financing, seem to experience a grabbing, rather than a helping hand of the commercial bankers on their boards.

firms, affiliated directors may be increasing loan availability more than do unaffiliated directors, but perhaps the firms on whose boards affiliated directors serve also happen to have projects that are more productive.

To examine whether this is the case, we analyze firm performance conditional on obtaining loans, as a function of director affiliation. For every year in which a firm obtains at least one bank loan, we track the firm performance in a three-year window around the year of borrowing. Averaging across the firms in the same director affiliation category, we illustrate the results in Figure 3. First, among the unconstrained firms, we observe that firms with affiliated directors have Tobin's Q lower than that of firms with unaffiliated directors. If Tobin's Q is a proxy for the quality of investment opportunities, then this finding does not justify the larger loans obtained by firms with affiliated directors. To see whether this result is supported by other measures of operating performance, we repeat the exercise with ROA and ROE. In both dimensions, (unconstrained) firms with affiliated lending perform more poorly than those with unaffiliated firms.[12]

While these results support the inefficiency story the pattern in Tobin's Q might also suggest an alternative interpretation. If low Tobin's Q is a proxy for undervaluation, then the firm will be reluctant to issue securities in the market. As a result, increased access to credit through the director's bank might solve the firm's financing problems accounting for the subsequent correction in firm value as suggested by the slight pickup in Q after the borrowing. Inconsistent with this explanation, however, Figure 4 shows that the market-to-book value of "equity" among affiliated firms is rather flat, particularly when

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[12] To be clear, firms with affiliated lending do not perform differently than do firms without commercial bankers on the board.

compared to that of unaffiliated firms, suggesting that either the undervaluation of the firm as a whole does not affect its equity, or the potential benefits to increased financing do not accrue to shareholders.

To check the robustness of these findings to the variation in firm characteristics, as well as to gauge the significance and the persistence of these patterns, we regress future performance variables on indicators for the presence of an affiliated commercial banker, and the "absence" of a commercial banker on the board (the omitted case is the indicator for unaffiliated commercial bankers), as well as on past firm and board characteristics in the unconstrained firms sample. The results in Table IX show that Tobin's q, over the three-year horizon after the borrowing, is lower for firms with affiliated lending, albeit without statistical significance. In terms of ROA and ROE,[13] firms perform significantly worse after affiliated deals than they do after unaffiliated deals, even controlling for past firm and board characteristics. Note that the ROA effect may be a mechanic result of the growth in firm assets (due to the larger loan) coupled with stable earnings. However, this argument would not explain the ROE effect.

The poor investment opportunities and operating performance of firms after affiliated deals might raise the question of whether the increased lending by the banker to these firms is indeed an attractive business opportunity for the bank. We conjecture that these measures might be poor indicators for firm's risk and payback ability, and analyze further the future change in the default risk. In the right columns of Table IX, we report probit regressions where the dependent variable is a future upgrade in the S&P credit rating of the firm. The results demonstrate that firms are *more* likely to be upgraded by the S&P;

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[13] To deal with outliers, we censor future ROE at –0.25 and +0.25 and use the Tobit model for estimations. The results are similar if we use the OLS model with uncensored values.

for instance, over the three-year horizon after the lending, these firms are 36% more likely to be upgraded. In unreported estimations, we verify that there is no significant difference in the likelihood of a downgrade. In addition, we construct our own measure of default likelihood, by computing the number of standard deviations between the firm's market value of assets and total liabilities.[14] These (unreported) estimations confirm that firms with affiliated loan deals move further away from the default (or insolvency) point than do firms with unaffiliated deals.

The findings overall suggest that bank executives use their directorships to increase lending to the firms on whose boards they serve. However, the fact that these firms have little constraints for obtaining outside financing and low credit risk, coupled with relatively poor investment opportunities and low returns on their investments supports the hypothesis that bankers serving on the boards of other firms act in the best interest of creditors rather than the shareholders of the companies they serve.

IV. Investment Bankers on the Board

Our findings so far have emphasized the role of commercial bankers serving on the boards for the financing decisions of the firm. Although we find no net effect of investment bankers on investment to cash flow sensitivity, it is possible that these directors still influence firm policies such as securities issues and mergers. We start by examining the impact of investment bankers on the board on public debt contracts.

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[14] We follow the methodology Moody's KMV employs for calculating default likelihoods. A detailed description of their method is available on http://www.moodyskmv.com/. Roughly speaking, we jointly estimate the market value and volatility of the firm's assets using the Black-Scholes options pricing formula.

A. Size and Cost of Public Debt Issues

We obtain contractual data on public debt issues for our sample firms from the SDC. As the summary statistics on this sample in Table X show, the sample includes 132 debt deals where the director's investment bank is an underwriter of the issue, 429 deals where the director's bank is not involved in the deal, and 2090 deals where the firm has no investment banker on the board. Similarly to the finding with loans, affiliated debt issues tend to be larger than others. The cost to the firm of borrowing, at-issue yield (as a spread over the relevant treasury benchmark) and gross spread (underwriter fees as a percentage of the principal amount issued), both seem the lowest for unaffiliated deals.

As before, we put these observations to the test in a multivariate framework that controls for firm, board, and contract characteristics. The firm controls are Tobin's q, plant, property and equipment over assets, stock volatility, leverage, the logarithm of total assets, board independence, the logarithm of board size, indicators for year, S&P credit rating, and industry. As contractual features, we include in the model the logarithm of the days between the issue and the maturity date, the logarithm of the principle issued, indicators for over-the-counter listings and variable-rate coupon issues, and indicators for covenants on call, put, and sinking funds provisions (see the appendix for further details on these variables). We start by regressing the at-issue yield on board composition and other controls. In Column I of Table XI, we observe a negative but insignificant effect of both affiliated and unaffiliated investment bankers on the board. As regards the underwriter fees, the results in Column II show that firms with investment bankers on the board enjoy reduced costs of public borrowing—only when the director's bank is *not*

involved in the deal. The coefficient estimate on Unaffiliated IBANKER is −0.063 (t = 2.50, and different from the coefficient on Affiliated IBANKER at the 10% level), which corresponds roughly to 10% of the sample mean of gross spread.

In Columns III and IV, we document the results on debt size. The presence of an investment banker on average is associated with a deal size that is $21 million larger. This magnitude is economically significant, as it is equal to 14% of the sample mean for principal amount issued. The effect seems to be driven by affiliated directors, as the coefficient estimate on Affiliated IBANKER is $59.6 million (t-statistic = 1.53), compared with $6.3 million (t-statistic = 0.51) for the estimate on Unaffiliated IBANKER.[15]

In conclusion, investment bankers on the board have similar effects on the size of financing to the effects of commercial bankers on loan size. Investment bankers on the board are associated with larger public debt issues, especially when their bank is involved in the underwriting. Investment bankers on the board are also able to obtain lower underwriting fees for the firms they serve—possibly due to their negotiation skills and networks in the industry—but only when the objective of maximizing the profits to their bank does not get in the way.

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[15] The result is robust to scaling debt size by total firm value; in fact, the coefficient on Affiliated IBANKER then becomes significant at 5%, while that on Unaffiliated IBANKER remains insignificant at 10%. We cannot reject the two coefficients are statistically different at 10%, however. Also, these results on debt price and size are not robust to including firm fixed effects.

B. Frequency of Outside Financing

We have shown the effects of board composition on financing contracts conditional on the firm obtaining outside financing. We now analyze whether the presence of bankers on the board also influence the unconditional probability that the firm will obtain financing. To this end, we identify the financing years (loans, public debt and equity) in the whole sample, and regress these indicators on board and firm characteristics in probit models. The results are given in Table XII, where the reported coefficients denote the marginal effects of the explanatory variables on the probabilities.

We start with the event of an outside financing in general, which indicates that the firm has issued at least one bank loan, public debt, or public equity during the year. As shown in Column I, investment bankers are significantly associated with a higher frequency of outside financing. Commercial bankers, on the other hand, although they appear with a positive coefficient, have an insignificant effect. In Columns II and III, we consider the components of outside financing separately, and find that the presence of investment bankers is positively associated with the frequency of both bank loans (coefficient = 0.099) and capital markets financing (coefficient = 0.06). Further partitioning capital market financing into debt and equity issuances, in Columns IV and V, we observe that investment bankers on the board are positively associated with each type of financing, although without statistical significance (t-statistics are 1.21 and 1.52, respectively, for equity and debt financing). Finally, we analyze whether the presence of an investment banker on board renders one type of financing more likely than others. An immediate conjecture would be that investment bankers would favor capital markets financing since that is where their expertise lies. However, the result shown in Column

VI does not support this hypothesis, as the coefficient estimate on IBANKER is negative and insignificant.

C. Board Composition and Acquisitions

Another area of expertise that investment bankers bring to the board is mergers. Do they thus advise and influence the CEO in a way that minimizes value-destroying acquisitions? To analyze firm's decision to acquire and its performance conditional on acquisitions as a function of the presence of investment bankers on the board, we download mergers data from SDC. To be included in our sample, the deal has to be reported as completed, and number of shares acquired has to exceed 50% of the shares of the target outstanding before the deal. We exclude deals that are classified as leveraged buyouts, recapitalizations, self-tenders, spin-offs, exchange offers, repurchases, minority stake purchases, privatizations, and acquisitions of remaining interests. We describe the data on Table XIII. About 20% of the target firms are publicly traded, where the average target value (where available) is $191.5 million, which corresponds to about 7% of the acquirer's total assets.

We next test whether firms with investment banker-directors are more likely to acquire other companies. Since there are multiple acquisitions by the same firm in some years, we use only one acquisition per firm-year to avoid repetition of observations. We then estimate a probit model where the dependent variable indicates firm-years with at least one acquisition, controlling for an array of firm characteristics. We find that firms with investment bankers on the board acquire at the same frequency as do other firms.[16]

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[16] We omit a tabulation of the results due to space considerations.

To analyze firm performance conditional on acquisitions, using only the first acquisition in a given year as before, we construct a hypothetical stock portfolio by averaging the market-adjusted monthly stock returns in each "event month" following the deal and then compounding the returns over the following 36 months. As Figure 5 demonstrates, the value of $1 invested at the beginning of the period in firms with an investment banker on the board is worth 95 cents at the end of month 36, compared with $1.10 for firms without an investment banker on the board. To address the possible concern that the acquired firms are too small to affect acquirer performance, we repeat the exercise using only the subset of acquisitions where the deal value is available and greater than $5 million. As the right-hand column on Figure 5 shows, a similar pattern emerges.

The above results are suggestive, but we wish to analyze further in multivariate tests alternative measures of firm performance such as buy-and-hold stock returns over the 12, 24, and 36 months following the first acquisition in the year, as well as future change in Tobin's q, market-to-book equity, and profitability over the three years following the deal. We control for market equity, book-to-market, firm and board size, board independence, and fixed effects for year, industry, and S&P credit rating. As Table XIV shows, future stock returns are lower for firms with investment bankers on the board, and significantly so (at 10%) over the 24-month horizon. Furthermore, firms with investment bankers on the board underperform others in terms of the market-to-book ratio of both assets and equity. This low performance in firm value is also evident in fundamentals; over the three year-horizon, profitability of firms with investment banker-directors on the board falls below that of firms without one.

A potential concern with attributing the poor stock performance to the presence of investment bankers is that we have not controlled for the form of payment; there is evidence that stock mergers perform significantly more negative than cash mergers (Loughran and Vijh (1997)). It is therefore feasible that firms with investment bankers on the board are more likely to acquire using stock rather than cash—firms may even hire the banker for this purpose in the first place.

To address this issue, we analyze the type of financing used as a function of board composition. Note that the form of payment is available only for about half of the sample, leaving us with 718 acquisitions down from 1547 in the whole sample. Among this subsample, firms with investment bankers on board indeed complete stock mergers more often than those do without. More explicitly, firms without an investment banker on the board make cash offers 61% (stock offers 25%) of the time, compared with 53% (31% for stock offers) for firms with an investment banker on the board. This difference is not sufficiently significant to explain the results, however. As shown in Table XV, when we replicate the results of Table XIV with further controls for the type of financing,[17] we observe little effect on the IBANKER coefficient.

Overall, these results are supportive of the hypothesis that investment bankers serving as directors are more prone to succumbing to the CEO's value-destroying acquisitiveness than are other directors. The role of the banker in the story could even be

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[17] We introduce two dummy variables for the type of financing used. "Cash only" is equal to 1 if all acquisitions in a given year are financed with cash only. Similarly, "Stock only" indicates that all acquisitions in a given year are financed with stock only. The omitted category indicates years with mergers with mixed financing or multiple mergers with different means of financing. The results are similar if we instead define the dummy variable according to at least one event of the type being observed in a given year.

an active one; investment bankers might be pushing the management for acquisitions even in the absence of attractive targets, in the hope of increasing profits for their banks through advisory fees. Unfortunately, our dataset does not allow us to test this hypothesis, since the identity of the investment banks advising the acquirer is missing in most cases, as Table XIII shows.

V. Conclusion

The main hypothesis of the paper is that financial expertise and background of directors influences the corporate decision making process. Employing a novel panel dataset on corporate board members, we find that the presence of finance industry experts on the board has important implications for the firm's finance and investment policies. Our main finding is that commercial bankers serving on corporate boards help reduce the sensitivity of investment to firm's own cash flows by increasing the firm's access to loans, particularly through the director's bank. However, the potential benefits do not accrue to the firms that are likely to be financially constrained. Instead, bankers on the board increase financing to firms that have good credit and minimal financial constraints, but that have also poor investment opportunities, suggesting that banker-directors act in the best interests of creditors.

We also analyze and find evidence for the impact of investment banker directors on firm activities such as securities issues and mergers. The presence of investment bankers on the board is associated with more frequent outside financing, larger public debt issues—as well as poorer firm performance after acquisitions. We conclude that board financial expertise need not be in the best interest of shareholders.

Our findings suggest that the recent quest for increased financial expertise on boards should be implemented with caution. The impact of board members on firm policies appears to go beyond mere monitoring, and the advisory role of directors is affected by director interests that conflict with those of shareholders.

Appendix: Data on Loan and Debt Contracts

Loan Contract Variables (Source: The Loan Pricing Corporation's Dealscan Database)

All-in spread (drawn)	The amount that the borrower pays the lender each year for each dollar borrowed in the case of a term loan, and for each dollar drawn off a credit line in the case of a loan commitment. The drawn all-in spread equals the coupon spread plus the annual fee. Most spreads are measured as a markup over LIBOR. In cases where they are based on another benchmark, LPC makes adjustments to the drawn all-in spreads, by assuming the following rates: Prime = +255 bps, Cost of funds = 0 bps, Commercial paper = 3 bps, T-bills = −34bps, Fed funds = 0 bps, Money market rate = 0 bps, Banker's acceptance = −18 bps, CDS = −6 bps (Kroszner and Strahan, 2001b).
Maturity	Natural logarithm of the number of days between the loan origination and the maturity.
Deal or Tranche	Loan value in U.S. dollars. A deal may include several loan facilities at the same time. The most typical arrangement is a loan agreement that comprises a term loan and a revolver credit line.
Senior	Dummy variable that is equal to 1 if the loan is senior.
Secured	Dummy variable that is equal to 1 if the loan is secured. Since this variable is often missing (for about one-third of the sample), a dummy for missing cases is also included in all regressions (not shown).
Year	Dummy variables for the calendar years in which a loan agreement is signed.
Loan Style	Dummy variables for "Revolver", "Limited Line", "Bridge Loan", "Demand Loan", "364-day facility" and "Other." The omitted case is "Term Loan."
Loan Purpose	Dummy variables for "Acquisition line", "CP backup", "Debt repay", "Debtor-in-possession financing", "ESOP", "LBO/MBO", "Project finance", "Real estate", "Recapitalization", "Securities purchase", "Spinoff", "Stock buyback", "Takeover" and "Working capital." The omitted case is "Corp. purposes."

Public Debt Variables (Source: SDC)

At-issue yield	Yield-to-maturity in basis points as a spread over the relevant treasury benchmark.
Gross spread	Underwriter fees as a percentage of the principal issued.
Maturity	The number of days between the loan origination and the maturity
Principal	Issue size in U.S. dollars.
OTC	Indicates whether the issue is listed over the counter.

Indicators included in estimations but not shown in tables:

CALL dummies	Indicators for each of the call covenant descriptions given by SDC: "Non-call life," "Non-callable," "Non-call/refund," "Non-refundable," "Make whole call."
PUT	Indicates whether the SDC gives a description of the put covenant.
SINK	Indicates whether the issue involves a sinking-funds provision.
FLOAT	Indicates whether the coupon rate is not fixed.

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Table I
Director Careers and Other Attributes

A. Summary Statistics
A director is an insider if she is a current or former employee of the firm, or is a relative of the top management. Outside directors are further categorized into several careers according to the director's main employment. All variables other than Age and Number of other directorships are binary.

Variable	Obs	Mean	Median	Min	Max
Insider	33,261	0.27	0	0	1
Commercial banker	33,259	0.03	0	0	1
Investment banker	33,261	0.02	0	0	1
Other finance executive	33,261	0.08	0	0	1
Lawyer	33,261	0.04	0	0	1
Consultant	33,261	0.03	0	0	1
Other industry career	33,261	0.45	0	0	1
Non-corporate career (academic, civic leader, etc.)	33,261	0.10	0	0	1
Age	33,241	59.55	60	22	91
Tenure	33,001	9.86	7	0	69
Female	33,261	0.09	0	0	1
Number of other directorships	33,256	2.01	2	0	17

B. Pairwise correlations
Note the omission of the pairwise correlation between director careers, as each director is assigned into one job category only.

	Insider	Com. Banker	I. Banker	Fin. Exec.	Lawyer	Consultant	Industry	Non-corp	Age	Tenure	Female
Age	-0.17	-0.04	-0.01	-0.06	0.03	0.08	0.15	0.02	1.00		
Tenure	0.28	-0.03	0.00	-0.01	-0.01	0.01	-0.18	-0.08	0.39	1.00	
Female	-0.15	0.00	-0.03	0.01	0.00	0.06	-0.01	0.22	-0.10	-0.10	1.00
Num. directorships.	-0.21	0.04	0.03	0.11	-0.04	0.00	0.12	0.02	0.11	-0.03	0.00

Table II
Summary Statistics

The sample period is from 1988 through 2001. The full sample statistics are on the left-hand column. The right-hand columns split the data according to the presence of a commercial (investment) banker on board. COMBANKER and IBANKER ratios are, respectively, the number of commercial and investment bankers on board, scaled by the board size (the number of directors on board.) A commercial banker is considered affiliated if her bank has lent to the firm in the past (and if the Dealscan database reports the loan.)

Variable	Full Sample (Number of firms = 288)					Commercial Banker on Board (Number of firms = 126)					No Commercial Banker on Board (Number of firms = 270)				
	Obs.	Mean	Median	Min.	Max.	Obs.	Mean	Median	Min.	Max.	Obs.	Mean	Median	Min.	Max.
Assets ($M)	2928	7,480	3,131	46	303,100	734	9,679	4,100	173	242,223	2194	6,745	2,919	46	303,100
Capital ($M)	2928	3,190	1,404	8	77,843	734	4,408	1,827	18	65,442	2194	2,783	1,231	8	77,843
Investment ($M)	2928	572	200	3	31,605	734	745	235	4	28,443	2194	514	193	3	31,605
Inv. / lagged capital	2928	0.21	0.17	0.01	2.80	734	0.17	0.15	0.01	1.29	2194	0.22	0.18	0.02	2.80
Inv. / lagged assets	2928	0.08	0.06	0.00	1.05	734	0.07	0.06	0.01	0.36	2194	0.08	0.06	0.00	1.05
Cash flow ($M)	2928	724	288	-1,763	18,974	734	921	343	-618	18,699	2194	658	275	-1,763	18,974
Cash flow / capital	2928	0.35	0.25	-0.36	2.72	734	0.32	0.22	-0.29	2.72	2194	0.36	0.26	-0.36	2.72
Cash flow / assets	2928	0.11	0.10	-0.17	0.65	734	0.11	0.10	-0.11	0.54	2194	0.11	0.10	-0.17	0.65
Tobin's Q (lagged)	2888	1.73	1.32	0.61	15.25	729	1.62	1.26	0.61	8.51	2159	1.77	1.34	0.62	15.25
ROA (lagged)	2902	0.08	0.07	-0.77	0.62	733	0.08	0.08	-0.41	0.47	2169	0.08	0.07	-0.77	0.62
Board size	2928	11.32	11	4	25	734	12.19	12	5	25	2194	11.03	11	4	24
Board Independence	2928	0.73	0.75	0.11	1	734	0.75	0.78	0.31	0.94	2194	0.72	0.75	0.11	1
COMBANKER > 0	2928	0.25	0	0	1	734	1	1	1	1	2194	0	0	0	0
COMBANKER ratio	2928	0.03	0	0	0.33	734	0.10	0.09	0.04	0.33	2194	0	0	0	0
Affiliated C.B. > 0	2928	0.06	0	0	1	734	0.22	0	0	1	2194	0	0	0	0
Unaffiliated C.B. > 0	2928	0.19	0	0	1	734	0.78	1	0	1	2194	0	0	0	0
IBANKER >0	2928	0.16	0	0	1	734	0.14	0	0	1	2194	0	0	0	1
IBANKER ratio	2928	0.02	0	0	0.57	734	0.01	0.00	0.00	0.25	2194	0	0	0	0.57

Variable	Investment Banker on Board (Number of firms = 102)					No Investment Banker on Board (Number of firms = 271)				
	Obs.	Mean	Median	Min.	Max.	Obs.	Mean	Median	Min.	Max.
Assets ($M)	457	11,448	3,023	117	242,223	2471	6,747	3,162	46	303,100
Capital ($M)	457	3,534	988	22	67,616	2471	3,127	1,447	8	77,843
Investment ($M)	457	857	197	7	31,393	2471	519	201	3	31,605
Inv. / lag. capital	457	0.25	0.21	0.04	1.72	2471	0.20	0.17	0.01	2.80
Cash flow ($M)	457	957	283	-358	18,974	2471	681	288	-1,763	17,894
Cash flow / capital	457	0.40	0.30	-0.34	1.86	2471	0.34	0.23	-0.36	2.72
Tobin's Q (lagged)	447	1.81	1.43	0.67	7.71	2441	1.72	1.30	0.61	15.25
ROA (lagged)	455	0.08	0.08	-0.77	0.25	2447	0.08	0.07	-0.48	0.62
Board size	457	11.27	11	5	24	2471	11.33	11	4	25
Board Indep.	457	0.71	0.73	0.31	0.93	2471	0.73	0.75	0.11	1
COMBANKER> 0	457	0.22	0	0	1	2471	0.26	0	0	1

Fama-French 17 Industry Groups

Industry	Mean	Industry	Mean
Food	0.06	Steel	0.02
Mining	0.01	Fab. Prod	0.01
Oil	0.03	Machine.	0.09
Textiles	0.02	Cars	0.04
Durables	0.03	Transport.	0.06
Chemicals	0.05	Utilities	0.15
Consumer	0.06	Retail	0.07
Construction	0.04	Other	0.26
		Finance	n.a.

Table III
Sensitivity of Investment to Cash Flow (Baseline Regression)

The dependent variable in the OLS regressions is Investment (capital expenditures normalized by lagged capital). Cash flow is earnings before extraordinary items plus depreciation, also normalized by lagged capital. COMBANKER indicates the presence of a commercial banker, and IBANKER indicates the presence of an investment banker on the board. Q is the (lagged) ratio of market value of assets to book value of assets. Firm size is the natural logarithm of lagged total book assets. Board size is the natural logarithm of number of directors on the board. Industry indicators are coded according to the 17 Fama-French industry groups.

	(I) Baseline No Bankers	(II) No Firm Fixed Effects	(III) Firm Fixed Effects	(IV) Firm and Firm*CF FE
Cash flow	0.265	0.343	0.45	1.30
	(1.41)	(1.77)*	(1.84)*	(3.39)***
(COMBANKER)*(Cash flow)		-0.098	-0.091	-0.076
		(2.58)**	(2.36)**	(1.91)*
(IBANKER)*(Cash flow)		-0.015	-0.083	0.008
		(0.26)	(1.29)	(0.11)
COMBANKER		0.011	0.026	0.025
		(1.03)	(2.03)**	(1.98)**
IBANKER		0.026	0.022	-0.005
		(1.20)	(1.07)	(0.27)
Q	0.037	0.04	0.034	0.028
	(3.44)***	(3.66)***	(3.03)***	(2.63)***
(Q)*(Cash flow)	-0.015	-0.021	-0.012	-0.009
	(1.53)	(2.18)**	(1.12)	(0.87)
Firm size	0.005	0.005	-0.035	0.006
	(0.76)	(0.78)	(2.56)**	(0.43)
(Firm size)*(Cash flow)	-0.014	-0.014	-0.063	-0.125
	(0.57)	(0.61)	(2.33)**	(3.45)***
Board size	-0.022	-0.013	-0.036	-0.02
	(0.99)	(0.61)	(1.13)	(0.65)
(Board size)*(Cash flow)	0.02	0.008	0.113	0.003
	(0.30)	(0.12)	(0.97)	(0.03)
Year fixed effects	yes	yes	yes	yes
(Year fixed effects)*(Cash flow)	yes	yes	yes	yes
Industry fixed effects	yes	yes	no	no
(Industry fixed effects)*(Cash flow)	yes	yes	yes	no
S&P rating fixed effects	yes	yes	yes	yes
(S&P rating fixed effects)*(Cash flow)	yes	yes	yes	yes
Firm fixed effects	no	no	yes	yes
(Firm fixed effects)*(Cash flow)	no	no	no	yes
Observations	2888	2888	2888	2888
R-squared	0.40	0.41	0.66	0.80

Constant included. T-statistics (in parentheses) are heteroskedasticity-corrected and clustered by firm.
* significant at 10%; ** significant at 5%; *** significant at 1%

 # Combankers

 # Age>70

Board Size

Year
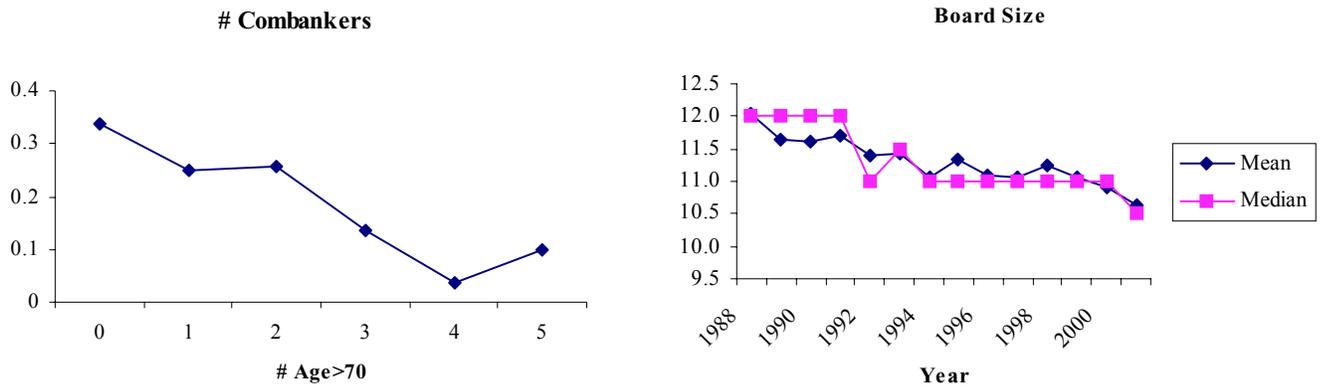
Figure 1. Directors older than 70 as an instrument for commercial bankers. On the left, the figure shows the current number of commercial bankers on the board as a function of the number of directors older than 70. On the right, the figure shows the annual mean and median board size, the number of directors on the board.

Tenure

Age

Change in Future Combankers

Number of directors older than 70 at t=0
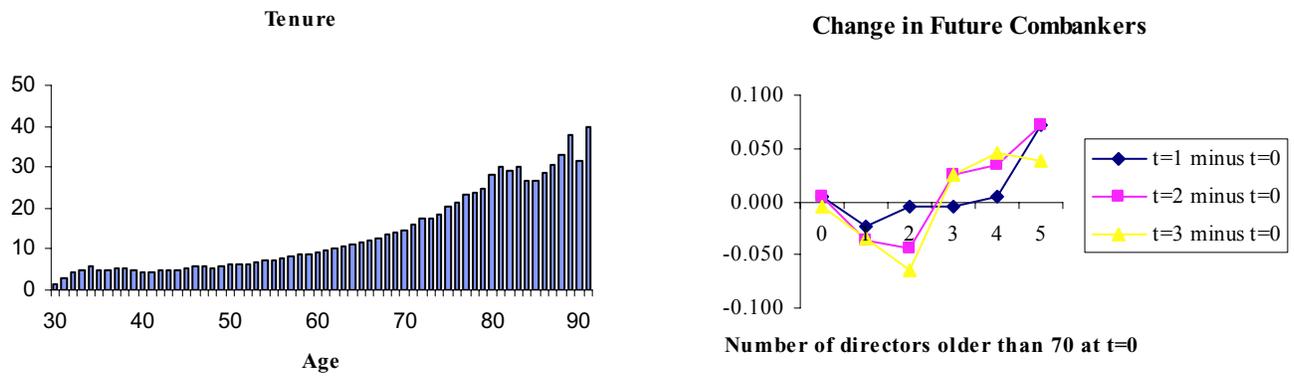
Figure 2. Directors older than 70 as an instrument for commercial bankers. The figure on the left shows mean tenure as a function of director age. The figure on the right displays the future change in the average number of commercial bankers as a function of the current number of directors older than 70.

Table IV
Sensitivity of Investment to Cash Flow (Instrumental Variables Approach)

The dependent variable is Investment in Column I, COMBANKER in Column II, and (COMBANKER)*(Cash flow) in Column III. COMBANKER is the number of commercial bankers on the board. In Column IV, the dependent variable is Investment, and COMBANKER and (COMBANKER)*(Cash flow) are instrumented with (#Age>70) and (#Age>70)*(Cash flow), where #Age>70 denotes the number of directors that are older than 70. Board age denotes the mean age of the directors on the board excluding those above 70. Board tenure is the mean tenure of the directors on the board. Firm size is the natural logarithm of lagged total book assets. Board size is the natural logarithm of number of directors on the board. Year, industry, and S&P credit rating fixed effects, as well as their interactions with cash flow, are included in all estimations.

	(I)	(II)	(III)	(IV)
	Baseline	**First Stage**		**2SLS**
	Investment	COMBANKER	(COMBANKER)*(CF)	Investment
Cash flow	0.478	0.803	1.427	0.758
	(1.35)	(1.15)	(1.88)*	(1.63)
(COMBANKER)*(Cash flow)	-0.085			-0.39
	(2.80)***			(1.98)**
COMBANKER	0.007			0.181
	(0.97)			(1.84)*
Q	0.04	0.05	0.041	0.046
	(3.60)***	(1.68)*	(2.22)**	(3.14)***
(Q)*(Cash flow)	-0.022	-0.059	-0.071	-0.035
	(2.09)**	(2.49)**	(2.96)***	(1.99)**
Firm size	0.012	-0.004	0.009	0.016
	(1.61)	(0.08)	(0.53)	(1.63)
(Firm size)*(Cash flow)	-0.027	-0.007	-0.034	-0.037
	(1.06)	(0.10)	(0.47)	(1.24)
Board size	-0.017	0.69	0.121	-0.093
	(0.74)	(4.36)***	(2.18)**	(1.36)
(Board size)*(Cash flow)	0.043	-0.5	0.026	0.118
	(0.57)	(2.20)**	(0.11)	(1.16)
#Age>70		-0.057	0.014	
		(2.18)**	(1.19)	
(#Age>70)*(Cash flow)		-0.013	-0.104	
		(0.27)	(2.26)**	
Board age	-0.005	-0.014	0.003	-0.002
	(1.50)	(1.45)	(0.72)	(0.62)
(Board age)*(Cash flow)	-0.002	0.008	-0.015	-0.007
	(0.33)	(0.70)	(1.11)	(1.09)
Board tenure	0.002	-0.007	-0.008	0.002
	(1.02)	(0.79)	(2.32)**	(0.74)
(Board tenure)*(Cash flow)	-0.001	0.009	0.021	0.001
	(0.20)	(0.73)	(1.95)*	(0.11)
Year, industry, S&P FE	yes	yes	yes	yes
(Year, industry, S&P FE)*(CF)	yes	yes	yes	yes
Observations	2885	2926	2926	2885
R-squared	0.41	0.15	0.30	0.23

Constant included. T-statistics (in parentheses) are heteroskedasticity-corrected and clustered by firm.
* significant at 10%; ** significant at 5%; *** significant at 1%

Table V
Regressions of Investment on Cash Flow: Split-Sample OLS Results

The specification shown in Table III, Column II is re-estimated in each subsample. Coefficient estimates of variables other than the banker and cash flow interactions are not shown for brevity. In Column I, the sample is split according to the median value of the Kaplan-Zingales index (KZ). In Column II, the sample is split into investment grade firms (those with S&P ratings BBB and above) and non-investment grade firms. Those with missing ratings are excluded. In Column III, the sample is split according to the sample median of the number of analysts covering the stock during the quarter before the directors are elected. In Column IV, the sample is split according to the median of the standard deviation of the quarterly earnings forecasts. The source for analyst coverage is I/B/E/S.

	(I)		(II)	
	Constrained	Unconstrained	Constrained	Unconstrained
	KZ> median	KZ< median	Non-Inv. grade	Investment grade
(COMBANKER)*(Cash flow)	0.106	-0.082	0.151	-0.13
	(1.01)	(2.07)**	(0.60)	(1.94)*
(IBANKER)*(Cash flow)	0.075	-0.011	0.097	-0.069
	(0.55)	(0.20)	(0.78)	(1.15)
COMBANKER	-0.031	0.016	0.014	0.017
	(1.88)*	(0.91)	(0.39)	(0.99)
IBANKER	0.027	0.003	-0.055	0.048
	(1.03)	(0.15)	(1.78)*	(1.87)*
Cash flow	0.287	0.365	-1.238	0.18
	(0.63)	(1.65)	(1.30)	(0.68)
Observations	1349	1344	326	2100
R-squared	0.53	0.37	0.69	0.41

	(III)		(IV)	
	Constrained	Unconstrained	Constrained	Unconstrained
	#Analysts< median	#Analysts> median	SD(estimates)> median	SD(estimates)< median
(COMBANKER)*(Cash flow)	-0.023	-0.16	-0.053	-0.11
	(0.59)	(2.87)***	(1.07)	(2.31)**
(IBANKER)*(Cash flow)	0.062	0.097	-0.013	0.127
	(0.63)	(1.57)	(0.23)	(1.23)
COMBANKER	-0.025	0.051	-0.009	0.02
	(1.86)*	(2.38)**	(0.63)	(0.85)
IBANKER	0.024	-0.03	0.006	0.027
	(0.62)	(1.39)	(0.40)	(0.52)
Cash flow	0.159	0.152	0.184	0.314
	(0.43)	(0.53)	(0.59)	(1.00)
Observations	1195	958	1026	1047
R-squared	0.44	0.50	0.44	0.47

Constant included. T-statistics (in parentheses) are heteroskedasticity-corrected and clustered by firm.
* significant at 10%; ** significant at 5%; *** significant at 1%

Table VI
Bankers at Work: Investment-Cash Flow and Affiliated vs. Unaffiliated Directors

The dependent variable is Investment. A commercial banker is considered affiliated if her bank has lent to the firm in the past (and if the Dealscan database reports the loan.) Constrained (unconstrained) firms are those with a Kaplan-Zingales index that is above (below) the sample median. Firm size is the natural logarithm of lagged total book assets. Board size is the natural logarithm of number of directors on the board.

	(I) Full Sample	(II) Constrained	(III) Unconstrained
Cash flow	0.440	0.088	0.249
	(1.76)*	(0.17)	(1.01)
(Affiliated C.B.)*(Cash flow)	-0.237	0.051	-0.241
	(2.90)***	(0.37)	(3.01)***
(Unaffiliated C.B.)*(Cash flow)	-0.07	0.062	-0.07
	(2.00)**	(0.86)	(1.56)
(IBANKER)*(Cash flow)	-0.09	-0.09	-0.093
	(1.38)	(0.88)	(1.26)
Affiliated COMBANKER	0.059	-0.003	0.064
	(2.83)***	(0.09)	(1.73)*
Unaffiliated COMBANKER	0.019	-0.017	0.034
	(1.63)	(1.11)	(1.39)
IBANKER	0.025	0.016	0.049
	(1.17)	(0.77)	(1.42)
Q	0.034	0.022	0.015
	(3.01)***	(1.28)	(1.50)
(Q)*(Cash flow)	-0.011	0.043	-0.003
	(1.06)	(1.84)*	(0.45)
Firm size	-0.031	-0.059	-0.033
	(2.40)**	(2.67)***	(1.84)*
(Firm size)*(Cash flow)	-0.069	0.08	-0.072
	(2.52)**	(1.69)*	(2.28)**
Board size	-0.044	0.043	-0.115
	(1.36)	(1.11)	(1.66)*
(Board size)*(Cash flow)	0.133	-0.169	0.193
	(1.12)	(0.81)	(1.40)
Year fixed effects	yes	yes	yes
(Year fixed effects)*(Cash flow)	yes	yes	yes
Industry fixed effects	yes	yes	yes
(Industry fixed effects)*(Cash flow)	yes	yes	yes
S&P rating fixed effects	yes	yes	yes
(S&P rating fixed effects)*(Cash flow)	yes	yes	yes
Firm fixed effects	yes	yes	yes
Observations	2888	1349	1344
Observations with (Affiliated C.B.)	171	97	61
Observations with (Unaffiliated C.B.)	563	258	287
R-squared	0.66	0.83	0.67

Constant included. T-statistics (in parentheses) are heteroskedasticity-corrected and clustered by firm.
* significant at 10%; ** significant at 5%; *** significant at 1%

Table VII
Summary Statistics
Bank Loans

Loan data come from the LPC Dealscan. Tranche is loan size in USD millions. Drawn spread is the fee per dollar that the borrower pays the lender each year for a term loan. Un-drawn spread is the annual fee per dollar to keep the credit line active. Both rates are in basis points and are quoted as a spread over a benchmark like the LIBOR. Maturity is the number of years between the signing of the loan contract and the maturity. Credit line is a dummy that indicates whether the tranche is a credit line. A typical deal involves a term loan (active immediately) and a credit line that gives the borrower the option to obtain loans at predetermined contract terms. Syndicated is a dummy that indicates whether the loan comes from a syndicate of banks, and the syndicate size denotes the number of banks involved. Senior indicates that the debt has a priority of claim ahead of other debt obligations in a company's total debt structure. Secured indicates that the deal involves a lien on borrower assets (e.g., assets, guarantees, or other collateral).

| | Full Sample | | | | | Commercial Bankers on Board | | | | | | No C.B. on Board | | |
| | # Firms = 191 | | | | | Affiliated # Firms = 39 | | | Unaffiliated # Firms = 55 | | | # Firms = 175 | | |
Firm Variables	Obs.	Mean	Median	Min.	Max.	Obs.	Mean	Median	Obs.	Mean	Median	Obs.	Mean	Median
Assets ($ millions)	1500	9,589	4,485	177	303,100	113	15,484	7056	218	10,212	5,554	1169	8,903	4,050
Q	1477	1.61	1.27	0.61	14.01	113	1.48	1.29	214	1.53	1.20	1150	1.64	1.27
PPE over assets	1492	0.42	0.39	0.02	0.92	113	0.49	0.48	218	0.48	0.50	1161	0.40	0.37
Stock Volatility	1504	0.09	0.08	0.02	0.39	113	0.08	0.07	220	0.08	0.07	1171	0.09	0.08
Leverage	1500	0.50	0.50	0.00	1.68	113	0.47	0.47	218	0.52	0.54	1169	0.50	0.50
Board size	1507	11.15	11	4	21	113	12.27	13	220	11.58	12	1174	10.96	11
Board independence	1507	0.73	0.77	0.27	1	113	0.78	0.79	220	0.76	0.80	1174	0.72	0.75
Commercial banker	1507	0.22	0	0	1	113	1	1	220	1	1	1174	0	0
Affiliated C.B.	1507	0.07	0	0	1	113	1	1	220	0	0	1174	0	0
Unaffiliated C.B.	1507	0.15	0	0	1	113	0	0	220	1	1	1174	0	0
Affiliated lead C.B.	1507	0	0	0	0	113	0.55	1	220	0	0	1174	0	0
Investment banker	1507	0.20	0	0	1	113	0.20	0	220	0.15	0	1174	0.21	0
Loan Variables														
Tranche ($ millions)	1314	631.26	300	0.50	25,000	99	1,321	550	200	644	245	1015	561	300
Drawn spread (bps)	1045	82.69	45	8	800	88	61.38	35	138	83.89	43.125	819	84.77	50
Un-drawn spread (bps)	983	18.31	12.5	3	142.86	90	14.51	10	124	18.67	12.75	769	18.70	12.5
Maturity	1318	3.37	3.00	0.07	25.03	109	3.66	3.99	185	3.67	3.00	1024	3.28	3.00
Credit Line?	1507	0.57	1	0	1	113	0.60	1	220	0.54	1	1174	0.57	1
Syndicated?	1507	0.87	1	0	1	113	0.96	1	220	0.83	1	1174	0.86	1
Syndicate size	1507	12.42	9	1	81	113	19.08	16	220	8.59	5	1174	12.49	9
Senior	1507	0.88	1	0	1	113	0.87	1	220	0.85	1	1174	0.90	1
Secured	1507	0.13	0	0	1	113	0.12	0	220	0.13	0	1174	0.13	0

Table VIII PANEL A
Loan Size and Commercial Bankers on Board

This table presents OLS regression results, where the dependent variable is loan size (tranche) in USD millions. COMBANKER and IBANKER indicate the presence of a commercial and investment banker on the board, respectively. Affiliated indicates that the director's bank is among the originators of the loan. Q denotes Tobin's q, PPE/Assets denotes plan, property and equipment scaled by assets, and leverage is total liabilities scaled by assets. Firm size is the natural logarithm of total book assets. Board size is the natural logarithm of number of directors on the board. Maturity is the natural logarithm of the days to maturity. Stock volatility is measured over the 12 months preceding the loan initiation. Indicators for loan style and loan purpose, missing observations for the maturity and secured variables are included in all estimations, but not shown in the table. See the appendix for descriptions of the loan contract variables.

	(I)	(II)	(III) Constrained	(IV) Unconstrained
	Tranche	Tranche	Tranche	Tranche
COMBANKER	256.098			
	(1.79)*			
Affiliated COMBANKER		351.251	-79.845	552.788
		(1.92)*	(0.44)	(2.17)**
Unaffiliated COMBANKER		207.232	27.654	187.929
		(1.49)	(0.60)	(0.87)
IBANKER	268.564	264.988	62.854	444.802
	(1.50)	(1.49)	(0.86)	(1.65)
Q	6.267	8.12	81.585	-14.183
	(0.22)	(0.28)	(1.47)	(0.37)
PPE / Assets	-370.41	-389.821	-68.104	412.047
	(1.84)*	(1.89)*	(0.32)	(1.12)
Stock volatility	-469.91	-469.568	-3,429.28	1,980.82
	(0.36)	(0.36)	(2.86)***	(0.84)
Board size	87.973	86.195	160.056	-38.403
	(0.57)	(0.56)	(1.35)	(0.11)
Firm size	398.66	401.452	210.417	584.196
	(5.56)***	(5.56)***	(4.72)***	(5.04)***
Leverage	-153.939	-151.211	-306.647	-134.116
	(0.46)	(0.46)	(1.58)	(0.17)
Board independence	189.325	176.774	215.971	125.448
	(0.81)	(0.76)	(0.73)	(0.26)
Senior	-38.421	-32.701	10.643	-66.205
	(0.41)	(0.35)	(0.17)	(0.39)
Secured	-146.791	-145.362	-65.217	-163.623
	(1.20)	(1.20)	(0.49)	(0.73)
Maturity	-95.141	-96.51	-11.376	-182.272
	(0.97)	(0.99)	(0.26)	(0.88)
Number of lenders	26.26	25.818	17.805	33.404
	(4.05)***	(3.98)***	(4.61)***	(2.26)**
Syndicated	-95.137	-94.726	-22.519	-101.944
	(1.27)	(1.27)	(0.37)	(0.62)
S&P Rating fixed effects	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes
Industry fixed effects	yes	yes	yes	yes
Observations	1281	1281	575	575
R-squared	0.61	0.61	0.61	0.69

Constant included. T-statistics (in parentheses) are heteroskedasticity-corrected and clustered by firm.
* significant at 10%; ** significant at 5%; *** significant at 1%

Table VIII PANEL A, Continued

In Column V, COMBANKER is instrumented with the number of directors over the age of 70. In Columns VI and VIII, the model includes firm fixed effects. Affiliated LEAD (PARTICIPANT) CB indicates that the director's bank plays a lead manager (participant) role in the syndicate. The sample includes loans to the KZ-unconstrained firms only.

	(V) 2SLS	(VI) Firm FE	(VII) No Firm FE	(VIII) Firm FE
		Sample: KZ-Unconstrained Firms		
	Tranche	Tranche	Tranche	Tranche
COMBANKER	1,237.91			
	(2.05)**			
Affiliated COMBANKER		938.871		
		(1.63)		
Affiliated LEAD CB			754.118	1,105.20
			(1.90)*	(1.80)*
Affiliated PARTICIPANT CB			87.799	513.667
			(0.40)	(1.04)
Unaffiliated COMBANKER		568.348	184.225	543.113
		(0.86)	(0.86)	(0.83)
IBANKER	597.607	994.566	434.425	970.231
	(2.31)**	(1.68)*	(1.68)*	(1.67)*
Q	0.256	-269.73	-16.972	-272.641
	(0.01)	(1.25)	(0.44)	(1.25)
PPE / Assets	210.387	761.507	505.993	773.422
	(0.45)	(0.51)	(1.40)	(0.52)
Stock volatility	1,091.65	7,074.88	1,894.94	7,252.06
	(0.44)	(1.40)	(0.83)	(1.44)
Board size	-249.768	-59.148	-89.902	-79.254
	(0.63)	(0.08)	(0.28)	(0.10)
Firm size	544.783	1,235.68	571.431	1,234.12
	(4.05)***	(2.07)**	(5.30)***	(2.07)**
Leverage	284.863	-1,134.78	-128.968	-1,181.66
	(0.34)	(0.85)	(0.17)	(0.88)
Board independence	-277.534	-692.632	119.076	-618.246
	(0.44)	(0.81)	(0.25)	(0.74)
Senior	-95.045	-482.631	-62.912	-484.24
	(0.52)	(1.19)	(0.37)	(1.19)
Secured	-270.606	-62.682	-140.185	-72.23
	(1.26)	(0.26)	(0.66)	(0.30)
Maturity	-202.878	-123.951	-172.569	-119.89
	(0.98)	(0.67)	(0.86)	(0.64)
Number of lenders	33.805	50.429	34.768	50.578
	(2.45)**	(1.90)*	(2.24)**	(1.90)*
Syndicated	-141.685	-266.731	-115.107	-269.737
	(0.85)	(0.84)	(0.69)	(0.85)
S&P Rating fixed effects	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes
Industry fixed effects	yes	yes	yes	yes
Firm fixed effects	no	yes	no	yes
Observations	575	575	575	575
R-squared	0.41	0.59	0.45	0.59

Constant included. T-statistics (in parentheses) are heteroskedasticity-corrected and clustered by firm.
* significant at 10%; ** significant at 5%; *** significant at 1%

Table VIII PANEL B
Loan Pricing and Commercial Bankers on Board

This table presents the results of regressing the cost of bank loans on firm, contract, and board characteristics. In Columns I through III, the dependent variable is the drawn all-in spread, which is the amount that the borrower pays the lender each year for each dollar borrowed in the case of a term loan, and for each dollar drawn off a credit line in the case of a loan commitment. In Columns IV through VI, the dependent variable is the un-drawn spread, which is the fee the borrower pays the lender each year to keep the credit line active. Constrained (unconstrained) firms are those with a Kaplan-Zingales index that is above (below) the sample median. Firm and board size, and maturity are in logarithms. Indicators for loan style and loan purpose, missing observations for maturity and secured variables are included in all estimations, but not shown in the table. See the appendix for descriptions of the loan contract variables.

	(I) Full Sample spread drawn	(II) Constrained spread drawn	(III) Unconst. spread drawn	(IV) Full Sample spread un-drawn	(V) Constrained spread un-drawn	(VI) Unconstrained spread un-drawn
Affiliated Combanker	3.394	14.576	-5.741	0.98	3.695	0.453
	(0.41)	(1.27)	(0.56)	(0.77)	(1.62)	(0.28)
Unaffiliated Combanker	-3.481	6.539	-10.064	-0.647	3.216	-0.945
	(0.38)	(0.55)	(1.07)	(0.37)	(1.16)	(0.72)
Investment Banker	-15.958	-19.642	-11.126	-0.524	0.866	-1.235
	(2.42)**	(1.58)	(1.63)	(0.50)	(0.35)	(0.87)
Q	-0.683	-12.804	1.763	-0.121	0.016	0.986
	(0.21)	(1.84)*	(0.73)	(0.23)	(0.01)	(2.24)**
PPE / Assets	-8.532	-45.574	-31.928	-4.181	-15.346	-2.885
	(0.50)	(1.57)	(1.76)*	(1.31)	(2.49)**	(0.62)
Stock volatility	326.915	360.029	388.756	35.412	87.768	-3.485
	(3.83)***	(1.68)*	(3.28)***	(2.03)**	(2.81)***	(0.13)
Board size	-2.464	-4.577	-5.742	-2.094	1.838	-3.906
	(0.14)	(0.18)	(0.50)	(0.90)	(0.46)	(1.22)
Firm size	-8.38	0.642	-16.97	-1.867	-1.327	-3.041
	(2.18)**	(0.10)	(4.23)***	(2.03)**	(0.91)	(2.32)**
Leverage	77.423	43.29	25.304	14.015	9.452	10.253
	(3.70)***	(1.53)	(1.25)	(3.36)***	(1.91)*	(1.54)
Board independence	16.208	-12.468	50.485	4.91	8.458	0.79
	(0.66)	(0.33)	(1.86)*	(1.44)	(1.42)	(0.20)
Senior	0.37	-14.264	-0.958	0.686	1.206	0.149
	(0.05)	(0.86)	(0.13)	(0.47)	(0.38)	(0.09)
Secured	64.177	73.133	50.601	10.571	10.25	9.39
	(4.63)***	(3.98)***	(3.61)***	(4.56)***	(3.46)***	(2.59)**
Maturity	5.922	-5.456	7.389	-0.484	-2.226	1.077
	(1.47)	(0.85)	(1.14)	(0.53)	(1.52)	(0.80)
Number of lenders	-0.154	-0.258	-0.165	0.02	0.047	-0.016
	(0.70)	(0.62)	(0.55)	(0.50)	(0.81)	(0.29)
Syndicated	-7.481	-6.479	-17.708	1.094	1.178	-1.537
	(0.92)	(0.44)	(1.98)*	(0.69)	(0.48)	(0.85)
Deal size	1.314	-5.531	11.483	0.219	-1.297	2.573
	(0.40)	(1.02)	(3.13)***	(0.27)	(1.03)	(2.27)**
S&P Rating fixed effects	yes	yes	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes	yes	yes
Industry fixed effects	yes	yes	yes	yes	yes	yes
Observations	1017	448	459	811	372	347
R-squared	0.58	0.65	0.67	0.56	0.61	0.59

Constant included. T-statistics (in parentheses) are heteroskedasticity-corrected and clustered by firm.
* significant at 10%; ** significant at 5%; *** significant at 1%
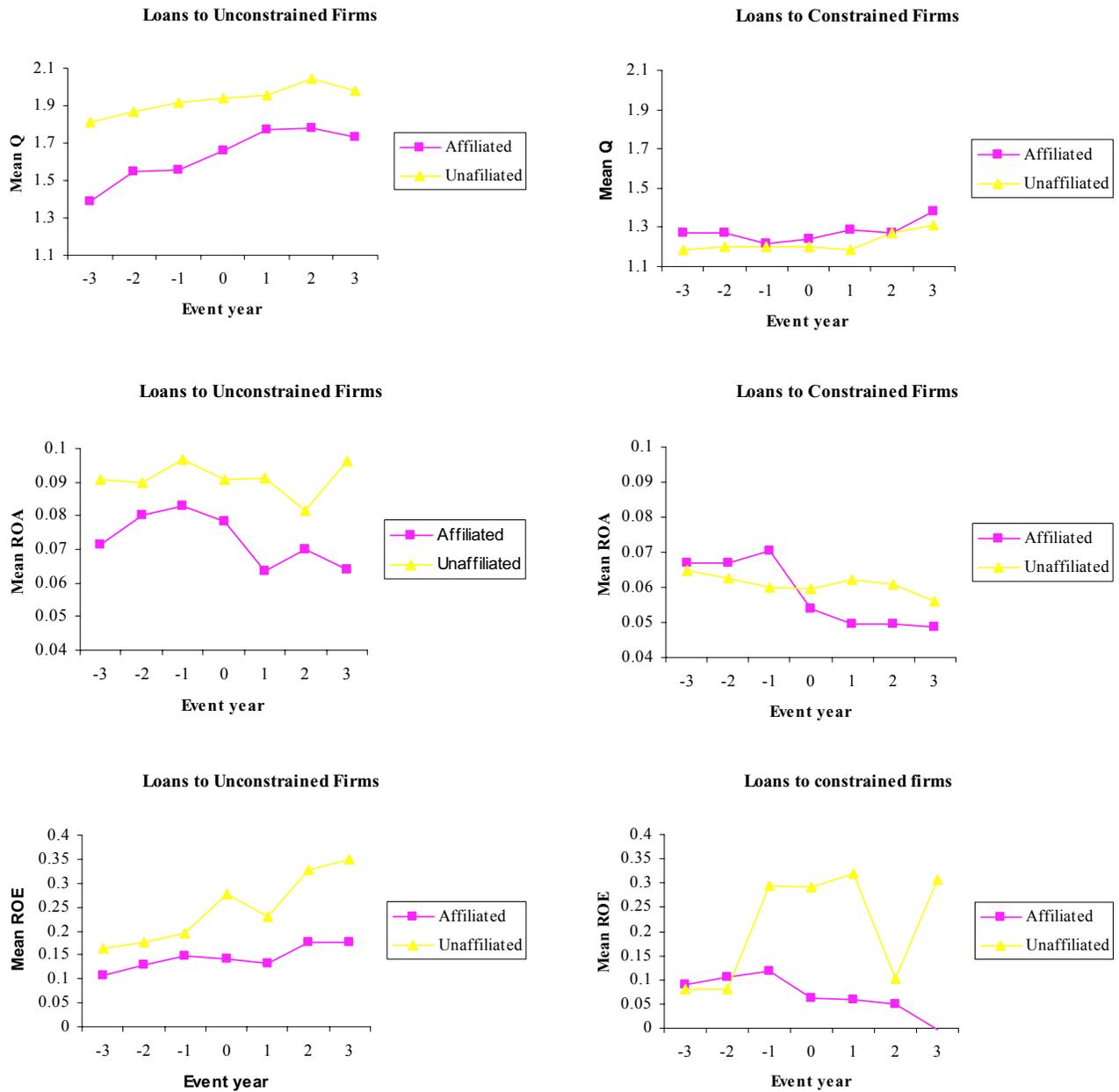
Figure 3. Firm Performance Conditional on Bank Borrowing. The figures depict the sample means of Tobin's q, ROA and ROE among KZ-unconstrained and KZ-constrained firms. Year 0 denotes the year in which the firm has obtained at least one bank loan.

Mean Market-to-Book Equity
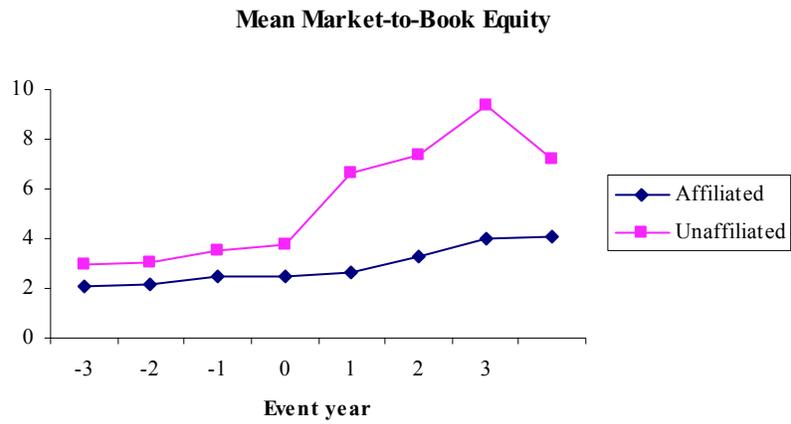
Figure 4. Market-to-Book Equity Conditional on Bank Borrowing. This figure illustrates the sample mean of the ratio of the market value of equity to book value of equity among unconstrained firms.

Table IX
(KZ–Unconstrained) Firm Performance Conditional on Bank Borrowing

The sample includes only KZ-unconstrained firms that obtained at least one bank loan. Subscript t denotes the fiscal year that ends before the borrowing; t+1 denotes the fiscal year that starts after the borrowing. Due to outliers, ROE is censored at –0.25 and +0.25 for the tobit models. In the probit models shown on the right hand columns, the dependent variable indicates an upgrade in the S&P credit rating, the reported coefficient estimates are marginal probabilities, and the numbers in parentheses are z-statistics. Observations with missing ratings are dropped from the sample. Affiliated CB denotes the presence of an affiliated commercial banker, and NO CB denotes the absence of any commercial banker on board. The omitted category is unaffiliated commercial banker. Firm size is the natural logarithm of total book assets. Board size is the natural logarithm of the number of directors on the board. Stock volatility is measured over the twelve months preceding the first loan of the year.

	OLS Models						Tobit Models			Probit Models		
	Q_{t+1}	Q_{t+2}	Q_{t+3}	ROA_{t+1}	ROA_{t+2}	ROA_{t+3}	ROE_{t+1}	ROE_{t+2}	ROE_{t+3}	$Upgrade_{t+1}$	$Upgrade_{t+2}$	$Upgrade_{t+3}$
Affiliated CB	-0.152	-0.175	-0.127	-0.03	-0.008	-0.031	-0.041	-0.016	-0.056	0.182	0.289	0.361
	(0.84)	(0.74)	(0.54)	(2.20)**	(0.63)	(1.84)*	(1.43)	(0.51)	(1.79)*	(1.04)	(1.82)*	(2.65)***
No CB	-0.19	-0.22	-0.13	-0.023	-0.009	-0.019	-0.042	-0.026	-0.046	0.073	0.079	0.1
	(1.33)	(0.97)	(0.53)	(1.97)*	(0.84)	(1.34)	(2.07)**	(1.17)	(2.11)**	(0.73)	(0.83)	(1.29)
Board size	0.134	-0.268	-0.812	-0.003	0.007	0.014	-0.063	-0.008	-0.006	-0.166	-0.287	0.094
	(0.44)	(0.64)	(1.37)	(0.17)	(0.29)	(0.69)	(1.80)*	(0.20)	(0.15)	(0.86)	(1.65)*	(0.43)
Board indep.	0.055	0.078	-0.258	0.002	0.048	0.029	-0.018	0.059	0.07	-0.106	-0.264	-0.077
	(0.16)	(0.16)	(0.52)	(0.06)	(1.54)	(0.91)	(0.30)	(0.89)	(1.09)	(0.33)	(1.05)	(0.30)
Firm Size	0.058	0.084	0	-0.003	-0.003	-0.014	-0.006	-0.002	-0.021	0.007	0.031	0.076
	(0.92)	(1.00)	(0.00)	(0.83)	(0.72)	(3.19)***	(0.75)	(0.26)	(2.39)**	(0.18)	(0.74)	(1.76)*
Stock vol.	-4.456	-3.242	-4.191	-0.171	-0.144	0.063	-0.447	-0.429	-0.378	0.068	0.07	0.492
	(2.70)***	(1.26)	(0.89)	(0.95)	(0.91)	(0.36)	(1.53)	(1.33)	(1.19)	(0.04)	(0.05)	(0.32)
Q_t	0.933	1.039	0.999	0.008	0.01	0.002	0.015	0.02	0.015	0.007	0.025	0.07
	(8.87)***	(6.53)***	(4.46)***	(1.41)	(1.36)	(0.29)	(1.91)*	(2.40)**	(1.96)*	(0.15)	(0.52)	(1.45)
ROA_t				0.534	0.423	0.496						
				(2.60)**	(1.71)*	(2.76)***						
ROE_t							0.45	0.239	0.172			
							(5.66)***	(3.25)***	(2.29)**			
Year FE	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Industry FE	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
S&P Rating FE	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Observations	303	298	285	303	302	292	304	300	289	166	198	195
R-sq. (p-value)	0.78	0.68	0.61	0.43	0.35	0.38	(0.00)	(0.00)	(0.00)	(0.08)	(0.00)	(0.00)

Constant included. T-statistics (in parentheses) are heteroskedasticity-corrected and clustered by firm.
* significant at 10%; ** significant at 5%; *** significant at 1%

Table X
Summary Statistics
Public Debt

Data on public debt issues come from the SDC database. Principal is the amount of debt issued in USD millions. At-issue yield spread is the yield-to-maturity at the issue date, quoted as a spread over the relevant treasury benchmark. Gross spread is the underwriting fees as a percentage of the principal. Maturity is the number of years to maturity. OTC indicates whether the issue is listed over the counter. Floating rate indicates that the coupon rate is variable. Puttable, callable, and sinking funds are indicators on the presence of call, put, and sinking funds provisions in the debt contract.

| | Full Sample | | | | | Investment Bankers on Board | | | | | | No IBanker on Board | | |
| | # Firms = 192 | | | | | Affiliated # Firms = 24 | | | Unaffiliated # Firms = 42 | | | # Firms = 172 | | |
Firm Variables	Obs.	Mean	Median	Min.	Max.	Obs.	Mean	Median	Obs.	Mean	Median	Obs.	Mean	Median
Assets ($ millions)	2672	30,152	12,419	373	274,730	132	57,516	13,648	429	62,073	13,231	2111	21,954	12,380
Q	2664	1.50	1.21	0.63	8.67	132	1.37	1.11	425	1.36	1.10	2107	1.53	1.23
PPE over assets	2667	0.43	0.37	0.04	0.93	129	0.31	0.28	429	0.35	0.30	2109	0.46	0.42
Stock Volatility	2671	0.08	0.07	0.01	0.30	132	0.08	0.07	429	0.07	0.07	2110	0.08	0.07
Leverage	2672	0.56	0.55	0.00	1.54	132	0.61	0.67	429	0.61	0.64	2111	0.54	0.54
Board size	2672	12.32	12.00	6	22	132	12.59	12	429	12.75	13	2111	12.21	12
Board independence	2672	0.78	0.80	0.31	1	132	0.72	0.77	429	0.77	0.8	2111	0.78	0.8
Commercial banker	2672	0.27	0	0	1	132	0.30	0	429	0.37	0	2111	0.24	0
Investment banker	2672	0.21	0	0	1	132	1	1	429	1	1	2111	0	0
Affiliated Ibanker	2672	0.05	0	0	1	132	1	1	429	0	0	2111	0	0
Unaffiliated Ibanker	2672	0.16	0	0	1	132	0	0	429	1	1	2111	0	0
Debt Variables														
Principal ($ millions)	2651	147.44	100.00	0.50	3000	132	256.47	200	429	130.02	100	2090	144.13	100
At-issue yield spread	2236	104.64	85.00	-35	887	107	117.09	102	328	94.12	72	1801	105.82	85
Gross spread	2302	0.59	0.60	0.00	4.00	128	0.60	0.61	365	0.48	0.45	1809	0.61	0.62
Maturity	2672	10.31	7.02	0.00	40.05	132	9.84	7.00	429	8.23	5.02	2111	10.76	8.00
OTC?	2672	0.004	0	0	1	132	0	0	429	0	0	2111	0.005	0
Floating rate?	2672	0.09	0	0	1	132	0.12	0	429	0.16	0	2111	0.07	0
Puttable?	2672	0.06	0	0	1	132	0.06	0	429	0.06	0	2111	0.06	0
Callable?	2672	0.78	1	0	1	132	0.86	1	429	0.87	1	2111	0.75	1
Sinking funds?	2672	0.03	0	0	1	132	0.02	0	429	0.04	0	2111	0.03	0

Table XI
Cost and Size of Public Debt and Investment Bankers on Board

The dependent is at-issue yield spread (in basis points as a spread over the benchmark treasury rate) in Column I, the gross spread (underwriter fees as a percentage of the issue) in Column II, and the principal amount of debt issue (in USD millions) in Columns III and IV. Indicators for put, call, and sinking fund covenants, and variable coupon rates are included in all estimations, but not shown in the table. Firm size is the natural logarithm of total book assets. Board size is the natural logarithm of number of directors on the board. Maturity is the natural logarithm of the days to maturity.

	(I) At-issue Yield	(II) Gross Spread	(III) Principal ($ millions)	(IV) Principal ($ millions)
IBANKER			21.471 (2.18)**	
Affiliated IBANKER	-3.7 (0.49)	-0.002 (0.05)		59.648 (1.53)
Unaffiliated IBANKER	-3.932 (0.58)	-0.063 (2.50)**		6.268 (0.51)
COMBANKER	1.707 (0.32)	0.035 (1.62)	11.277 (0.85)	12.814 (0.94)
Q	-10.272 (3.74)***	-0.029 (1.50)	17.829 (1.85)*	18.333 (1.90)*
PPE / Assets	-11.379 (0.79)	-0.117 (1.38)	-55.918 (1.26)	-58.353 (1.32)
Stock volatility	573.11 (5.98)***	1.563 (3.05)***	287.188 (2.09)**	256.375 (1.82)*
Over the counter	-12.941 (0.44)	0.248 (1.64)	-1.532 (0.04)	-0.231 (0.01)
Leverage	31.789 (1.68)*	0.12 (1.75)*	-168.958 (3.42)***	-158.778 (3.06)***
Firm size	-10.564 (3.86)***	-0.053 (4.24)***	52.291 (5.79)***	52.326 (5.77)***
Maturity	3.922 (1.60)	0.072 (4.56)***	38.643 (4.73)***	38.571 (4.80)***
Principal	7.733 (5.81)***	0.03 (2.59)**		
Board size	12.741 (1.23)	-0.049 (0.91)	-50.884 (0.98)	-51.849 (0.99)
Board independence	23.879 (1.24)	0.229 (2.14)**	-160.248 (3.32)***	-154.908 (3.11)***
S&P Rating fixed effects	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes
Industry fixed effects	yes	yes	yes	yes
Observations	2203	2267	4123	4123
R-squared	0.51	0.45	0.34	0.34

Constant included. T-statistics (in parentheses) are heteroskedasticity-corrected and clustered by firm.
* significant at 10%; ** significant at 5%; *** significant at 1%

Table XII
Frequency of Outside Financing

This table presents probit regression results. The reported coefficients are marginal probabilities, rather than coefficient estimates. External finance indicates that the firm obtained financing in the form of bank loan, public debt or equity at least once during the year. Similarly, bank loan indicates a year with bank borrowing, and capital markets financing indicates a year with public debt or equity issuance. In Column I through V, all firm-years with available data are used. In Column VI only firm-years with an external finance event are used; the dependent variable is public financing (i.e., indicator for public debt or equity issuance.) Firm size is the natural logarithm of total book assets. Board size is the natural logarithm of number of directors on the board.

	(I) External Finance	(II) Bank Loan	(III) Capital Markets	(IV) Public Equity	(V) Public Debt	(VI) Public vs. Bank Finance
IBANKER	0.10	0.099	0.06	0.015	0.04	-0.07
	(2.74)***	(2.85)***	(2.04)**	(1.21)	(1.52)	(1.23)
COMBANKER	0.02	0.021	0.011	0.012	-0.002	-0.018
	(0.56)	(0.70)	(0.37)	(1.17)	(0.08)	(0.34)
Firm Size	0.091	0.027	0.105	0.004	0.114	0.1
	(4.76)***	(1.44)	(6.47)***	(0.65)	(7.26)***	(2.94)***
PPE / Assets	-0.108	-0.254	0.111	-0.023	0.141	0.522
	(1.11)	(2.69)***	(1.40)	(0.78)	(1.82)*	(3.38)***
Q	0.009	0.004	0.01	0.01	-0.009	0.016
	(0.80)	(0.42)	(1.00)	(3.73)***	(0.79)	(0.63)
Leverage	0.345	0.204	0.225	0.077	0.16	0.062
	(4.24)***	(2.80)***	(3.09)***	(2.93)***	(2.19)**	(0.42)
Board size	0.052	-0.048	0.155	0.011	0.196	0.285
	(0.70)	(0.74)	(2.25)**	(0.47)	(3.16)***	(2.29)**
Board independence	0.017	-0.074	0.025	-0.024	0.005	0.235
	(0.14)	(0.74)	(0.27)	(0.83)	(0.06)	(1.33)
KZ	0.006	0.004	0.009	0.004	0.006	0.003
	(1.94)*	(1.44)	(3.02)***	(2.36)**	(1.92)*	(0.84)
S&P Rating F.E.	yes	yes	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes	yes	yes
Industry fixed effects	yes	yes	yes	yes	yes	yes
Pseudo R-squared	0.12	0.11	0.17	0.08	0.20	0.20
Observations	2810	2810	2802	2747	2751	1001

Constant included. Z-statistics (in parentheses) are heteroskedasticity-corrected and clustered by firm.
* significant at 10%; ** significant at 5%; *** significant at 1%

Table XIII
Summary Statistics on Acquisitions

	Obs	Mean	Median	Min	Max
% owned after	1547	98.3	100	50	100
% of target acquired	1547	97.7	100	50	100
Target value ($ million)	554	191.5	116.5	0.3	939.8
Target value as a ratio of acquirer total assets	554	0.07	0.02	0.0004	1.81
Number of banks advising target	532	1.2	1	1	5
Number of banks advising acquirer	318	1.2	1	1	4
Target public?	1547	0.21	0	0	1

Stock Performance After Acquisitions

Stock Performance After Acquisitions
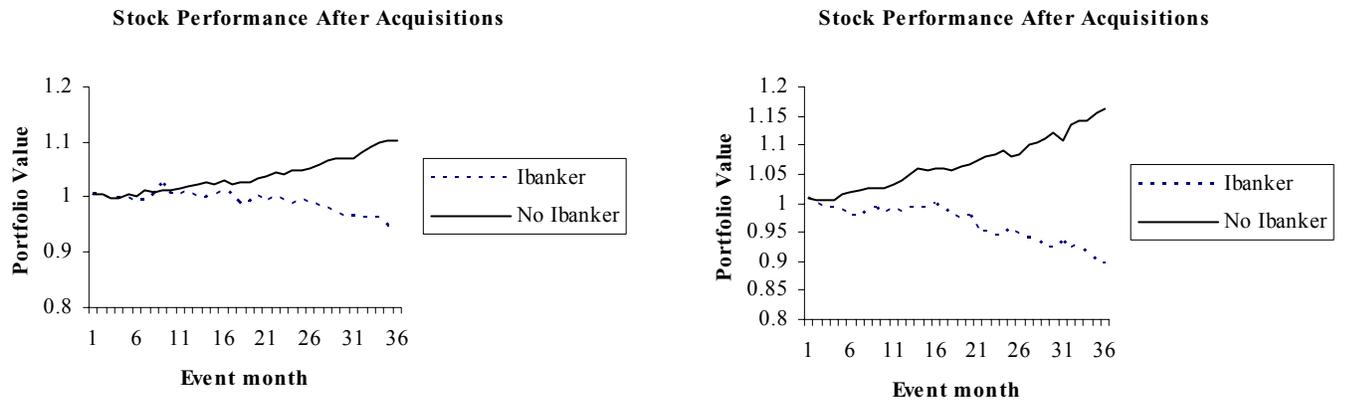
Figure 5. Stock Performance After Acquisitions. Starting the month following the acquisition, stock returns (net of the market return) are averaged for each group of firms for each "event" month during the 36-month period. The monthly averaged returns are then compounded separately among the firms with and without an investment serving on the board. The figure on the right requires that the acquired firm has a minimum value of $5 million.

Table XIV
Firm Performance Conditional on Acquisitions

The sample includes only those firm-years in which the firm announced and completed at least one acquisition, where subscript t denotes the event year. R_{t+i} denotes buy-and-hold stock returns over the i months following the first acquisition of the year. ΔQ_{t+i} and ΔMB_{t+i} denote the change in market-to-book ratio of assets and equity, respectively, from year t-1 to t+i. ROA_{t+i} denotes earnings before extraordinary items plus interest expenses scaled by total assets in year t+i. Book-to-market is the ratio of book value of equity to its market value. Market equity is the natural logarithm of market equity. Volatility is measured over the twelve months before the acquisition. Firm Size is the natural logarithm of total book assets. Board size is the natural logarithm of number of directors on the board. Board independence is the number of outside directors scaled by board size.

	R_{t+12}	R_{t+24}	R_{t+36}	ΔQ_{t+1}	ΔQ_{t+2}	ΔQ_{t+3}	ΔMB_{t+1}	ΔMB_{t+2}	ΔMB_{t+3}	ROA_{t+1}	ROA_{t+2}	ROA_{t+3}
IBANKER	-0.04	-0.13	-0.14	-0.229	-0.265	-0.222	-0.445	-0.665	-0.506	0.002	-0.011	-0.018
	(0.75)	(1.65)*	(1.52)	(1.86)*	(1.74)*	(1.43)	(1.87)*	(2.43)**	(1.50)	(0.22)	(1.33)	(1.89)*
BM equity	-0.079	-0.096	-0.027									
	(1.26)	(0.78)	(0.17)									
Market Equity	0.027	0.095	0.142									
	(1.13)	(2.16)**	(2.65)***									
Board size	-0.132	-0.204	-0.317	-0.059	0.077	-0.128	0.093	0.331	-0.002	0.007	0.016	-0.001
	(2.08)**	(1.46)	(1.74)*	(0.24)	(0.26)	(0.36)	(0.23)	(0.67)	(0.00)	(0.63)	(1.04)	(0.10)
Board indep.	-0.164	-0.23	-0.424	0.057	0.157	-0.006	0.677	0.103	-0.444	-0.018	-0.001	-0.002
	(1.15)	(1.01)	(1.63)	(0.16)	(0.41)	(0.01)	(0.69)	(0.14)	(0.42)	(1.22)	(0.08)	(0.08)
Firm Size				0.085	0.108	0.142	-0.137	-0.029	0.05	-0.005	-0.009	-0.006
				(1.39)	(1.67)*	(1.97)*	(0.78)	(0.20)	(0.24)	(2.34)**	(3.51)***	(2.46)**
Stock vol.				0.686	-0.806	-3.361	-2.938	-3.998	-6.151	-0.018	-0.112	-0.302
				(0.20)	(0.33)	(1.53)	(0.38)	(0.87)	(1.59)	(0.13)	(0.97)	(2.16)**
ΔQ_t				-0.334	-0.394	-0.464						
				(2.50)**	(3.89)***	(3.67)***						
ΔMB_t							0.193	-0.269	-0.505			
							(0.33)	(2.69)***	(4.82)***			
ROA_t										0.346	0.23	0.163
										(2.71)***	(2.24)**	(1.82)*
Year, industry, and S&P credit rating fixed effects included in all models.												
Observations	600	597	589	598	593	579	598	593	579	593	586	574
R-squared	0.12	0.13	0.16	0.12	0.17	0.19	0.04	0.16	0.18	0.37	0.31	0.29

Constant included. T-statistics (in parentheses) are heteroskedasticity-corrected and clustered by firm.
* significant at 10%; ** significant at 5%; *** significant at 1%

Table XV
Firm Performance Conditional on Acquisitions

This table replicates the results of the regressions reported in Table XIV with further controls for the type of financing, using the subsample where the type of financing is available. For comparison, baseline models without the financing dummies are also reported. "Cash only" is equal to 1 if all acquisitions in a given year are financed with cash only. Similarly, "Stock only" indicates that all acquisitions in a given year are financed with stock only. The omitted category indicates years with mergers with mixed financing or multiple mergers with different means of financing. For brevity, the coefficients estimates for the control variables as reported in Table XIV are not tabulated here.

	R_{t+24}	R_{t+24}	R_{t+36}	R_{t+36}	ΔQ_{t+1}	ΔQ_{t+1}	ΔQ_{t+2}	ΔQ_{t+2}	ΔMB_{t+1}	ΔMB_{t+1}	ΔMB_{t+2}	ΔMB_{t+2}
IBANKER	-0.144	-0.138	-0.148	-0.125	-0.293	-0.332	-0.327	-0.335	-0.372	-0.416	-0.525	-0.531
	(1.28)	(1.20)	(1.02)	(0.87)	(2.00)**	(2.18)**	(1.66)*	(1.69)*	(1.31)	(1.41)	(1.74)*	(1.73)*
Cash Only		0.002		0.1		-0.204		-0.06		-0.136		-0.125
		(0.02)		(1.07)		(1.14)		(0.32)		(0.46)		(0.44)
Stock Only		-0.05		-0.074		0.141		0.009		0.271		-0.091
		(0.48)		(0.68)		(0.41)		(0.04)		(0.52)		(0.23)

Year, industry, and S&P credit rating fixed effects included in all models.

Observations	342	342	338	338	343	343	340	340	343	343	340	340
R-squared	0.15	0.15	0.19	0.20	0.15	0.15	0.2	0.2	0.15	0.15	0.21	0.21

Constant included. T-statistics (in parentheses) are heteroscedasticity-corrected and clustered by firm.
* significant at 10%; ** significant at 5%; *** significant at 1%