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ABSTRACT

We show that financial experts on boards significantly affect corporate decisions, but not necessarily in the interest of shareholders. Employing a novel director-level data set from 1988 to 2001, we find that, when commercial bankers enter a board, loan size increases and investment-cash flow sensitivity decreases. However, the increased financing benefits mostly financially unconstrained firms with good credit but poor investment opportunities. Investment bankers on boards are associated with larger public debt issues and worse acquisitions. Among financial experts without bank affiliation, finance professors increase the size of CEO option grants, reducing, however, the sensitivity of total compensation to performance.

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Regulation changes and press coverage following the recent wave of accounting scandals have stressed the need for more financial expertise on corporate boards. The implicit assumption behind the reforms is that "an understanding of generally accepted accounting principles and financial statements" will lead to better board oversight.[1] Directors spend, however, a significant portion of their time on advising rather than monitoring.[2] Therefore, they might affect firm policies beyond more accurate disclosure. Moreover, financial experts are often affiliated with a financial institution and may have interests other than maximizing shareholder value. Conflicts of interest due to affiliation have raised concerns in several areas of financial intermediation such as analyst recommendations, IPO allocations, and proxy voting of mutual funds.[3] In this paper we ask whether affiliation may also hamper the effectiveness of financial experts serving on corporate boards.

We use a novel fourteen-year panel dataset of U.S. directors to analyze the impact of commercial bankers, investment bankers, and unaffiliated finance experts on firm policies. We provide evidence that financial experts on boards significantly affect corporate financing, investment, and compensation decisions. We then analyze whether their influence is in the best interest of the firm's shareholders.

One often cited mechanism through which bankers could affect firm policy is by easing access to capital. If financial constraints are due to information asymmetries and induce underinvestment (Myers and Majluf (1984); Fazzari, Hubbard, and Petersen (1988)), then bankers on the board may enable firms to finance additional value-creating projects and decrease the sensitivity of investment to internal resources.[4] This effect would benefit shareholders. However, investment-cash flow sensitivity need not reflect inefficient financial constraints. It may represent efficient rationing of finance to empire-

building managers. Bankers, acting in the interest of creditors rather than shareholders, may lend to firms with good credit standing and low default risk, but no value-creating projects. Increased lending, then, enables management to divert funds to other, potentially wasteful purposes or to over-invest (Jensen and Meckling (1976); Jensen (1986)).

We investigate whether bankers increase external financing and, if so, whether it is in the interest of the firm's shareholders. We find that when commercial bankers enter a board, the firm displays less investment-cash flow sensitivity and obtains larger loans. Both effects depend positively on a lending relationship between the director's bank and the firm. The increased lending affects, however, mostly those firms that are *least* financially constrained, such as firms with investment grade debt. Moreover, these firms typically have lower investment opportunities and profitability, even several years after the borrowing. Thus, commercial bankers on the board appear to extend credit to the firm when the benefits to creditors are large, rather than the potential benefits to shareholders. The firms most likely to be underinvesting receive no assistance from banker-directors.

Next, we gauge the impact of investment banker directors on investment and financing policy. Given their expertise, we focus on acquisitions and securities issues. We find that firms with investment bankers on their boards lose 120 basis points more than firms without investment bankers in the 5 days surrounding takeover bids. They also lose significantly more value over the three years following an acquisition. Both results indicate overinvestment to the detriment of shareholders. Investment bankers are also associated with larger bond issues. The result is strongest if the director's bank is involved in the deal. And, while investment bankers on the board generally seem to reduce underwriting fees, this helping hand is not visible when their bank is involved in the deal. As

with commercial bankers, the impact of investment bankers is significant, but appears to promote bank profits rather than shareholder value.

The financial expertise of directors, however, may create value for shareholders along other dimensions on which they are not conflicted. Bankers may, for example, use their expertise to design appropriate compensation packages for top executives and to prevent rent extraction. Other financial experts, such as CFOs, VPs for Finance, accountants, executives of non-bank financial companies, and finance professors, are not conflicted and may improve both financing and compensation policies. We find that only finance professors affect compensation, but to the apparent detriment of shareholders: They increase option grants to CEOs, but *reduce* the sensitivity of pay to performance. Moreover, non-bank financial experts have no significant impacts on investment and financing policies, perhaps because they lack direct connections to financial intermediaries.

A key challenge for any analysis of director effects is the endogeneity of board composition. In particular, the causality may be reverse, and firms' financing needs determine the representation of financial institutions on their boards. For example, Stearns and Mizruchi (1993), Pfeffer (1992), and Booth and Deli (1999) find significant correlations between firm leverage and board presence of bankers. Their interpretation is that firms hire financial directors for their debt market expertise. Separating director effects from selection is difficult. Data limitations and the slow evolution of boards make it challenging to move beyond cross-sectional analysis.

Our data set allows us to address these concerns. We hand-collect biographical data on the individual directors of 288 non-financial Forbes 500 companies from 1988 to 1997. IRRC data completes the sample through 2001. The fourteen-year time series pro-

vides sufficient variation to identify commercial banker effects out of within-firm changes in board composition. Thus, we can rule out the possibility that the effects we associate with bankers are driven by omitted (time-invariant) firm characteristics.

Fixed effects, however, do not control for unobserved firm characteristics that vary over time. Firms may choose banker directors precisely when they plan to initiate changes in policy. To address this possibility, we instrument for the number of commercial bankers on the board, exploiting the following empirical pattern. Beginning in the second half of the 1970s and continuing through the 1980s, the commercial banking industry absorbed several unfavorable shocks, substantially increasing the frequency of bank failure (Park (1994)). Executives of failing commercial banks were less attractive as directors, creating a negative shock to the supply of commercial bankers in the pool of potential directors. Indeed, we find that firms that had to fill director positions between 1976 and 1985 tended to hire fewer commercial bankers than firms in other decades. A larger number of board appointments during the 1976-1985 crisis period predicts also fewer commercial bankers on the current board. This variation is plausibly exogenous to investment policies during our 1988-2001 sample period. We thus use the number of directors who joined the board between 1976 and 1985 as an instrument for the number of commercial bankers on the board. The (instrumented) number of commercial bankers continues to predict less sensitivity of investment to cash flow.

In the investment banker context, we cannot use fixed effects analysis in most cases. There is, for example, insufficient within-firm variation in acquisition activity between years with and without investment bankers on the board. We also do not have an instrument. Still, the evidence on investment bankers is consistent with the commercial

banker results: In both cases, policies with bankers on the board seem to favor the interests of the financial institutions over shareholders.

Our paper relates most closely to Kroszner and Strahan (2001a and b), who also study conflicts of interest when commercial bankers sit on boards of non-financial companies. They find that bankers are less common on the boards of smaller, more volatile firms, where conflicts of interests are most severe. Moreover, banker directors appear to avoid lending to such firms. They conclude that banks and firms act to minimize potential conflicts of interests. Our results indicate that conflicts of interests still matter, even when bankers serve in large, stable firms. Morck and Nakamura (1999) show that banker directors emphasize policies that benefit creditors rather than shareholders in a data set on Japanese bank ties. Kracaw and Zenner (1998) find a negative stock price reaction to bank loans if a representative of the lending bank sits on the board of the borrowing firm. Other literature points to benefits of financial experts on the board. Aggrawal and Chadha (2003), for example, find that having directors with a CPA, CFA, or other finance experience on audit committees translates into lower frequency of earnings restatements.

The remainder of the paper is organized as follows. First, we describe the data (Section I). In Section II, we investigate the effect of commercial banker directors on investment and financing policies. In Section III, we study investment bankers, focusing on acquisition and public issuance decisions. In Section IV, we evaluate financial expertise in the absences of conflicts of interests. In Section V, we conclude.

I. Data

We analyze a sample of publicly traded companies from 1988 to 2001. We build on the dataset of Hall and Liebman (1998) and Yermack (1995), merged with CEO demograph-

ics from Malmendier and Tate (2005). To be included in the original Hall-Liebman sample, a firm has to appear at least four times on one of the lists of largest US companies published by Forbes magazine from 1984 to 1994. We exclude financial firms.

We hand-collect biographical information on all board members of these companies using annual proxy statements (1988–1997) and the IRRC database (1998–2001). We code each outside director's main employment into one of the following categories[5]: (1) commercial bank executive, (2) investment bank executive, (3) executive of a non-bank financial institution, (4) finance executive (CFO, Accountant, Treasurer, or Vice President for Finance), (5) "finance" professor (including not only finance, but also economics, accounting, and business), (6) consultant, (7) lawyer, (8) executive of a non-financial firm that falls outside these categories, and (9) non-corporate worker (including careers in academia, nonprofit or civil activist organizations, and politics).

Since the classification of the first two career types is key for the analysis, we take additional steps to refine these categories. If the description of the director's employer is vague or missing, we identify the bank from the FDIC list of US chartered commercial banks and the Carter–Manaster IPO underwriter reputation rankings updated by Loughran and Ritter (2004). To be considered a banker, the director has to be an executive of the bank, not just a board member. The exception is when the director retains a seat on the bank's board upon retiring from her executive position. Because retired bankers who do not retain their seat on the bank's board should no longer be affected by their previous incentive misalignment, we reclassify these directors in category (9).[6] To the extent that the reclassification is an "over-adjustment", the measurement error induced by including them in the control sample works against finding significant effects in our re-

gression analysis. For categories (4) to (9), we classify retired directors into the category most in line with their pre-retirement work history.

The initial data collection yields 34,678 observations. Table I presents the summary statistics. 27% of directors are insiders, i. e. current or former employees of the firm or relatives of executives. 45% are former or current executives in non-financial industries. 10% are in non-corporate careers. As shown in Table II, 25% and 16% of the firm-years, respectively, 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, as reported in the Dealscan database). According to this construction, 22% of the commercial banker−years involve an affiliated banker. The four columns on the right describe the variables in firm-year subsamples split by the presence of bankers on the board.

We supplement the director data with accounting and financial information from COMPUSTAT. The resulting sample contains 2928 firm-year observations of 288 different firms. 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 lagged capital. Tobin's Q is the market value of assets normalized by total book assets (item 6), where market value is total assets (item 6) plus market equity (item 25 multiplied by item 199) minus book equity. Book equity 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 contains a few extreme values. To avoid the confounding effect of outliers on our results, we trim the

sample at the one percent level. As Table II shows, firms with commercial or investment bankers on their boards are larger (measured in assets and capital), but virtually indistinguishable in terms of performance (ROA), where ROA is defined as earnings before extraordinary items (item 18) plus interest expense (item 15), scaled by total book assets (item 6). Board independence is the number of outside directors scaled by board size.

We further supplement our sample with data from CRSP (monthly stock returns), Execucomp (CEO compensation), I/B/E/S (analyst coverage), SDC (public debt and equity issues, and acquisitions), and the Loan Pricing Corporation's Dealscan (bank loans).

II. Finance Experts on Boards and Corporate Investment

The core question of this paper is whether board members with financial expertise affect corporate policies and, if so, whether they act in the interest of shareholders. We analyze separately the role of commercial bankers, investment bankers and other financial experts and explore their impact on investment, financing, and compensation decisions.

A. Sensitivity of Investment to Cash Flow

To begin, we investigate the role of banker-directors. We first examine their net effect on real investment, and then on financing. We estimate the following model of investment:

$$I_{it} = \alpha + \beta_1 CF_{it} + \beta'_2 FIN_{it} + \beta'_3 FIN_{it} * CF_{it} + \beta_4 Q_{it-1} + \beta_5 Q_{it-1} * CF_{it} + \beta'_6 X_{it} + \beta'_7 X_{it} * CF_{it} + \varepsilon_{it}$$

The model determines investment as a function of firm and board characteristics. *CF* is cash flow, *FIN* the set of proxies for board financial expertise, *Q* is Tobin's Q, and *X* the array of other controls, including the natural logarithms of firm and board size and fixed effects for year, S&P long term debt rating, and firm or industry. Industries are defined as the Fama and French 48 industry groups. We test for the significance of β_3. In this sec-

tion, our proxies for financial expertise are indicator variables for commercial and investment bankers on the board. To correct for heteroskedasticity and correlation of errors within firms, we cluster standard errors at the firm level.

Column I of Table III presents the baseline regression without banker indicators. As in prior studies, both cash flow and Q positively predict investment. Column II includes the banker variables in the model. The interaction of commercial banker and cash flow has a negative coefficient that is statistically significant at the 5% level. Thus, the investment of firms with commercial bankers on board is less sensitive to cash flow. The coefficient estimate on the investment banker interaction term is also negative, but insignificant. The results are robust to variations in the banker variables such as using the fraction or the number of bankers on board (while continuing to control for board size).

A prime concern in interpreting these findings is that unobserved firm heterogeneity may be driving the results. In particular, firms with low investment-cash flow sensitivity might also appoint bankers as directors, without the bankers directly influencing investment decisions. To address this concern we exploit within firm variation in the presence of bankers on the board and investment. In 55 cases, the COMBANKER dummy variable changes from 0 to 1, and in 93 cases, from 1 to 0. The value of the dummy variable shows time-series variation in 104 firms out of the 282 in the sample. In Column III, we add firm fixed effects to the model. The negative effect is diminished though still significant. In Column IV, we also include (firm)*(cash flow) interactions. Here, the commercial banker effect is only close to statistically significant (p-value = 0.11). However, we will see in Section II.B that this failure is due to averaging over a set of (constrained) firms in which commercial bankers do little to influence firm policy. If we modify the

commercial banker dummy to exclude retired bankers, for whom the link to their bank has been largely severed, the coefficient estimate is also significant. Overall, then, we conclude that investment cash flow sensitivity significantly declines as commercial bankers enter the board of a given firm.

It is possible, though, that time-varying firm characteristics explain the negative relation between bankers and investment-cash flow sensitivity. Firms may ask bankers to join boards precisely when they are seeking external financing. And bankers may agree to join boards only if they foresee a profitable financing opportunity. Before we address this explanation directly, we note that it is not particularly plausible given the low degree of variation in board size within firms. While investment and financing vary a lot within firms, board size remains constant, from one year to the next, in 55% of all firm-years. The median change from year to year is 0 and the mean change is -0.104 (with a standard deviation of 1.314). We show in Figure 1 that mean and median board size are, if anything, decreasing over our sample period. Moreover, director tenure is long, with a mean of ten years. Thus, at least in the aggregate, there is little evidence of firms timing the appointment or removal of directors with specific skill sets, depending on short-term needs. Rather, firms appear to prefer stable boards and long-tenured directors.

Nevertheless, we address the concern of endogenous director selection directly by constructing an instrument for the presence of commercial bankers on the board. We exploit the commercial-banking crisis of the late 1970s and 1980s as a source of exogenous variation in board composition. When legislative changes during the 1970s and 1980s allowed greater competition in the banking industry, banks raised interest rates on demand deposits inducing greater risk taking on the asset side of their balance sheets. Many of

these risks failed to pay off. The sovereign debt crises in developing countries like Brazil, Mexico and Argentina and the end of the real estate boom in the 1980s eroded bank profitability. Beginning in the second half of the 1970s and continuing through the 1980s, the commercial banking industry went into crisis. The frequency of bank failure exploded (Park (1994)). As executives of failed commercial banks exited the potential director pool, the number of commercial bankers available to firms appointing new directors declined. Thus, firms that happened to appoint more of their directors during the 1976-1985 decade are likely to have fewer commercial bankers serving on the board subsequently. At the same time, the need to appoint directors during this particular time period is unlikely to be related to investment policy during our later 1988-2001 sample period. Our instrument for the number of commercial bankers serving on the board, then, is the number of current directors who were appointed during the 1976-1985 decade.

In Table IV, we present the results of two-stage least squares regressions using the "CRISIS" instrument. As with the board size control, we use the natural logarithms of CRISIS and the number of commercial bankers on the board. Since variation in CRISIS may relate to variation in director tenure across firms, we include mean board tenure and its interaction with cash flow as additional controls. Column I reports the results of the baseline regression using the number of commercial bankers (in logs) rather than our earlier indicator variable. In Columns II and III, we report the first stage regressions of the number of commercial bankers and its interaction with cash flow on CRISIS and its interaction with cash flow. The instruments are correlated with the variables for which they instrument. Wald tests reject, at the 1% level, that the coefficients on CRISIS and (CRISIS)*(CF) are jointly equal to zero. Column IV shows our baseline investment model af-

ter instrumenting for COMBANKER and its interaction with cash flow. The (COMBANKER)*(CF) effect is still negative and statistically significant. As a robustness check, we repeat the two-stage least-squares regressions using the number of directors appointed between 1966 and 1975 as a placebo instrument for the number of commercial bankers on the board. Since this era pre-dated the commercial banking crisis, the CRISIS results should not replicate. Indeed, we find that both the first and second stages fail.

These results strengthen our prior interpretation that bankers on the board decrease the firm's dependence on internal funds for investment purposes.

B. Is Less Investment-Cash Flow Sensitivity More Efficient?

We have found robust evidence that commercial bankers on the board reduce the sensitivity of investment to internal resources. If this sensitivity were due to capital-market imperfections, then our results would suggest that bankers mitigate financing frictions. The boardroom presence of bankers may, for example, reduce information asymmetries, leading to increased financing for valuable projects. Investment-cash flow sensitivity, however, may instead be due to a managerial propensity to over-invest out of free cash flow. Then, increased outside financing may have little to do with (efficiently) alleviating financial constraints. Moreover, bankers have little incentives to induce efficient investment. Creditors might seek to finance low-risk (rather than value-maximizing) projects, especially given the low shareholdings of U.S. banks, relative to their loan volume (Gorton and Winton (2003)). But, more stable firms (with less risky projects) may also be less financially constrained.[7] Thus, in the worst case, additional financing facilitates overinvestment, and shareholders lose, to the benefit of creditors.

To distinguish these interpretations empirically, we relate the banker effect to cross-sectional variation in financial constraints. If bankers increase shareholder value by easing access to external finance, we should find the decrease in investment-cash flow sensitivity most prominently in financially constrained firms. We split our sample according to a priori measures of financial constraints. Unfortunately, there is little consensus on the best way to capture these constraints. Kaplan and Zingales (1997; KZ from hereon) argue that simple proxies like firm size and dividend payout do not correlate well with financing constraints.[8] They 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 of financial constraints as a weighted average of several firm characteristics. We construct the KZ index for our sample firms, following standard practice (Lamont, Polk, and Saá-Requejo, 2001; Baker, Stein, and Wurgler, 2003; Malmendier and Tate, 2005). Using the KZ coefficient estimates, the firm-year specific KZ measure is 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 the KZ index indicate more financial constraints.

The KZ index is not without shortcomings. In particular, we are assuming that the index weights – constructed using a selected sample of manufacturing firms – generalize to our sample. Using the index to split the sample, rather than as a continuous measure of constraints, mitigates concerns about measurement error. Nevertheless, we check the ro-

bustness of our results to other proxies for financial constraints. We consider three alternatives. First, we use the degree of disagreement among analysts, measured by the standard deviation of quarterly earnings estimates in the quarter ending before the annual proxy meeting. Second, we use the number of analysts following the stock. Both proxies capture informational asymmetries. Third, we use investment-grade long term debt ratings (BBB and above) as an indicator of smooth access to external capital. For brevity, we report only the estimates using the KZ index. The alternative proxies lead to largely similar (and sometimes stronger) results on financial constraints throughout the paper.

Table V presents the split-sample regressions. We report two specifications: one including firm effects and the interaction of industry effects with cash flow and one including firm effects and firm-cash flow interactions. We find that bankers reduce the sensitivity of investment to cash flow in unconstrained firms; i.e., firms with a (lagged) KZ index below the sample median. We find no evidence of a similar reduction among constrained firms. The results indicate that banker directors provide additional financing to unconstrained, but not constrained firms. Thus, the influence of bankers in investment financing appears to be motivated by creditor rather than shareholder interests.

C. Lending

As an additional test of the results and our interpretation that bankers favor creditor over shareholder interests, we analyze lending activity directly. If bankers efficiently facilitate lending to constrained firms with profitable investment opportunities, we should observe larger loans or more attractive prices offered to constrained firms when bankers are present. The effect should be strongest when the loan comes from the director's bank. If instead creditor interests dominate the lending decision, bankers may increase lending only

among low risk (or unconstrained) firms.

We use the Loan Pricing Corporation's Dealscan database to obtain detailed contractual data on loan terms and the names of all lenders in the deal (see Güner (2005)). Table VI summarizes the data. We consider a banker-director affiliated if her bank is a member of the lending syndicate. Of the 1,314 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 deals are obtained by firms with an unaffiliated commercial banker and 1,015 by firms without a commercial banker on the board. The statistics on tranche and spreads suggest that affiliated deals are, unconditionally, larger and cheaper. Tobin's Q is lower in firms with commercial bankers on the board when obtaining a loan, suggesting worse investment opportunities. However, firm characteristics such as size may explain these aggregate patterns.

To isolate the banker effect, we regress loan size on the presence of bankers, 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; and the ratio of independent directors on the board. The contract controls are designed to capture borrower risk, which in turn affects loan pricing. As in previous literature[9], we use the logarithm of the days between contract initiation and maturity, a dummy for origination 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 for more details on these variables.) We also include fixed effects for S&P credit ratings, year, and industry or firm.

Table VII presents the regression results. Column I shows that the presence of

commercial bankers on the board is associated with an increase in loan size of more than $350m, even after including all the controls. Column II shows that this effect is driven largely by affiliated deals, with a coefficient of $475m. The effects are even larger in magnitude if we re-estimate the model using firm fixed effects ($507m and $677m), but have smaller t-statistics of 1.29 and 1.64 respectively. We also test whether the effects are stronger when the director's bank is the lead manager since the lead manager in a syndicate typically determines the loan terms. In untabulated regressions, we confirm this hypothesis. In the industry effect specification, Affiliated LEAD COMBANKER has a coefficient of $1,042 million (t-statistic = 2.11), compared with only $486 million for Affiliated PARTICIPANT BANK. The results are similar with firm fixed effects. Thus, commercial bankers on the board seem to increase firms' borrowing, typically through their own banks. We also find that firms with commercial bankers on the board are slightly more likely to take a loan in a given firm year, though the result is not significant. Jointly, these results suggest that firms receive more funds through loan financing.

To test whether banker-induced loans help to overcome of financial constraints, we replicate the methodology of Section II.B. That is, we split the sample into constrained and unconstrained firms and measure the impact of bankers separately in each subsample. As in Section II, we use the overall sample median of the KZ index to split the sample. In Columns III-VI, we report the results. Controlling for industry fixed effects, we find that bankers increase bank loans only among unconstrained (or lower default risk) firms. Moreover, the loan size effect exists only when the director's bank is involved in the deal. Within unconstrained firms, affiliated loans are on average $905m larger (t = 2.05) than loans obtained by firms without a commercial banker on board. In con-

trast, the coefficient estimate on Unaffiliated COMBANKER is $465 million and statistically insignificant (t = 1.18). The *p*-value of the difference is 0.12. Controlling for firm fixed effects, the difference between affiliated and unaffiliated bankers in the unconstrained sample is less pronounced. However, the results are otherwise unaffected.

We also test whether bankers on the board influence the cost of borrowing, drawn and undrawn spread, controlling for deal size.[10] We find no significant effect of commercial bankers in constrained firms, regardless of affiliation. We also do not find significant price differences among the unconstrained firms. In other words, banker directors do not provide firms with a "price break", as the simple summary statistics seem to suggest.

Finally, we extend the analysis of "affiliation" to our earlier investment results. Merging the earlier firm-year sample and the loan sample allows us to identify lending affiliation and to test whether reduced investment-cash flow sensitivity is most pronounced for affiliated banker-directors. Here, we classify a commercial banker director as "affiliated" if her bank has lent to the firm in the past, including participation in a syndicate. In Table VIII, we re-estimate the investment-cash flow model of Section II with separate dummies for affiliated and unaffiliated commercial bankers. In Column I, we include firm fixed effects and the interaction of industry effects with cash flow, along with the set of controls from Section II. We find that (affiliated commercial banker)*(CF) has a significantly larger negative coefficient than (unaffiliated commercial banker)*(CF). In Columns II and III, we repeat the estimation in the KZ-constrained and unconstrained subsamples. Once again, we detect no reduction in investment-cash flow sensitivity among the constrained firms. Rather, constrained firms with (unaffiliated) commercial bankers display higher sensitivity. Among the unconstrained firms, the interaction of af-

filiated commercial banker with cash flow is large (-0.242) and significant (t = 2.50) while the interaction with unaffiliated commercial banker is not (−0.058, t = 1.48). The difference between the two estimates is significant at the 10% level. In Columns IV and V, we repeat the analysis including interactions of firm, rather than industry, effects with cash flow. That is, we identify out of variation in the presence of affiliated or unaffiliated bankers in a given firm. The results do not change: the banker effect on investment-cash flow sensitivity depends strongly on the existence of a lending relationship.

Since the affiliation results are particularly susceptible to endogenous selection, we perform two robustness checks. First, we create a third category of "grey" commercial bankers who join a firm with a pre-existing lending relationship with their bank. These directors are affiliated under our original classification. Isolating them does not change the estimated impact of (the remaining) affiliated bankers on investment-cash flow sensitivity. Second, we drop firm years that contain banker-directors who we cannot classify as affiliated or unaffiliated due to the censoring of the Dealscan data before 1988. Our initial classification scheme classifies bankers who are already on the board in 1988 as unaffiliated (until they make their first affiliated loan), to bias against finding an affiliation result. Dropping these observations, again, yields similar results.

Overall, the loan results confirm that bankers on the board encourage additional borrowing, particularly from their own banks, but without any price advantage. And, the additional finance is not available to the most financially constrained firms, suggesting that banker directors favor creditor over shareholder interests.

D. Is More Lending to Unconstrained Firms More Efficient?

Thus far, our findings suggest that bankers influence corporate decisions only in the least

constrained firms. Seemingly acting in creditors' interest, they increase lending to stable, prosperous firms rather than to financially constrained firms that are likely to be underinvesting. Thus, shareholders of constrained firms do not appear to benefit from the presence of banker-directors. In this subsection, we examine whether at least the shareholders of unconstrained firms benefit when bankers serve on the board. Do firms that receive extra lending have profitable investment opportunities? Does the extra lending improve firm value? We also examine whether increased lending moves the firm closer to an optimal capital structure, even if we do not observe an improvement in valuation.

First, we track firm performance in a seven-year window around loans (year -3 to year +3, with year 0 indicating the year of borrowing). We calculate mean Q, mean return on assets, and mean return on equity in each of these years. Q and ROA follow our previous definitions; ROE is earnings before extraordinary items scaled by book equity, where book equity follows our previous definition. We compare, separately for unconstrained and constrained firms, each of the performance measures among borrowers receiving affiliated loans, borrowers receiving unaffiliated loans and (as a benchmark) borrowers without banker-directors. As in previous sections, constrained firms are firms above the full-sample median of the KZ index in the year prior to borrowing.[11]

The left column of Figure 2 displays the performance of unconstrained firms. Firms with affiliated loans have lower values of Tobin's Q than firms with unaffiliated loans or without bankers on their boards. The relative valuations imply that the market perceives firms with affiliated loans to have the worst investment opportunities. We also see little evidence of a subsequent "correction" in the Q of affiliated firms relative to the other groups. The "hint" of improvement relative to the firm's *own* pre-loan valuation

appears to be a wider phenomenon rather than value-creation by affiliated bankers. The lower valuation is thus unlikely to reflect market inefficiencies; i. e., an initial underestimation of the opportunities of affiliated borrowers. The evidence is similar for measures of operating performance: ROA and ROE.[12] In both cases, firms with affiliated loans have the worst performance and show no subsequent improvement. Firms with unaffiliated loans, however, perform better than those with no bankers on the board or firms receiving affiliated loans. Thus, bankers may facilitate better financing decisions when they are not conflicted. Finally, as shown in the right column of Figure 2, we see no discernible differences in the performance of constrained firms across types of lending.

Using a regression framework, we examine more closely the differences in the evolution of valuation ratios in unconstrained firms. As dependent variables, we consider the levels of the valuation ratios in years 1, 2, and 3 controlling for their levels in year -1. We also control for several firm and board characteristics, measured in the year prior to the loan: firm size, board size, board independence, presence of an investment banker director, and industry, year, and S&P credit rating dummies. Because of the small sample size, we measure industry using the Fama-French 17, rather than 48, industries. Given the patterns in the means, we measure future performance of borrowers with affiliated banker directors and with no banker directors relative to borrowers with unaffiliated bankers.

The regression results show a deteriorating Tobin's Q over the three years after the borrowing for firms with affiliated lending relative to firms with unaffiliated lending, albeit without statistical significance (coefficients on the affiliated banker dummy range from -0.09 to -0.18). The results for ROA and ROE are also negative, even controlling for past performance. Here, two of three affiliated-banker coefficients are significant in

each case and range from -0.02 to -0.03 for ROA and from -0.06 to -0.10 for ROE. In five of the six regressions, the affiliated borrowers perform the worst, though there is never a significant difference between affiliated borrowers and firms without banker directors. In summary, we find no evidence that firms receiving affiliated loans improve in valuation relative to other borrowers.

Affiliated lending may, however, benefit shareholders by moving the firm's capital structure closer to an optimal level. Graham (2000) finds, for example, that firms tend to use debt too conservatively relative to its tax benefits. The pattern is particularly true of large, liquid, and profitable firms with low distress costs; i.e., precisely the type of firm in our unconstrained subsample. This interpretation would imply that banker-directors affect not only lending but also the resulting capital structure. Affiliated lending, for example, would not simply substitute for other forms of debt. Thus, to see whether banker-directors improve debt policy in unconstrained firms, we test for significant and persistent increases in firm leverage following (affiliated) loans.

We define book and market leverage in two ways: First, we define book leverage as the sum of long-term debt and current liabilities divided by long-term debt plus current liabilities plus book equity (LEVERAGE1). Correspondingly, market leverage is the sum of long-term debt and current liabilities divided by market capitalization (MLEVERAGE1). Second, we define book leverage as the difference in assets and book equity divided by assets (LEVERAGE2) and market leverage as the difference in assets and book equity divided by assets minus book equity plus market equity (MLEVERAGE2). We regress the post-borrowing change in leverage on the banker dummies and controls for the change in the ratio of plant, property and equipment over total assets; change in Tobin's

Q; change in the natural logarithm of sales; change in ROA; and the natural log of board size. We also include year and industry effects, where, again, we measure industry using the Fama- French 17 groups due to small sample size.[13] Using either measure of book leverage, we find that affiliated bankers lead to a significantly larger increase in leverage from the end of the fiscal year prior to borrowing to the end of the first full fiscal year after borrowing than non-banker directors. There is no significant difference between borrowers with unaffiliated bankers and borrowers without bankers on the board. The difference between unaffiliated and affiliated bankers is not statistically significant, though the affiliated banker effect is double (or more, depending on which definition of leverage) the unaffiliated banker effect. However, the difference disappears by the end of the third year following the loan. While the change in leverage remains roughly the same for affiliated borrowers, unaffiliated commercial bankers are associated with a significant and even larger increase in leverage. And, as in our analysis of valuation, we find no pattern across the different types of borrowing among the constrained firms.

We also generalize this analysis to levels and annual changes in leverage over the whole sample period (and not just around loan years), since a strategy to raise leverage need not rely exclusively on bank lending. Using LEVERAGE1 and the usual controls, the pattern is similar to the loan window results; i.e., affiliated bankers are associated with higher leverage and larger annual increases in leverage (unaffiliated bankers are not), but only in unconstrained firms. The results are generally weaker using LEVERAGE2. Moreover, all of the results (loan window and full sample) are weaker if we instead consider market leverage: there are few significant estimates and even these rare cases are not robust across specifications (e.g. the inclusion of firm versus industry ef-

fects in the whole sample regressions).

There is some evidence, then, that the larger loans provided by affiliated bankers carry through to book leverage.[14] However, it is questionable whether these effects are part of a systematic strategy to raise leverage. The effects on leverage around loan years appear to be short-lived (relative to the impact of unaffiliated commercial bankers). And, though there is some evidence that affiliated bankers generally increase leverage, the results are not robust to minor changes in variable definitions; e.g., the treatment of deferred income taxes in the definition of leverage or of directors whose bank had a lending relationship with the firm prior to their appointment to the board. Moreover, the results depend on the choice of market or book leverage as a dependent variable. Even if there are some tax benefits to shareholders from increased affiliated lending, these benefits do not appear to motivate the bankers. Instead, they may simply be a fortuitous side effect of maximizing bank profits.

The findings overall suggest that bank executives do use their directorships to increase lending, but only to firms with low financial constraints and credit risk, coupled with relatively poor investment opportunities. Thus, bankers serving on the boards of other firms seem to act in the best interest of creditors rather than the shareholders of the companies they serve. And, their influence appears more likely to facilitate overinvestment than to correct inefficient underinvestment.

In light of the performance results one might wonder whether the extra lending is actually in the interests of creditors. Specifically, if extra lending induces firms to undertake value-destroying projects, then it might also increase the likelihood of default. In unreported estimations, we confirm that affiliated lending does not increase default prob-

ability relative to unaffiliated lending or lending when banker directors are not present, using both changes in S&P credit ratings and a measure of distance to default.

III. Investment Bankers on the Board

Our findings so far have identified a significant impact of commercial banker directors on firm investment and borrowing decisions. Investment bankers face similar conflicts of interests between maximizing bank profits and shareholder value when they serve as directors albeit not due to lending relationships. Instead, they may serve as advisors to company acquisitions or underwrite public securities issues.

A. Acquisitions

As with commercial bankers, we begin by exploring investment decisions. We ask whether investment bankers help to minimize value-destroying acquisitions or, instead, facilitate overbidding. By analyzing abnormal returns to merger bids, we can assess directly the impact of investment banker directors on shareholder value.

We use the SDC data on completed mergers in which the acquiror obtains more than 50% of the target shares outstanding before the deal. Similar to previous literature (e.g. Baker and Savasoglu, 2002), we exclude leveraged buyouts, recapitalizations, self-tenders, acquisitions of subsidiaries, spin-offs, exchange offers, repurchases, minority stake purchases, privatizations, and acquisitions of remaining interests. The summary statistics are in Table IX. About 20% of the target firms are publicly traded (compared to less than 7% in the raw SDC data). The average target value (in the subsample of targets with valuation data) is $191.5 million, 7% of the acquirer's total assets. In untabulated probit regressions, we find that, controlling for an array of firm characteristics, firms with investment bankers on the board acquire at roughly the same frequency as other firms.

We measure the impact of investment bankers on value-creation in several different ways. First, we relate the market's reaction to acquisition announcements to the presence of investment bankers on the board. We use a (−2, +2) day event window around announcements. We calculate abnormal returns using an alpha of zero and a market beta of one. Since beta is likely to be close to one for our sample firms, this assumption eliminates noise in the estimated abnormal returns due to noise in the joint estimation of alphas and betas. (The results are similar when we use the market model with estimated alphas and betas.) We exclude mergers with deal values below $1 million.

The mean event return is −161 basis points (t = 2.95) for firms with an investment banker on the board, and −33 basis points (t = 1.35) for those without one. The t−statistic for the difference in means is 1.98. Thus, the market reaction to acquisitions by firms with investment-banker directors is significantly lower than to acquisitions by firms without investment bankers on the board. Further, the 161 basis-point decline is roughly three times the mean negative announcement effect to an acquisition in the sample.

In Table X, we regress cumulative abnormal returns on the investment banker dummy, controlling for the type of financing and whether the acquisition is diversifying (i.e., whether the target and the acquirer share the same 2-digit SIC code). We include year, industry and credit-rating fixed effects. We measure industry using the 17 Fama-French industry groups. The results confirm the pattern in the means. The estimates yield a negative coefficient on the investment banker dummy (significant at the 10% level).

We also analyze longer-run firm performance during the 36 months after an acquisition. We average market-adjusted monthly stock returns in each month and then compound the returns. In the left graph of Figure 3, we show that, in firms with invest-

ment bankers on the board, $1 invested in the month following an acquisition is worth 97 cents at the end of month 36, compared with $1.12 for firms without investment bankers on the board. The pattern is even more striking if we drop small acquisitions, which are unlikely to affect the performance of large acquirers. In the right graph, we use the subset of acquisitions where the deal value is available and greater than $5 million. In both specifications, the initial underperformance of acquisitions with investment bankers on the board is not reversed over longer horizons. Instead, the gap in performance increases.

We also confirm these results in a regression framework controlling for market equity, book-to-market, firm and board size, board independence (number of outside directors scaled by board size), and fixed effects for year, industry, and S&P credit rating. We consider buy-and-hold stock returns over the 12, 24, and 36 months following an acquisition, as well as the change in Tobin's Q and ROA over the three years following the deal.[15] In Table XI, we show that stock returns over all three horizons are significantly lower for firms with investment bankers on the board, between 9% and 18%. Moreover, these firms underperform in terms of Q and ROA, though not always significantly.

As a final robustness check, we analyze whether differences in merger financing could explain the acquisition underperformance of firms with investment bankers on the board. There is evidence that stock mergers perform significantly worse than cash mergers (Loughran and Vijh (1997)). Firms with investment bankers on the board may be more likely to acquire using stock than cash. Firms may even hire the bankers for this purpose. In our prior regressions, we accounted for financing only indirectly with credit rating dummies. We now address this concern directly. Unfortunately, the necessary data on the form of payment is only available for about half of the sample, 718 of our original

sample of 1547 acquisitions. In this subsample, firms with investment bankers on the board indeed complete stock mergers more often than firms without. They make cash offers 53% of the time (stock offers 31%), compared with 61% (stock offers 25%) for firms without investment bankers on the board. To analyze whether this difference explains the results, we introduce two dummy variables for the type of financing, "Cash Only" and "Stock Only." They indicate 100% cash or stock financing, respectively. The omitted category is mixed financing.[16] Rerunning the regressions of Table XI in the reduced subsample yields negative IBANKER coefficients of similar size, though they are not always significant. Including the financing controls has little effect. The IBANKER coefficient remains negative at similar significance levels.

Overall, these results support the hypothesis that investment bankers serving as directors are more prone to succumb to a CEO's value-destroying acquisitiveness than other directors. Investment bankers may even push management for acquisitions despite the absence of attractive targets, in the hope of increasing profits for their banks through advisory fees. Our dataset does not allow us to differentiate these hypotheses directly. But, the acquisition setting does allow the conclusion that conflicted investment bank directors are associated with managerial overinvestment in outside targets.

B. Size and Cost of Public Debt Issues

Mirroring our analysis of commercial bankers, we now turn from investment to borrowing policies. Given the expertise of investment bankers, we analyze their influence on public debt issues.[17] We obtain contractual data on public debt issues for our sample firms from the SDC. The summary statistics are in Table XII. The sample includes 217 affiliated debt issuances, where the director's investment bank underwrites the issue, 693

unaffiliated debt issues, where the director's bank is not involved in the deal, and 3249 deals where the firm has no investment banker on the board. As with loans, affiliated debt issues tend to be larger than others. The cost of borrowing, measured as at-issue yield spread (spread over the treasury benchmark) and gross spread (underwriter fees as a percentage of the principal amount issued), is lowest for unaffiliated deals, on average.

In Table XIII, we relate the presence of investment bankers on boards to the size and pricing of debt issues, controlling for firm, board, and contract characteristics. As in the loan regressions, we employ a number of borrower and deal characteristics that are likely to affect debt size and pricing, following the specification in previous empirical literature on public debt.[18] The firm and board controls are Tobin's Q; plant, property and equipment over assets; stock volatility; leverage; the natural logarithm of total assets; board independence; the natural logarithm of board size; and indicators for year, S&P credit rating, and industry. Industries are the 17 Fama-French industry groups. Contractual features are the logarithm of the days between the issue and the maturity date, the logarithm of the principal, indicators for over-the-counter listings and variable-rate coupon issues, and indicators for covenants on call, put, and sinking funds provisions.

In Columns I and II, we document the results on debt size. The presence of an investment banker is associated with a $21 million larger deal. This magnitude is economically significant: it is equal to 14% of the average principal in the sample. The effect seems to be driven by affiliated directors, as the coefficient estimate on Affiliated IBANKER is $59.6m (t = 1.53), compared with $6.3m (t = 0.51) for the estimate on Unaffiliated IBANKER. The result is robust to scaling debt size by total market value of the firm; in fact, the coefficient on Affiliated IBANKER then becomes significant at 5%,

while that on Unaffiliated IBANKER remains insignificant at 10%.[19] In unreported estimations, we also find that investment bankers are associated with more frequent outside financing, whether through public securities issues or bank loans. Thus, as in the commercial banker setting, the larger issues lead to more capital inside the firm.

In Columns III and IV, we analyze the pricing of public debt. First, we regress the at-issue yield on board composition and other controls. We observe a negative but insignificant effect of both affiliated and unaffiliated investment bankers on the board. Using gross spread, we find that firms with investment bankers on the board enjoy reduced costs of public borrowing, but 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.

Overall, then, the impact of investment bankers on the size and pricing of public debt issues is similar to that of commercial bankers on loans. Investment bankers on the board are associated with larger public issues, especially when their bank is involved in the underwriting. They 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 do so only when the objective of maximizing the profits to their bank does not get in the way.

IV. Financial Expertise in the Absence of Conflicts of Interests

Our results suggest that bankers favor the interest of their institutions over the interest of the shareholders for whom they serve as directors. As the last step in our analysis, we turn to corporate decisions for which the different interests are not in conflict, but financial expertise is still valuable. Specifically, we analyze whether financial experts affect

the design of executive compensation. We also examine the role of financial experts with less obvious (or no) conflicts of interest: "financial executives" (CFO, VP for Finance), accountants, executives of non-bank financial companies, and finance professors. For these directors, we test both whether they impact executive compensation, and whether they function better than bankers as advisors to investment and financing policy, despite (typically) lacking direct financial market connections.

One way to assess the design of CEO compensation from the perspective of shareholders is its sensitivity to performance. Performance-based compensation – like cash bonuses or company stock and options – increases the alignment between CEO and shareholder interests. There is little consensus, however, on whether the prevalence of stock and option compensation in practice is a solution to or a result of agency problems between CEOs and shareholders. Bebchuk and Fried (2003) argue that CEOs used stock options to extract rents from shareholders during the 1990s because options were a less transparent means of compensation (e.g., they did not need to be expensed on annual reports) and therefore were less likely to violate the shareholders' "outrage constraint." More generally, frequent and large option grants may, if sufficiently uncorrelated with CEO performance, undermine incentive alignment – even though the value of a grant itself depends on stock price performance. The practice of repricing underwater options, which became more prevalent in the late 1990s, further weakens the incentive alignment. A positive relationship between financial experts on boards and option grants, then, is open to two interpretations: financial experts increase the sensitivity of pay to performance or they fail to prevent abuse of stock option grants by top executives.

We attempt to distinguish these effects by analyzing, separately, the size of option

grants and the sensitivity of total pay to performance. If financial experts exert positive influence on the design of CEO compensation, then we should observe higher sensitivity of pay to performance among CEOs with financial experts on their boards. As in Bertrand and Mullainathan (2001), we measure the sensitivity of pay to performance as the coefficient estimate on performance in a regression of the natural logarithm of total compensation on performance and a standard set of controls. Our primary measure of performance is ROA. Using ROA allows us to assess the sensitivity of pay to performance without considering possible market inefficiencies. We have also checked the robustness of our analysis to using the natural logarithm of market equity as a performance measure. The basic patterns replicate, though statistically weaker.

To analyze compensation, we supplement the compensation data from Hall and Liebman, which covers 1988 through 1994 with compensation data from ExecuComp for 1995 through 2003. Both data sets provide the Black-Scholes value of option grants in each firm year. However, the assumptions behind the calculations differ. For example, the ExecuComp computation (BLK_VALU) adjusts for expected early exercise by multiplying option duration by 0.7; Hall and Liebman make no such assumption.[20] We splice the option value variables from the two data sets together for our analysis. We also splice total compensation from Execucomp (tdc1) with the sum of salary, bonus, other compensation, restricted stock grants and the Black-Scholes value of options grants from the Hall and Liebman data. Again, differences in the Black-Scholes value of options may produce systematic differences in the scale of the variable across the two time periods. To control for these differences, we include an indicator variable for the ExecuComp sample years.[21]

In the first two columns of Table XIV we report the results of regressing the natu-

ral logarithm of one plus the Black-Scholes value of option grants on the lag of performance (ROA), CEO age and its square, CEO tenure and its square, firm size, board size, outside directors, year fixed effects and financial expertise. Column II adds firm fixed effects. We split non-bank financial experts into three sub-categories based on differences in incentives: Finance Professors, Finance Executives and Accountants, and Executives of Non-bank Financial Companies. We distinguish executives of non-bank financial companies (e.g., venture capitalists) from the other two categories since these executives may still have interests other than shareholder maximization when advising corporate financing policies. We find little impact of any of these experts on option policy. Only the number of finance professors is ever significantly related to option grants: adding finance professors to the board increases option grants to the CEO.

In Columns III through V, we regress the natural logarithm of total compensation on the same set of regressors and add interactions of board size, outsiders, and financial expertise with the lag of performance. Column IV also includes firm fixed effects on compensation; Column V interacts the firm fixed effects with lagged performance. Only commercial bankers have consistently positive coefficients, though not statistically significant. Finance professors, on the other hand, are associated with *lower* sensitivity of pay to performance. Though there is not enough power to obtain statistical significance in the two fixed effects specifications, the effect is marginally significant in Column III. Moreover, the magnitude is roughly constant across all specifications and large. Adding a standard deviation of finance professors to the board, starting at the sample mean, is associated with a 38% reduction in the sensitivity of pay to performance.

Overall, we find no evidence that financial expertise improves compensation pol-

icy, despite the apparent absence of misaligned interests. To the contrary, finance professors appear to increase option based compensation, but to detach it from performance.

In untabulated estimations, we also estimate the effects of non-bank financial experts on investment financing policy. Replicating the analysis of Section II, we find no significant impact of any of the categories of financial experts on external financing and investment policy in either constrained or unconstrained firms. The results suggest that removing the conflict of interests by appointing financial experts without bank ties may also remove the channel through which financial expertise can affect financing decisions.

V. Conclusion

This paper tests whether directors with financial expertise exert significant influence on corporate decisions and, if so, whether they serve shareholders' interests. We employ a novel panel dataset on corporate board members which allows us to move beyond the typical cross-sectional analysis. The data allows us to identify changes in policy when financial experts are added to (or leave) the board. We find that finance experts significantly affect the finance and investment policies of firms on whose board they serve. Commercial bankers help reduce the sensitivity of investment to the firm's cash flows by extending large loans, particularly through the director's bank. However, firms that are financially constrained do not benefit from the additional financing. Instead, banker directors increase financing to firms that have good credit and minimal financial constraints, but poor investment opportunities. These results suggest that banker-directors act in the best interests of creditors. We also show evidence for the impact of investment banker directors on (external) investment and public financing. Investment bankers appear to induce larger public debt issues, but also poorer firm performance after acquisi-

tions. We conclude that board financial expertise need not be in the best interest of shareholders. Searching for a silver lining, we test whether bankers lead to more efficient policies when shareholder and creditor interests do not conflict. In the context of executive option grants and pay-to-performance sensitivity, we find little evidence to support this hypothesis. Instead, non-conflicted financial experts, like finance professors, appear to reduce the efficiency of compensation contracts.

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 goes beyond mere monitoring, and 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", "Spin-off", "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 Summary Statistics

Insiders are current or former employees of the firm or relatives of the top management. Outsiders are sub-categorized according to their main employment. All variables other than Age, Tenure and Number of other directorships are binary. Tenure is the number of years as director in a given firm.

	Obs	Mean	Median	Min	Max	Std Dev
Insider	34,678	0.27	0	0	1	0.44
Outsider						
Commercial banker	34,678	0.03	0	0	1	0.17
Investment banker	34,678	0.02	0	0	1	0.14
Executive of non-bank financial company	34,678	0.08	0	0	1	0.27
Finance executive (CFO, Accountant, Treasurer, VP of Finance)	34,678	0.05	0	0	1	0.23
Finance professor (includes economics, accounting, and business)	34,678	0.02	0	0	1	0.13
Lawyer	34,678	0.04	0	0	1	0.20
Consultant	34,678	0.03	0	0	1	0.16
Other-industry career	34,678	0.44	0	0	1	0.50
Non-corporate (academic, non-profit, civic leader)	34,678	0.10	0	0	1	0.30
Age	34,658	59.52	60	22	91	8.04
Tenure	34,373	9.83	7	0	69	8.92
Female	34,678	0.09	0	0	1	0.28
Number of other directorships	34,678	1.99	1	0	17	2.10

Table II. Firm Summary Statistics

The sample period is 1988-2001. The middle and right columns split the data by presence of a banker on board. COMBANKER and IBANKER ratios are the number of commercial and investment bankers on board, scaled by the number of directors on the board. A commercial banker is affiliated if Dealscan reports a prior loan of her bank to the firm. All financial variables are annual Compustat items. The definitions are detailed in Section I.

	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	Std Dev	Obs	Mean	Median	Std Dev	Obs	Mean	Median	Std Dev
Assets ($M)	2928	7,480	3,131	17,132	734	9,679	4,100	23,119	2194	6,745	2,919	14,523
Capital ($M)	2928	3,190	1,404	5,639	734	4,408	1,827	6,879	2194	2,783	1,231	5,096
Investment ($M)	2928	572	200	1,648	734	745	235	1,944	2194	514	193	1,533
Inv. / lagged capital	2928	0.21	0.17	0.16	734	0.17	0.15	0.11	2194	0.22	0.18	0.18
Inv. / lagged assets	2928	0.08	0.06	0.06	734	0.07	0.06	0.05	2194	0.08	0.06	0.06
Cash flow ($M)	2928	724	288	1,540	734	921	343	1,801	2194	658	275	1,436
Cash flow / capital	2928	0.35	0.25	0.36	734	0.32	0.22	0.36	2194	0.36	0.26	0.36
Cash flow / assets	2928	0.11	0.10	0.08	734	0.11	0.10	0.06	2194	0.11	0.10	0.08
Tobin's Q (lagged)	2888	1.73	1.32	1.29	729	1.62	1.26	1.04	2159	1.77	1.34	1.36
ROA (lagged)	2902	0.08	0.07	0.06	733	0.08	0.08	0.05	2169	0.08	0.07	0.07
Book Leverage	2879	0.43	0.45	0.21	725	0.43	0.45	0.20	2154	0.42	0.45	0.21
Market Leverage	2873	0.23	0.21	0.16	725	0.24	0.22	0.15	2148	0.22	0.20	0.16
Board size	2928	11.32	11	2.65	734	12.19	12	2.54	2194	11.03	11	2.62
Board Independence	2928	0.73	0.75	0.14	734	0.75	0.78	0.12	2194	0.72	0.75	0.14
COMBANKER > 0	2928	0.25	0	0.43	734	1	1	0.00	2194	0	0	0.00
COMBANKER ratio	2928	0.03	0	0.05	734	0.10	0.09	0.04	2194	0	0	0.00
Affiliated C.B. > 0	2928	0.06	0	0.23	734	0.22	0	0.42	2194	0	0	0
Unaffiliated C.B. > 0	2928	0.19	0	0.39	734	0.78	1	0.42	2194	0	0	0
IBANKER > 0	2928	0.16	0	0.36	734	0.14	0	0.35	2194	0.16	0	0.33
IBANKER ratio	2928	0.02	0	0.05	734	0.01	0	0.04	2194	0.02	0	0.16

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.

	Investment Banker on Board Number of firms = 102				No Investment Banker on Board Number of firms = 271			
	Obs	Mean	Median	Std Dev	Obs	Mean	Median	Std Dev
Assets ($M)	457	11,448	3,023	30,894	2471	6,747	3,162	12,967
Capital ($M)	457	3,534	988	8,097	2471	3,127	1,447	5,055
Investment ($M)	457	857	197	2,778	2471	519	201	1,333
Inv. / lag. capital	457	0.25	0.21	0.19	2471	0.20	0.17	0.16
Cash flow ($M)	457	957	283	2,333	2471	681	288	1,339
Cash flow / capital	457	0.40	0.30	0.36	2471	0.34	0.23	0.36
Tobin's Q (lagged)	447	1.81	1.43	1.06	2441	1.72	1.30	1.33
ROA (lagged)	455	0.08	0.08	0.07	2447	0.08	0.07	0.06
Board size	457	11.27	11	2.86	2471	11.33	11	2.61
Board Independence	457	0.71	0.73	0.14	2471	0.73	0.75	0.14
COMBANKER > 0	457	0.22	0	0.42	2471	0.26	0	0.44
COMBANKER ratio	457	0.02	0	0.04	2471	0.03	0	0.05
IBANKER > 0	457	1	1	0.00	2471	0.00	0	0
IBANKER ratio	457	0.11	0.09	0.05	2471	0.00	0	0

Table III
Sensitivity of Investment to Cash Flow: Baseline Regressions

The dependent variable in the OLS regressions is Investment, defined as 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 the number of directors on the board. Industry indicators are coded according to the 48 Fama-French industry groups.

	(I)	(II)	(III)	(IV)
	Baseline	Banker Effects	Firm Fixed Effects	Firm and Firm*CF FE
Cash flow	0.521	0.500	0.739	1.286
	(2.37)**	(2.37)**	(2.88)***	(3.28)***
(COMBANKER)*(Cash flow)		-0.110	-0.064	-0.061
		(3.56)***	(1.96)*	(1.55)
(IBANKER)*(Cash flow)		-0.021	-0.079	0.000
		(0.47)	(1.52)	(0.00)
COMBANKER		0.014	0.029	0.032
		(1.36)	(2.45)**	(2.45)**
IBANKER		0.021	0.018	-0.007
		(1.30)	(1.10)	(0.36)
Q	0.025	0.029	0.027	0.025
	(2.21)**	(2.48)**	(2.69)***	(2.42)**
(Q)*(Cash flow)	0.009	.002	0.002	-0.006
	(1.04)	(0.19)	(0.22)	(0.57)
Firm size	0.002	0.003	-0.029	0.008
	(0.35)	(0.51)	(2.30)**	(0.54)
(Firm size)*(Cash flow)	-0.015	-0.018	-0.072	-0.127
	(0.61)	(0.77)	(2.75)***	(3.54)***
Board size	0.032	0.026	-0.024	-0.024
	(1.53)	(1.27)	(0.64)	(0.75)
(Board size)*(Cash flow)	-0.610	-0.014	0.055	0.022
	(0.69)	(0.18)	(0.51)	(0.22)
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	2910	2910	2910	2910
R-squared	0.48	0.48	0.68	0.80

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

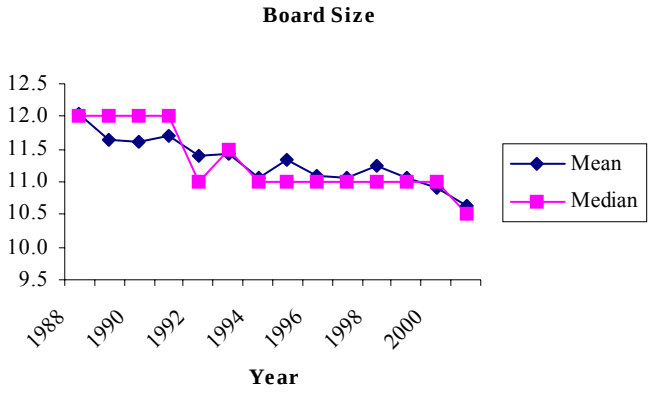

Figure 1. Board Size over the Sample Period. The figure shows the annual mean and median board size (number of directors on the board).

Table IV
Sensitivity of Investment to Cash Flow: Instrumental Variables Approach

COMBANKER is the natural logarithm of the number of commercial bankers on the board. In Column IV, COMBANKER and (COMBANKER)*(Cash flow) are instrumented with (CRISIS) and (CRISIS)*(Cash flow), where CRISIS is the natural logarithm of the number of directors who joined the board between 1976 and 1985. Board tenure is the mean tenure of the 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. Industry indicators are coded according to the 48 Fama-French industry groups.

	(I)	(II)	(III)	(IV)
	Baseline	**First Stage**		**2SLS**
Dependent Variable	Investment	COMBANKER	(COMBANKER)*(CF)	Investment
Cash flow	0.553	0.378	-0.175	0.459
	(2.57)**	(0.22)	(0.26)	(1.85)*
(COMBANKER)*(Cash flow)	-0.158			-0.747
	(3.93)***			(1.78)*
COMBANKER	0.020			0.158
	(1.60)			(1.00)
Q	0.029	0.024	0.031	0.044
	(2.55)**	(1.81)*	(6.13)***	(2.52)**
(Q)*(Cash flow)	0.000	-0.041	-0.059	-0.029
	(0.00)	(3.22)***	(12.23)***	(1.10)
Firm size	0.003	0.006	0.012	0.008
	(0.44)	(0.52)	(2.89)***	(0.84)
(Firm size)*(Cash flow)	-0.015	-0.003	-0.026	-0.026
	(0.70)	(0.13)	(2.73)***	(0.93)
Board size	0.031	0.391	0.003	-0.017
	(1.58)	(8.30)***	(0.17)	(0.29)
(Board size)*(Cash flow)	-0.028	-0.156	0.265	0.153
	(0.37)	(1.79)*	(7.98)***	(1.05)
CRISIS		-0.101	-0.041	
		(5.49)***	(5.89)***	
(CRISIS)*(Cash flow)		0.198	0.154	
		(4.91)***	(10.02)***	
Board tenure	0.001	0.001	0.001	0.001
	(1.860)*	(1.91)*	(3.45)***	(1.90)*
(Board tenure)*(Cash flow)	-0.004	-0.006	-0.004	-0.005
	(1.900)*	(2.08)**	(3.66)***	(1.95)*
Observations	2907	2907	2907	2907
R-squared	0.49	0.23	0.40	0.38

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

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

In Panel I, the specification of Table III, Column III is re-estimated in each subsample. In Panel II, the specification of Table III, Column IV is re-estimated in each subsample. The sample is split at the median value of the Kaplan-Zingales index (KZ). Industry indicators are coded according to the 48 Fama-French industry groups.

	(I)		(II)	
	Constrained	Unconstrained	Constrained	Unconstrained
	KZ> median	KZ< median	KZ> median	KZ< median
Cash flow	-0.016	0.308	-0.800	0.001
	(0.03)	(1.03)	(0.32)	(0.04)
(COMBANKER)*(Cash flow)	0.082	-0.067	0.072	-0.096
	(1.35)	(1.80)*	(0.75)	(2.31)**
(IBANKER)*(Cash flow)	-0.161	-0.032	-0.058	-0.011
	(1.80)*	(0.64)	(0.38)	(0.18)
COMBANKER	-0.014	0.038	-0.003	0.055
	(1.02)	(1.84)*	(0.16)	(2.33)**
IBANKER	0.030	0.018	0.013	0.011
	(1.52)	(0.70)	(0.47)	(0.41)
Q	0.028	0.005	0.057	0.007
	(1.44)	(0.60)	(2.12)**	(0.55)
(Q)*(Cash flow)	0.020	0.011	-0.028	0.001
	(0.77)	(1.13)	(0.66)	(0.04)
Firm Size	-0.053	-0.031	0.017	0.019
	(2.31)**	(1.80)*	(0.51)	(0.85)
(Firm size)*(Cash flow)	0.041	-0.067	-0.240	-0.110
	(0.73)	(2.41)**	(1.19)*	(2.94)***
Board size	0.030	-0.084	0.014	-0.012
	(0.85)	(1.08)	(0.23)	(0.18)
(Board size)*(Cash flow)	-0.073	0.101	-0.005	-0.036
	(0.35)	(0.78)	(0.01)	(0.37)
Year fixed effects	yes	yes	yes	yes
(Year fixed effects)*(Cash flow)	yes	yes	yes	yes
S&P rating fixed effects	yes	yes	yes	yes
(S&P rating fixed effects)*(Cash flow)	yes	yes	yes	yes
Firm fixed effects	yes	yes	yes	yes
(Industry fixed effects)*(Cash flow)	yes	yes	no	no
(Firm fixed effects)*(Cash flow)	no	no	yes	yes
Observations	1350	1364	1350	1364
R-squared	0.84	0.69	0.89	0.84

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

Table VI
Summary Statistics: Bank Loans

The loan data is from LPC Dealscan. Tranche is loan size (in $m). Drawn spread is the annual fee per dollar that the borrower pays the lender for a term loan. Un-drawn spread is the annual fee per dollar to keep the credit line active. Both rates are quoted in basis points as a spread over a benchmark such as LIBOR. Maturity is the number of years between signing of the loan contract and 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. Syndicate Size denotes the number of banks involved. Senior indicates that the debt has a priority over other debt obligations of the company. Secured indicates that the deal involves a lien on borrower assets (e.g., assets, guarantees, or other collateral).

	Full Sample # Firms = 191			**Affiliated Combanker** # Firms = 39			**Unaffiliated Combanker** # Firms = 55			**No Combanker** # Firms = 175		
	Obs	**Mean**	**Std Dev**	**Obs**	**Mean**	**Std Dev**	**Obs**	**Mean**	**Std Dev**	**Obs**	**Mean**	**Std Dev**
Firm Variables												
Assets ($ millions)	1,500	9,589	22,196	113	15,484	36,592	218	10,212	23,258	1,169	8,903	20,003
Q	1,477	1.61	1.12	113	1.48	0.65	214	1.53	1.17	1,150	1.64	1.14
PPE over assets	1,492	0.42	0.22	113	0.49	0.23	218	0.48	0.22	1,161	0.4	0.21
Stock Volatility	1,504	0.09	0.04	113	0.08	0.03	220	0.08	0.04	1,171	0.09	0.04
Book Leverage	1,477	0.49	0.19	109	0.45	0.16	213	0.51	0.19	1,155	0.50	0.20
Market Leverage	1,473	0.26	0.17	112	0.25	0.13	213	0.27	0.17	1,148	0.26	0.17
Board size	1,507	11.15	2.50	113	12.27	2.40	220	11.58	2.26	1,174	10.96	2.52
Board independence	1,507	0.73	0.14	113	0.78	0.10	220	0.76	0.12	1,174	0.72	0.14
Commercial banker	1,507	0.22	0.41	113	1	0	220	1	0	1,174	0	0
Affiliated C.B.	1,507	0.07	0.26	113	1	0	220	0	0	1,174	0	0
Unaffiliated C.B.	1,507	0.15	0.35	113	0	0	220	1	0	1,174	0	0
Affiliated lead C.B.	1,507	0.04	0.20	113	0.55	0.50	220	0	0	1,174	0	0
Investment banker	1,507	0.20	0.40	113	0.20	0.41	220	0.15	0.36	1,174	0.21	0.41
Loan Variables												
Tranche ($ millions)	1,314	631	1,229	99	1,321	2,858	200	644	1,606	1,015	561	787
Tranche / Market Value of Firm	1,285	0.08	0.10	98	0.11	0.12	193	0.07	0.10	994	0.08	0.10
Drawn spread (bps)	1,045	82.69	85.74	88	61.38	63.98	138	83.89	88.24	819	84.77	87.11
Un-drawn spread (bps)	983	18.31	15.04	90	14.51	11.64	124	18.67	14.58	769	18.70	15.41
Maturity	1,318	3.37	2.61	109	3.66	2.36	185	3.67	3.47	1,024	3.28	2.43
Credit Line	1,507	0.57	0.50	113	0.6	0.49	220	0.54	0.50	1,174	0.57	0.50
Syndicated	1,507	0.87	0.34	113	0.96	0.21	220	0.83	0.38	1,174	0.86	0.34
Syndicate Size	1,507	12.42	12.51	113	19.08	15.23	220	8.59	9.23	1,174	12.49	12.51
Senior	1,507	0.88	0.32	113	0.87	0.34	220	0.85	0.36	1,174	0.90	0.30
Secured	1,507	0.13	0.34	113	0.12	0.32	220	0.13	0.33	1,174	0.13	0.34

Table VII
Commercial Bankers and Loan Size

OLS regressions with loan size (tranche) in $ millions as the dependent variable. COMBANKER and IBANKER indicate the presence of a commercial and investment banker on the board. Affiliated indicates that the director's bank is among the originators of the loan. Q denotes Tobin's Q, PPE/Assets is plants, 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. Other controls are indicators for loan style and loan purpose, missing observations for the maturity and secured variables, which are included in all estimations, but not shown in the table. Industry indicators are coded according to the 48 Fama-French industry groups.

	(I)	(II)	(III)	(IV)	(V)	(VI)
	Full Sample	Full Sample	Constrained	Unconstrained	Constrained	Unconstrained
			KZ> median	KZ< median	KZ> median	KZ< median
COMBANKER	350.747					
	(1.90)*					
Affiliated COMBANKER		474.863	112.459	904.721	68.254	1,316.890
		(2.25)**	(0.87)	(2.05)**	(0.55)	(1.73)*
Unaffiliated COMBANKER		294.170	99.420	464.610	-7.602	1,190.800
		(1.59)	(1.51)	(1.18)	(0.10)	(1.00)
IBANKER	212.101	208.861	93.561	370.046	167.088	1,112.250
	(1.23)	(1.22)	(1.24)	(1.20)	(2.06)**	(1.67)*
Q	-51.703	-49.833	63.655	-131.186	107.505	-368.846
	(1.16)	(1.12)	(0.89)	(1.97)*	(1.41)	(1.18)
PPE / Assets	-268.579	-283.485	-56.443	1,427.840	102.988	2,165.330
	(1.25)	(1.32)*	(0.27)	(2.48)**	(0.40)	(1.09)
Stock volatility	223.608	207.815	-2,530.380	3,897.800	-1,316.090	11,983.530
	(0.15)	(0.14)	(2.17)**	(0.99)	(1.47)	(1.32)
Board size	169.640	166.733	209.196	-428.278	119.407	458.744
	(1.08)	(1.06)	(1.80)*	(1.25)	(0.55)	(0.36)
Firm size	341.702	345.376	256.733	487.478	271.526	1,453.190
	(7.92)***	(8.00)***	(4.98)***	(5.68)***	(2.62)***	(1.86)*
Leverage	-363.605	-369.355	-408.439	206.285	-724.563	-591.734
	(1.07)	(1.09)	(1.90)*	(0.35)	(1.52)	(0.51)
Board independence	-49.612	-51.382	113.176	-838.880	-197.686	-924.218
	(0.20)	(0.21)	(0.38)	(1.97)	(0.58)	(0.73)
Senior	-125.347	-116.253	17.737	-160.439	41.165	-644.940
	(1.20)	(0.93)	(0.27)	(0.81)	(0.51)	(1.21)
Secured	-119.241	-116.253	14.154	-126.746	-3.500	33.405
	(0.95)	(0.93)	(0.11)	(0.57)	(0.02)	(0.08)
Maturity	-99.293	-100.932	2.192	-233.913	35.794	-203.594
	(1.02)	(0.93)	(0.05)	(0.96)	(0.79)	(0.80)
Number of lenders	25.191	24.653	18.459	35.076	16.283	55.106
	(3.54)***	(3.45)***	(5.92)***	(1.82)*	(4.79)***	(1.65)
Syndicated	-94.657	-96.421	-109.666	-89.341	-31.126	-310.104
	(1.29)	(1.32)	(1.76)*	(0.40)	(0.58)	(0.77)
Other controls	yes	yes	yes	yes	yes	yes
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	no	no
Firm fixed effects	no	no	no	no	yes	yes
Observations	1279	1279	671	477	671	477
R-squared	0.43	0.43	0.59	0.51	0.72	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
Sensitivity of Investment to Cash Flow: Affiliation

The dependent variable is Investment. A commercial banker is affiliated if her bank has lent to the firm in the past (as reported by Dealscan). 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. Industry indicators are coded as the 48 Fama-French industry groups.

	(I)	(II)	(III)	(IV)	(V)
	Full Sample	Constrained	Unconstrained	Constrained	Unconstrained
		KZ> median	KZ< median	KZ> median	KZ< median
Cash flow	0.685	-0.094	0.102	2.283	1.222
	(2.47)**	(0.16)	(0.18)	(2.11)**	(2.66)***
(Affiliated C.B.)*(Cash flow)	-0.220	0.100	-0.242	0.113	-0.375
	(2.47)**	(0.82)	(2.50)**	(0.73)	(2.39)**
(Unaffiliated C.B.)*(Cash flow)	-0.055	0.125	-0.058	0.084	-0.087
	(1.64)	(1.80)*	(1.48)	(0.74)	(1.90)*
(IBANKER)*(Cash flow)	-0.086	-0.137	-0.059	0.012	-0.001
	(1.53)	(1.52)	(1.03)	(0.08)	(0.01)
Affiliated COMBANKER	0.055	-0.027	0.067	-0.014	0.135
	(3.00)**	(1.17)	(1.95)*	(0.55)	(3.01)***
Unaffiliated COMBANKER	0.028	-0.017	0.035	-0.003	0.056
	(2.23)**	(1.13)	(1.59)	(0.14)	(2.08)**
IBANKER	0.023	0.025	0.032	0.000	0.007
	(1.38)	(1.28)	(1.28)	(0.00)	(0.25)
Q	0.027	0.025	0.005	0.057	0.010
	(2.52)**	(1.28)	(0.55)	(2.05)**	(0.71)
(Q)*(Cash flow)	0.004	0.026	0.014	-0.027	-0.001
	(0.41)	(0.96)	(1.13)	(0.62)	(0.06)
Firm size	-0.026	-0.054	-0.026	0.022	0.011
	(2.12)**	(2.37)**	(1.56)	(0.68)	(0.44)
(Firm size)*(Cash flow)	-0.077	0.048	-0.075	-0.261	-0.087
	(2.71)***	(0.86)	(2.20)**	(2.08)**	(2.08)**
Board size	-0.040	0.033	-0.114	0.018	0.005
	(1.06)	(0.94)	(1.32)	(0.30)	(0.09)
(Board size)*(Cash flow)	0.094	-0.070	0.159	-0.056	-.062
	(0.83)	(0.34)	(1.07)	(0.15)	(0.69)
Year fixed effects	yes	yes	yes	yes	yes
(Year fixed effects)*(Cash flow)	yes	yes	yes	yes	yes
Industry fixed effects	no	no	no	no	no
(Industry fixed effects)*(Cash flow)	yes	yes	yes	no	no
S&P rating fixed effects	yes	yes	yes	yes	yes
(S&P rating fixed effects)*(Cash flow)	yes	yes	yes	yes	yes
Firm fixed effects	yes	yes	yes	yes	yes
(Firm fixed effects)*(Cash flow)	no	no	no	yes	yes
Observations	2907	1358	1352	1358	1352
Observations with (Affiliated C.B.)	171	97	61	97	61
Observations with (Unaffiliated C.B.)	563	258	287	258	287
R-squared	0.68	0.84	0.69	0.89	0.84

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

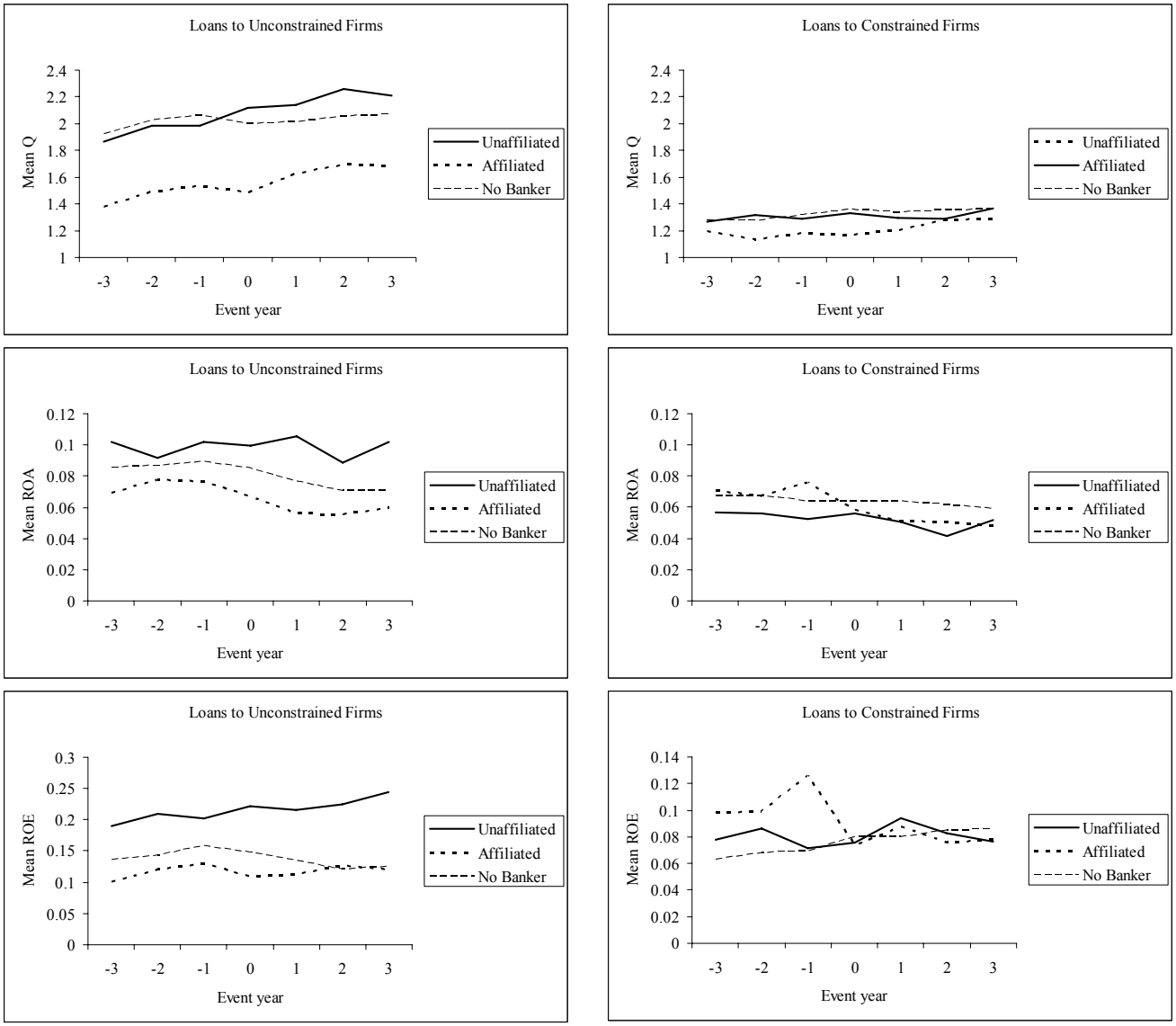

Figure 2. Firm Performance Conditional on Bank Borrowing. The figures depict the sample means of Tobin's Q, ROA and ROE among KZ-unconstrained and KZ-constrained firms. Year 0 denotes the year in which the firm has obtained at least one bank loan.

Table IX
Summary Statistics on Acquisitions

SDC mergers data of all completed deals with target shares acquired > 50%. Leveraged buyouts, recapitalizations, self-tenders, acquisitions of subsidiaries, spin-offs, exchange offers, repurchases, minority stake purchases, privatizations, and acquisitions of remaining interests are excluded.

	Obs	Mean	Median	Min	Max	Std Dev
% owned after acquisition	1547	98.3	100	50	100	8.64
% of target acquired	1547	97.7	100	50	100	12.02
Target value ($ million)	554	191.5	116.5	0.3	939.8	220.20
Target value over acquirer total assets	554	0.07	0.02	0.0004	1.81	0.13
Number of banks advising target	532	1.2	1	1	5	0.46
Number of banks advising acquirer	318	1.2	1	1	4	0.44
Target public?	1547	0.21	0	0	1	0.38
Announcement return	532	-0.52%	-0.58%	-20.70%	17.85%	0.052

Table X
Stock Performance on Acquisition Announcement Days

The dependent variable is the cumulative abnormal return of sample firms over a (-2, +2) day event window of acquisition announcements, assuming $\alpha = 0$ and market $\beta = 1$. We exclude mergers with deal values below $1 million. Cash Only (Stock Only) is equal to 1 if the acquisition is financed with cash (stock). The omitted category indicates a merger with mixed financing. Diversifying is equal to 1 if the acquirer and the target do not share the same 2-digit SIC code. Industry indicators are the 17 Fama-French industry groups.

	(I)	(II)	(III)
Ibanker	-0.012	-0.013	-0.012
	(1.78)*	(1.83)*	(1.76)*
Cash Only		-0.003	-0.002
		(0.45)	(0.32)
Stock Only		-0.0002	-0.002
		(0.03)	(0.25)
Diversifying			0.014
			(2.96)***
Year FE	yes	yes	yes
Industry FE	yes	yes	yes
S&P Rating FE	yes	yes	yes
Observations	532	532	532
R-sq.	0.07	0.07	0.08

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

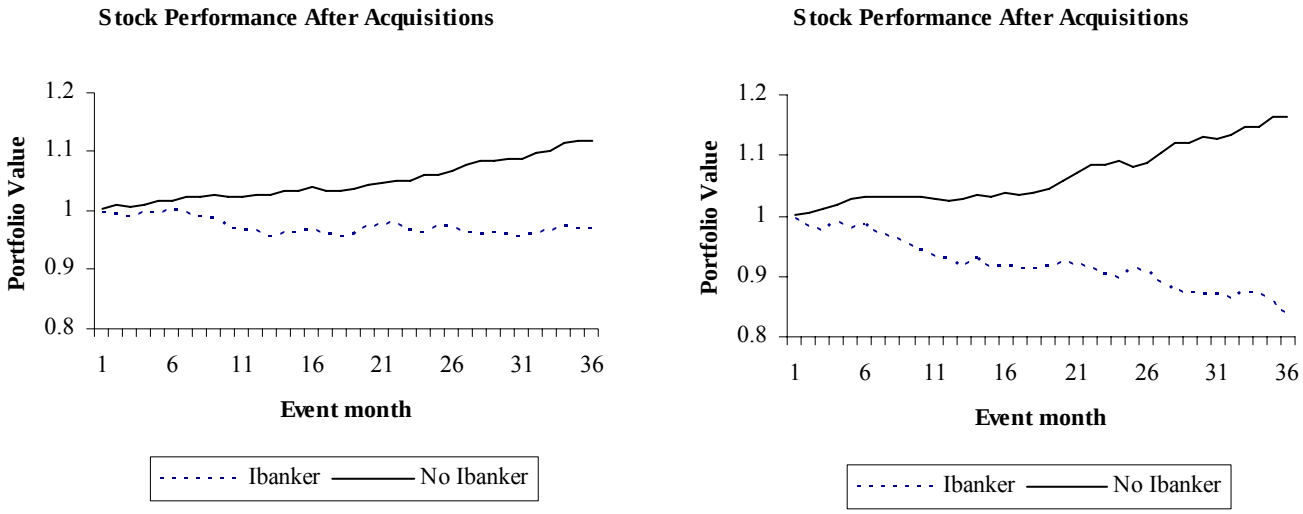

Figure 3. Stock Performance After Acquisitions. Starting the month following the acquisition, stock returns net of the market return are averaged for each "event" month during the 36-month period, separately for firms with and without an investment banker serving on the board. The monthly averaged returns are then compounded. The right figure includes only acquisitions with a minimum deal value of $5 million.

Table XI
Firm Performance Conditional on Acquisitions

The sample includes all firm-years in which the firm completed at least one acquisition. Subscript t denotes the event year. R_{t+i} denotes buy-and-hold stock returns over the i months following the acquisition. ΔQ_{t+i} denotes the change in market-to-book ratio of assets 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 12 months before the acquisition. Firm size is the natural logarithm of total book assets. Board size is the natural logarithm of number of directors. Board independence is the number of outside directors scaled by board size. Industry indicators are the 17 Fama-French industry groups.

Dependent variable	R_{t+12}	R_{t+24}	R_{t+36}	ΔQ_{t+1}	ΔQ_{t+2}	ΔQ_{t+3}	ROA_{t+1}	ROA_{t+2}	ROA_{t+3}
IBANKER	-0.086	-0.173	-0.181	-0.229	-0.265	-0.222	0.002	-0.011	-0.018
	(2.42)**	(2.58)**	(1.86)*	(1.86)*	(1.74)*	(1.43)	(0.22)	(1.33)	(1.89)*
BM equity	0.014	-0.001	-0.014						
	(0.43)	(0.01)	(0.11)						
Market Equity	0.007	-0.146	-0.239						
	(0.10)	(1.05)	(1.28)						
Board size	0.012	0.039	0.113	-0.059	0.077	-0.128	0.007	0.016	-0.001
	(0.84)	(1.25)	(2.84)***	(0.24)	(0.26)	(0.36)	(0.63)	(1.04)	(0.10)
Board indep.	-0.163	-0.346	-0.445	0.057	0.157	-0.006	-0.018	-0.001	-0.002
	(2.19)**	(2.36)**	(2.11)**	(0.16)	(0.41)	(0.01)	(1.22)	(0.08)	(0.08)
Firm Size				0.085	0.108	0.142	-0.005	-0.009	-0.006
				(1.39)	(1.67)*	(1.97)*	(2.34)**	(3.51)***	(2.46)**
Stock vol.				0.686	-0.806	-3.361	-0.018	-0.112	-0.302
				(0.20)	(0.33)	(1.53)	(0.13)	(0.97)	(2.16)**
ΔQ_t				-0.334	-0.394	-0.464			
				(2.50)**	(3.89)***	(3.67)***			
ROA_t							0.346	0.23	0.163
							(2.71)***	(2.24)**	(1.82)*
S&P Rating fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes
Industry fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes
Observations	1263	1142	969	598	593	579	593	586	574
R-squared	0.06	0.1	0.2	0.12	0.17	0.19	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 XII
Summary Statistics
Public Debt

Data on public debt issues come from the SDC database. Principal is the amount of debt issued in $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. Commercial banker and Investment banker (Ibanker) indicate the presence of a commercial and investment banker on the board, respectively. Affiliated indicates that the director's bank is among the underwriters of the debt.

	Full Sample # Firms = 192				**Affiliated Ibanker** # Firms = 24			**Unaffiliated Ibanker** # Firms = 42			**No Ibanker on Board** # Firms = 172		
	Obs	Mean	Median	Std Dev	Obs	Mean	Std Dev	Obs	Mean	Std Dev	Obs	Mean	Std Dev
Firm Variables													
Assets ($ millions)	4,159	37,859	17,943	56,820	217	47,481	74,210	693	87,889	94,249	3,249	26,545	34,727
Q	4,151	1.44	1.27	0.75	217	1.35	0.67	689	1.34	0.66	3,245	1.47	0.77
PPE over assets	4,154	0.38	0.30	0.23	214	0.33	0.17	693	0.32	0.18	3,247	0.40	0.23
Stock Volatility	4,158	0.08	0.07	0.03	217	0.08	0.03	693	0.07	0.02	3,248	0.08	0.03
Book Leverage	4,143	0.59	0.58	0.17	217	0.59	0.21	689	0.64	0.19	3,237	0.58	0.17
Board size	4,159	12.22	12.00	2.20	217	12.31	2.27	693	13.03	2.15	3,249	12.04	2.17
Board independence	4,159	0.80	0.82	0.12	217	0.75	0.15	693	0.79	0.14	3,249	0.81	0.11
Commercial banker	4,159	0.23	0	0.42	217	0.20	0.40	693	0.39	0.49	3,249	0.20	0.40
Investment banker	4,159	0.22	0	0.41	217	1	0	693	1	0	3,249	0	0
Affiliated Ibanker	4,159	0.05	0	0.22	217	1	0	693	0	0	3,249	0	0
Unaffiliated Ibanker	4,159	0.17	0	0.37	217	0	0	693	1	0	3,249	0	0
Debt Variables													
Principal ($ millions)	4,138	107.56	45.00	170.97	217	166.03	194.83	693	102.46	130.60	3,228	104.72	176.15
Principal/ Firm Value	4,130	0.009	0.002	0.018	217	0.013	0.028	689	0.006	0.012	3,224	0.009	0.018
At-issue yield spread	2,237	104.71	85.00	77.63	107	117.09	63.79	328	94.12	75.77	1,802	105.90	78.54
Gross spread	2,303	0.59	0.60	0.41	128	0.60	0.37	365	0.48	0.30	1,810	0.61	0.43
Maturity	4,159	8.38	5.02	8.27	217	7.02	7.80	693	6.58	6.84	3,249	8.85	8.51
OTC	4,159	0.00	0.00	0.05	217	0.00	0.00	693	0.00	0.00	3,249	0.00	0.06
Floating rate	4,159	0.13	0.00	0.34	217	0.14	0.35	693	0.23	0.42	3,249	0.11	0.32
Puttable	4,159	0.04	0.00	0.19	217	0.04	0.20	693	0.04	0.20	3,249	0.04	0.19
Callable	4,159	0.85	1.00	0.36	217	0.91	0.29	693	0.92	0.27	3,249	0.83	0.38
Sinking funds	4,159	0.02	0.00	0.15	217	0.01	0.10	693	0.02	0.15	3,249	0.02	0.15

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

The dependent variable is the principal amount of debt issue (in $m) in Columns I and II, at-issue yield spread (in bp as spread over the benchmark treasury rate) in Column III, and the gross spread (underwriter fees as a percentage of the issue) in Column 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. Industry indicators are coded according to the 17 Fama-French industry groups.

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

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

Table XIV
Financial Experts and Executive Compensation

The dependent variable in columns (I) and (II) is the natural logarithm of one plus the Black-Scholes value of option grants during the fiscal year. The dependent variable in columns (III) – (V) is the natural logarithm of total compensation. Compensation data for 1988 to 1994 is from the Hall-Liebman (1998) data set. Compensation data from 1995 forward is from Execucomp. All regressions include an unreported dummy variable which takes the value 1 in the Execucomp sample years. ROA is earnings before extraordinary items plus interest expenses, scaled by total assets. Firm size is the natural logarithm of assets at the beginning of the year. Director variables, including board size, are in numbers. All regressions include CEO Age, CEO Tenure, $(\text{CEO Age})^2$ and $(\text{CEO Tenure})^2$.

Dependent Variable	(I) Value of Option Grants	(II) Value of Option Grants	(III) Total Com-pensation	(IV) Total Com-pensation	(V) Total Com-pensation
ROA_{t-1}	3.699	1.333	-1.158	1.404	27.277
	(2.44)**	(0.80)	(0.39)	(0.53)	(5.72)***
Firm Size	0.293	-0.062	0.314	0.193	0.258
	(2.40)**	(0.25)	(7.56)***	(2.21)**	(3.26)***
OUTSIDERS	0.117	0.013	-0.010	-0.048	-0.034
	(1.71)*	(0.17)	(0.22)	(1.07)	(0.67)
Board Size	-0.082	-0.004	0.008	0.062	0.085
	(1.28)	(0.07)	(0.18)	(1.37)	(1.94)*
(OUTSIDERS)*(ROA_{t-1})			0.163	0.298	-0.019
			(0.38)	(0.80)	(0.05)
(Board Size)*(ROA_{t-1})			0.207	-0.357	-0.676
			(0.49)	(0.91)	(1.59)
Finance Professors	0.021	0.574	0.288	0.264	0.434
	(0.08)	(2.04)**	(1.81)*	(1.11)	(1.51)
Finance Execs & Accountants	0.061	-0.011	-0.094	-0.043	-0.055
	(0.49)	(0.09)	(1.31)	(0.49)	(0.57)
COMBANKER	-0.265	-0.15	-0.194	-0.16	-0.242
	(1.42)	(0.74)	(1.73)*	(1.51)	(1.63)
IBANKER	0.100	-0.014	0.155	-0.064	0.034
	(0.53)	(0.07)	(1.88)*	(0.69)	(0.26)
Execs of Non-bank Financial Cos.	-0.105	0.123	0.069	0.037	0.09
	(1.35)	(1.23)	(1.13)	(0.52)	(1.14)
(Finance Professors)*(ROA_{t-1})			-2.887	-2.880	-3.078
			(1.77)*	(1.15)	(1.03)
(Fin Execs & Account)*(ROA_{t-1})			-0.367	-0.075	0.133
			(0.49)	(0.12)	(0.17)
(COMBANKER)*(ROA_{t-1})			0.929	1.487	2.963
			(0.77)	(1.57)	(1.64)
(IBANKER)*(ROA_{t-1})			-0.551	0.847	0.091
			(0.90)	(1.40)	(0.08)
(Execs Non-bank Fin Cos.)*(ROA_{t-1})			-0.139	-0.160	-0.842
			(0.28)	(0.30)	(1.27)
Year Fixed Effects	yes	yes	yes	yes	yes
Firm Fixed Effects	no	yes	no	yes	yes
(Firm Fixed Effects)*(ROA_{t-1})	no	no	no	no	yes
Observations	3290	3290	3290	3290	3290
R-squared	0.17	0.16	0.25	0.21	0.33

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

[*] We thank Alexander Ljungqvist, Ernst Maug, Stefan Nagel and Philip Strahan for helpful comments. We also thank the seminar audiences at the NBER Summer Institute Corporate Governance meeting, WFA, Fall 2004 NBER Corporate Finance program meeting, at the University of Pennsylvania, Stanford, Cornell, University of Notre Dame, UC Irvine, Emory University, UT Austin, Columbia University, and University of North Carolina. Justin Fernandez, George Georgiev, Vaibhav Gupta, Nicole Hammer, Rumit Kanakia, Jared Katseff, Catherine Leung, Chenkay Li, Scott McLin, Felix Momsen, Neeraj Shah, Ning Xu, and Nancy Yu provided excellent research assistance.

[1] Section 407 of the Sarbanes-Oxley (2002) Act on the definition of audit committee financial expert. Similarly, all major stock exchanges have introduced listing requirements on director financial literacy.

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

[3] Malmendier and Shanthikumar (2005); Kim and Davis (2005); Reuter (2005).

[4] Consistent with this story, Hoshi, Kashyap, and Scharfstein (1991) find that investment is less sensitive to cash flow in Japanese firms with keiretsu membership. Ramirez (1995) finds that firms with J.P. Morgan executives on their boards displayed lower investment-cash flow sensitivity at the turn of the 20th century.

[5] The employee falls into more than one category in a few cases, such as banks that are both (1) and (2).

[6] In a small number of cases (particularly in the IRRC data), we know only that the director is retired, but nothing about their past employment. These directors are classified in category (9).

[7] Consistent with this hypothesis, firms we identify as financially constrained receive less attractive loan prices.

[8] Using model-generated data, Moyen (2004) shows that firms with low dividends—considered to be more financially constrained in several studies—are in fact more likely to be unconstrained than constrained.

[9] E.g., Krozsner and Strahan (2001b); Hubbard, Kuttner, and Palia (2002).

[10] Table available upon request.

[11] Thus, firms cannot switch from constrained to unconstrained during the event period.

[12] Because of extreme outliers, we trim ROE at 1% and 99%. Winsorizing yields similar results.

[13] The results are also robust to including credit rating dummies, as elsewhere in the paper.

[14] Note that the post-loan book leverage results allow us to refine the earlier loan size results. Repeating the loan-size estimations of Table VIII (Column II) separately for credit lines and term loans reveals that the coefficient on Affiliated Combanker ($267m) is larger than that on Unaffiliated Combanker ($51m) for credit lines, but not for term loans ($491m for Affiliated and $531m for Unaffiliated Combanker). However, the leverage results suggest that firms do indeed draw on these credit lines in the short run and they are, therefore, an important source of immediate financing.

[15] When the dependent variable is derived from annual Compustat items (Q and ROA), we allow only one acquisition per year to avoid duplicate observations.

[16] When Q or ROA are the dependent variable and we thus use only one acquisition per year, "cash only" means the firm financed all mergers in a given year using cash (and likewise for stock). Similarly, the omitted category indicates years in which the firm used mixed financing for a merger or did multiple mergers with different means of financing.

[17] We conducted a similar analysis of equity issues, but, given the small sample, did not find significant results.

[18] E.g., Datta, Iskandar-Datta, and Patel (1999). See the Appendix for further details on these variables.

[19] The coefficients are not statistically different. Also, the size and price results are not robust to including firm effects.

[20] For full details of the respective Black-Scholes computations see Hall and Liebman (1998) and the ExecuComp "Modified Black-Scholes Option Valuation Metholdolgy" data manual.

[21] In the regressions in Columns (III)-(V) of Table XIV, we only adjust for differences in the means of total compensation across the two data sources. However, we have checked the robustness to also interacting the ExecuComp indicator with our performance measure (ROA). Not surprisingly, the interaction has no significant effect (while the level effect of the ExecuComp indicator is highly significant).