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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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Following the recent wave of accounting scandals, regulators 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]

Financial experts are, however, often affiliated with a financial institution and may have interests other than maximizing shareholder value. This conflict of interests is reason for concern. Directors spend a significant portion of their time on advising rather than monitoring (Adams and Ferreira (2003)). Thus, financial experts might affect firm policies beyond more accurate disclosure and favor their own financial institution. Affiliation has, indeed, raised concerns in several areas of financial intermediation such as analyst recommendations, IPO allocations, and proxy voting of mutual funds.[2]

In this paper we ask whether affiliation hampers the effectiveness of financial experts on boards. Our analysis complements a growing literature relating characteristics of board members to firm performance (Fich and Shivdasani (2006); Perry and Peyer (2005)) and extends the analysis to specific corporate policies. We also build upon Kroszner and Strahan's (2001a, 2001b) analysis of commercial banker directors.

We construct a novel data set on board composition covering 288 companies over 14 years. We examine separately conflicts of interest due to commercial bank and investment bank affiliation. We find that financial experts significantly affect corporate decisions, but mainly in the interest of their own institutions. Banker directors increase access to capital, but only in unconstrained firms. They appear to facilitate overinvestment rather than mitigate underinvestment. We find little evidence of offsetting benefits from financial expertise. Our results challenge the view that more expertise will unambiguously improve firm policy.

Our data also entails methodological advantages. In prior studies, data limitations and the slow evolution of board composition over time only allowed for cross-sectional identification of director effects, giving rise to endogeneity concerns. Our long time series enables us to use within-firm changes in board composition for much of our analysis.

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

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

We also instrument for board financial expertise, where possible, to address concerns about the endogeneity of board composition.

Our analysis proceeds in three steps. First, we study the effect of bankers on internal investment and loan financing, the expertise of commercial bankers. One often cited mechanism through which bankers could affect firm policy is eased access to capital. If firms are financially constrained due to information asymmetries (Myers and Majluf (1984); Fazzari, Hubbard, and Petersen (1988)), bankers may enable firms to finance additional value-creating projects and decrease the sensitivity of investment to internal funds.[3] Whether eased access to capital benefits shareholders is, however, ambiguous. Investment-cash flow sensitivity need not reflect inefficient financial constraints. Alternatively, it represents efficient rationing of finance to empire-building or overconfident managers (Jensen and Meckling (1976); Jensen (1986); Malmendier and Tate (2005)). Bankers who act in the interest of creditors rather than shareholders may lend to firms with low default risk, but no value-creating projects. Increased lending, then, enables management to divert funds or to overinvest.

We investigate whether bankers increase external financing and, if so, whether the affected firms are financially constrained. We find that when commercial bankers enter the board of a firm, the firm displays less investment-cash flow sensitivity and obtains larger loans. Both effects strongly depend on banker affiliation, i. e. directors whose bank has a lending relationship with the firm. Moreover, lending increases only for firms that are *least* financially constrained, such as firms with investment grade debt. These firms have worse investment opportunities and profitability, even several years after the loan. Firms that are likely underinvesting receive such assistance. The results suggest that banker directors are guided by creditors' rather than shareholders' interests.

Second, we turn to external investments (acquisitions) and financing with public securities, the expertise of investment bankers. We find that firms with investment bankers on their boards undertake worse acquisitions. In the 5 days around takeover bids, they lose 120 basis points more than firms without investment bankers. They also lose signifi-

[3] 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.

cantly more value over the three years following an acquisition. The results indicate over-investment in external targets. Investment bankers are also associated with larger bond issues, in particular 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, consistent with fee maximization as the primary objective. Like commercial bankers, investment bankers have a significant impact on corporate decisions, but promote bank profits rather than shareholder value.

Third, we test for effects of financial expertise when interests are not conflicted. We do not find evidence that affiliated financial experts impact decisions orthogonal to their institutions' interests, such as CEO compensation. Similarly, we find no measurable effect of unaffiliated financial experts on investment decisions.

Our findings indicate that financial experts on boards have significant influence on corporate decisions though mainly in the interest of their financial institutions. On the other hand, our analysis of *selected* corporate policies does not allow us to conclude that financial experts destroy shareholder value on net. Aggrawal and Chadha (2003), for example, find that having directors with a CPA, CFA, or similar degree on audit committees translates into fewer earnings restatements. However, our results challenge common justifications for adding financial experts to boards, such as facilitating more efficient access to capital markets and or improving compensation policy.

A key concern for any analysis of director effects is the endogeneity of board composition, a point made both theoretically and empirically by Hermalin and Weisbach ((1998) and (1988)), among others.[4] In particular, the causality may be reverse, and firms' financing needs may determine the board representation of financial institutions.[5] Separating director effects from selection effects is thus difficult. Data limitations and the slow evolution of boards make it challenging to move beyond cross-sectional analysis.

Our detailed data allows us to better address the endogeneity concerns. First, the fourteen-year time series provides sufficient variation in board composition to identify

[4] For an extensive review of the literature see Hermalin and Weisbach (2003).

[5] Stearns and Mizruchi (1993), Pfeffer (1992), and Booth and Deli (1999) interpret the correlation between firm leverage and board presence of bankers as evidence of firms hiring financial directors for their debt market expertise.

commercial banker effects even after controlling for company fixed effects. This rules out the possibility that the estimated impact of commercial bankers reflects omitted (time-invariant) firm characteristics.

Second, as an alternative strategy to address the endogeneity issue, we use an instrumental variable approach. We instrument for the board presence of commercial bankers, exploiting pre-sample period "supply shocks" to the pool of bankers among potential directors. During the period of banking crisis in the late 1970s and early 1980s, executives of failing commercial banks were less attractive as directors. However, firms' rate of board appointments remained the same. As a result, director positions between 1976 and 1985 were less likely to be filled with commercial bankers than in other decades. We therefore instrument for the number of commercial bankers on the board with the number of current directors hired during the crisis period. Using the instrumented number of banker directors, we obtain the same result. A placebo instrument, the number of directors appointed in 1966-1975, fails to replicate the results, corroborating our analysis.

Third, we identify and remove company-year observations in which selection concerns are most severe, such as years with major acquisitions and the first years of a banker's tenure. We show that such years do not drive our results.

For investment bankers, we cannot use fixed effects in most cases. There is, for example, insufficient within-firm variation in acquisition activity to introduce company fixed effects. We also do not have an instrumental variable strategy. Thus, we rely also on cross-sectional identification, as the previous literature does. We must be more cautious about the interpretation of the findings.

At the same time, our data reveals a large discrepancy between high-frequency corporate decisions and slow board turnover. We find an average director tenure of 10 years. Costs of termination and search costs make it impractical to adjust board composition at every change in policy. Thus, firms must trade off the costs and benefits of adding any particular director type to the board along many policy dimensions, even if they are choosing a director to implement a specific policy. For example, a director hired for her debt market expertise will also decide about executive compensation and acquisition policies. But, her impact on the latter decisions may conflict with the preferences of the CEO or the shareholders.

Our paper relates most closely to Kroszner and Strahan (2001a and b), who also study conflicts of interest when commercial bankers sit on corporate boards. They find that banker directors are less common in smaller, more volatile firms, where conflicts are most severe. Our results indicate that conflicts of interests still matter in large, stable firms. Consistent with this interpretation, Kracaw and Zenner (1998) find a negative stock price reaction to bank loans if an affiliate of the lending bank sits on the board of the borrower. Morck and Nakamura (1999) show that banker directors emphasize policies that benefit creditors rather than shareholders in a data set on Japanese bank ties.

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 absence 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 demographics 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[6]: (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

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

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).[7] 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 regression 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 1 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 2, 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

[7] 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).

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 2 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. Internal Investment and Loan Financing

The core question of this paper is whether board members with financial expertise affect corporate policies and, if so, whether affiliation distorts their impact.

A. Sensitivity of Investment to Cash Flow

We begin our analysis by investigating the impact of affiliated finance experts on internal investment and financing decisions. We focus on two types of financial experts who may face conflicts between improving investment policy from the perspective of shareholders or their primary employers: commercial and investment bankers. We estimate the effect of bankers on corporate boards in the standard model of internal investment:

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

The model determines investment as a function of firm and board characteristics. *CF* is cash flow, *FIN* the set of dummies for finance experts, *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 the Fama and French 48 industry groups. We test for the significance of β_3. To correct for heteroskedasticity and correlation of errors within firms, we cluster standard errors at the firm level.

Column I of Table 3 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 cash flow and Q coefficients vary little and the banker dummies have no significant level effects. The interaction of commercial banker and cash flow, however, 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 and of much smaller magnitude. 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). Thus, the presence of commercial bankers is associated with significantly lower investment-cash flow sensitivity.

A prime concern in interpreting these findings is unobserved firm heterogeneity. 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. 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. Larger firms now display significantly less cash flow sensitivity, consistent with prior literature. Moreover, the direct effect of COMBANKER becomes positive and significant. Thus, absent their effect on investment through cash flow, bankers appear to increase investment. The negative effect of COMBANKER on cash flow sensitivity 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. Moreover, 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 significant. Overall, then, we conclude that investment cash flow sensitivity significantly declines as commercial bankers enter the board of a given firm.

One interpretation of the findings so far is that commercial bankers on the board reduce the sensitivity of investment to internal funds. It is possible, however, that the re-

sults reflect time-varying firm characteristics rather than the active influence of bankers. Firms may ask bankers to join boards precisely when they are seeking external financing and to depart when scaling back their investment and financing. And bankers may agree to join boards only if (and as long as) 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, the turnover of directors appears too low and "out of sync" with high-frequency corporate decisions to represent task- or policy-specific entry and exit. If directors are hired to implement specific policy changes, then most of their time on the board is likely to occur after those policies are in effect.

Nevertheless, we address this concern directly in two ways. One way is to identify years with major policy changes and to remove those years from the analysis. We remove the three years around major acquisitions, i.e. acquisitions with transaction values of at least 15% of the market value of the acquiror's assets. Our results are unchanged.[8] Alternatively, we remove the first one or two years of a banker's presence on the board. To the extent that directors are hired to help implement a specific change in firm policy, their impact should be mainly felt in these years. To implement this test, we recode the COM-BANKER dummy to be 0 during the first two years of the directorship of commercial bankers. We account for data truncation by removing the first two sample years of each firm. Replicating Table 3, we find that the coefficients on the interaction terms become larger in magnitude and more significant statistically. For example in the specification including firm fixed effects and their interactions with cash flow, the coefficient is -0.093 and significant at the 5%-level. Thus, there is little evidence that timed director selection is driving our estimates of the banker effects on investment policy.

[8] Table available from the authors. We also check directly how frequently major acquisitions lead to board restructuring. We find only 6 cases in which bankers entered or exited the board in the three years around such acquisitions.

Nevertheless, we take the additional step of constructing an instrument for the presence of commercial bankers on the board. We exploit the commercial-banking crisis of the late 1970s and early 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 current directors during the 1976-1985 decade are likely to have fewer commercial bankers serving on the board. Our instrument for the number of commercial bankers serving on the board, then, is the number of current directors who were appointed between 1976 and 1985, denoted as "CRISIS."

The CRISIS instrument relies on the implicit assumption that the rate of board turnover between 1976 and 1985 is not different from other periods. If, instead, firms hired at a higher or lower rate during the crisis period, then the same shock that precipitated board restructuring might also explain changes in investment. We find, however, that our assumption is borne out in the data. The year-by-year distribution of directors' tenure is extremely stable. In every single year, the median is 7 years. In addition, the 25th and 10th percentiles are identical in all sample years, and the 75th and 90th percentile vary at most by one year in either direction. Thus the likelihood of appointing a director in any particular year appears to be very stable over time, including the crisis period.

It is also possible that CRISIS captures variation in director tenure across firms. We address this concern directly by including mean board tenure and its interaction with cash flow in our regressions.[9] These controls address, for example, the possibility that

[9] Similarly, the definition of CRISIS places restrictions on directors' age. Adding age and its interaction with cash flow as additional controls does not affect our results. Another concern might be that the tenure control variable is skewed given the slow rate of board turnover. It turns out that mean board tenure exhib-

well-run firms have low board turnover, resulting in both low values of the CRISIS instrument and persistently low investment-cash flow sensitivity.[10] We also account for industry specific patterns in board restructuring and investment-cash flow sensitivity by including industry dummies, measured using the 48 Fama-French industry groups, and their interactions with cash flow. These controls address, for example, responses to industry-specific takeover pressure.[11] Since our instrument mainly exploits variation *across firms* in the number of board appointments during the CRISIS period, there is insufficient within-firm variation to include firm fixed effects in our regressions.

It is important to acknowledge remaining concerns about excludability of the instrument from the investment regression. Ideally, we would want to prove that firms are differently affected by the banking shock only through the channel of director selection. The banking crisis does not provide such a clean natural experiment. Director appointments between 1976 and 1985, however, are unlikely to be related to investment policy during our later 1988-2001 sample period.

In Table 4, we present the results of two-stage least squares regressions using CRISIS and CRISIS interacted with cash flow to instrument for the number of commercial bankers and its interaction with cash flow. As with board size, we use the natural logarithms of (one plus) CRISIS and (one plus) the number of commercial bankers on the board. Column I replicates the baseline regression using the number of commercial bankers rather than our earlier indicator variable. In Columns II and III, we report the first

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its little skewness in the data, with a mean of 9.82, a median 9.25, and a standard deviation of 3.91. Nevertheless, we reestimate the regression of Table 4 using median tenure (and age) and find slightly stronger results. Moreover, the results are robust to including quadratic terms in median tenure and age and their interactions with cash flow. Finally, the results are robust to interacting the tenure variable with age and, in turn with cash flow. This control would address the argument that not only (relatively) long tenure, but also being young and active matters for director effectiveness (and might be captured by the CRISIS variable). Again, the results are not affected.

[10] Another way to address directly arguments suggesting that our CRISIS variable captures firms that are poorly run is to add additional controls for firm governance and its interaction with cash flow. We reestimate our regressions including the number of outsiders on the board as an additional control and find little impact on the results.

[11] We also address the concern about takeover pressure directly and reestimate the model starting in 1990 (after the takeover pressure largely subsided). We find similar results.

stage regressions of the number of commercial bankers and its cash-flow interaction on CRISIS and its cash-flow interaction. 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 the investment model after instrumenting for COMBANKER and its cash-flow interaction. The (COMBANKER)*(CF) effect is again negative and statistically significant. Evaluated at the mean and for the baseline year (1988), industry (agriculture), and S&P credit rating (none), investment increases by $0.34 for each dollar of cash flow. Adding a standard deviation of commercial banker presence to the board decreases this sensitivity by 27 cents, meaning that $1 of cash flow increases investment by only $0.07.

As a placebo test, we repeat the two-stage least-squares regressions using directors appointed between 1966 and 1975 in lieu of the instrument. 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 confirm that CRISIS appointments not only predict commercial banker presence on the board in the required direction, but are also "special" relative to appointments in other time periods. This uniqueness enhances the validity of CRISIS as an instrument: it strengthens the argument that the CRISIS variables matter because of the proposed banking crisis channel. Moreover, the placebo instrument provides direct evidence that CRISIS does not simply capture the effect of "stable and long-lasting directorship" on investment policy.

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. We now ask whether this effect is to the benefit or detriment of shareholders. Reduced investment-cash flow sensitivity per se is open to different interpretations. If the 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. Or, investment-cash flow sensitivity may be due to a managerial propensity to over-invest out of free cash flow. Then, bankers may increase value by acting as good monitors and inducing firms to cut investment towards the optimal level when internal cash flow is high. But, they may also inefficiently reduce invest-

ment-cash flow sensitivity by providing additional funds for (empire-building) managers to (over-) invest when cash flow is low. This story is particularly plausible since bankers have little incentive to induce efficient investment. Rather than maximizing shareholder value, creditors might seek to finance low-risk projects, especially given the low shareholdings of U.S. banks, relative to their loan volume (Gorton and Winton (2003)). Thus, our investment-cash flow results may reflect additional financing flowing to firms that are least in need.[12] We take several steps to distinguish these interpretations empirically.

1. Financing Constraints

A first step is to examine financial constraints. If the decrease in investment-cash flow sensitivity is the result of better access to external financing and less underinvestment, it should be most prominent 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. We employ several different proxies, proposed in previous literature. First, we construct the Kaplan-Zingles (KZ) index for our sample firms, following standard practice (Lamont, Polk, and Saá-Requejo, 2001; Baker, Stein, and Wurgler, 2003; Malmendier and Tate, 2005). Kaplan and Zingales (1997) argue that simple proxies like firm size and dividend payout do not correlate well with financing constraints.[13] 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. 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 greater financial constraints.

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

[13] 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.

Our first approach to measuring these constraints, then, is to split firms into constrained and unconstrained using the sample median of the (lagged) KZ index.

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 robustness 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.[14] For brevity, we report only the estimates using the KZ index. The alternative proxies lead to largely similar (and sometimes stronger) results.

Table 5 presents the split-sample regressions. In Panel (I), we replicate the most stringent specification of Table 3 (Column IV, including firm effects and firm-cash flow interactions) for each subsample. Note that, in this specification, we cannot easily interpret the coefficient of the level of cash flow: it depends on which firm dummy we omit from the regression, and it captures only the sensitivity of that one firm. We find that bankers reduce the sensitivity of investment to cash flow in *un*constrained firms, but not in constrained firms. Also, the positive level effect of COMBANKER is present only in the unconstrained subsample. The results are robust to the other specifications of the investment model in Table 3 (i.e. substituting industry for firm fixed effects).

These results cast doubt on the hypothesis that commercial bankers help to solve information problems between firms and capital markets. However, the value consequences of reduced investment-cash flow sensitivity remain ambiguous. Commercial bankers may decrease this sensitivity in unconstrained firms by preventing the abuse of free cash flow. On the other hand, they may facilitate overinvestment by providing additional capital to empire-building managers when free cash flow is low. The analysis of lending and lending affiliation in the next subsection allows us to disentangle these dif-

[14] When using credit ratings to split the sample, we drop firms that do not have rated debt from the analysis.

ferent interpretations. We will also test directly for funds flowing to constrained firms that the investment model does not detect.

2. Lending and Lending Affiliation

We use data on bank loans to further interpret the value consequences of the reduction in cash flow sensitivity provided by banker directors. 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 on the board. 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 to low-risk (or unconstrained) firms. This flow of funds would also suggest that bankers reduce investment-cash flow sensitivity *not* by curbing inefficient over-investment when cash flow is high, but instead by providing the funds to enable over-investment when cash flow is low.

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 6 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. The firm and board controls are 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 af-

fects loan pricing. As in previous literature[15], 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 7 presents the regression results. Column I shows that commercial bankers on the board are associated with an increase in loan size of more than $350m, even after including all the controls. The coefficient on the investment banker dummy is also positive, though smaller and not significant. Column II shows that the effect of commercial bankers 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, the results suggest that these firms receive more funds through loan financing.[16]

To test whether banker-induced loans help firms to overcome financial constraints, we replicate the methodology of Section II.B.1. That is, we split the sample into constrained and unconstrained firms and measure the impact of bankers separately in

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

[16] As in Section II.A., we check whether the effects of commercial bankers on loan size are concentrated in the first one or two years of the bankers' tenure on the board. We find some evidence that bankers indeed provide larger (affiliated) loans in their first two years on the board; however, they continue to be associated with larger loans through the remainder of their tenure. Interestingly, after the first two years, unaffiliated lending becomes a more important channel for the larger loans.

each subsample. 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 contrast, 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. Notably, the investment banker effect also becomes significant in the fixed effects regressions. Though there is some evidence that they increase loan size even among constrained firms, the coefficients across subsamples display a similar pattern to the COMBANKER estimates.

We also test whether bankers on the board influence the cost of borrowing, drawn and undrawn spread, controlling for deal size.[17] 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. We re-estimate the split sample results of Panel I in Table 5 with separate dummies for affiliated and unaffiliated commercial bankers.

We report the most stringent estimation, mirroring Column IV of Table 3, in Panel II of Table 5. This specification includes firm effects and the interactions of firm effects with cash flow. In the constrained subsample, the coefficients on both banker cash flow interactions (affiliated and unaffiliated) are *positive*, though insignificant. In the unconstrained subsample, instead, both coefficients are negative and significant. The affili-

[17] Table available upon request.

ated banker interaction (-0.375), however, is significantly larger than the unaffiliated banker interaction (-0.087). Thus, we find that the reduction in cash flow sensitivity depends strongly on the existence of a lending relationship with the director's bank.

We perform two robustness checks to test whether these findings identify the effect of a pre-existing bank-firm relationship rather than the impact of adding a banker-director who subsequently lends to the firm. 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. Second, we drop firm years that contain banker-directors who we cannot classify as affiliated 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 reduce sensitivity of investment to cash flow by encouraging additional borrowing, particularly from their own banks. However, the additional finance is not available to the most financially constrained firms (who are most likely to be underinvesting), suggesting that banker directors favor creditor over shareholder interests.

3. Post-Lending Performance and Capital Structure

As a final test of bankers' impact on shareholder value, we examine more directly whether firms that receive extra lending have profitable investment opportunities. That is, we analyze the value consequences of increased lending to unconstrained firms. We also ask whether the extra lending to unconstrained firms might provide benefits to shareholders that valuation ratios fail to capture. In particular, we test whether increased lending moves the firm closer to an optimal capital structure.

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.[18] We compare, separately for unconstrained and constrained firms (as of year 0), each of the performance measures among borrowers receiving affiliated loans, borrowers receiving unaffiliated loans and (as a benchmark) borrowers without banker-directors.

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. Throughout the seven-year window, the market perceives firms with affiliated loans to have the worst investment opportunities. There is little evidence of a "correction" in Q post-lending. 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 evidence is similar for measures of operating performance. Both in terms of ROA and ROE, 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. Thus, bankers may facilitate better financing decisions when they are not conflicted. Finally, the right column of Figure 2 shows that the performance of constrained firms does not differ across types of lending.

We also estimate the differences in valuation ratios in a regression framework, using the valuation ratios in years 1, 2, and 3 as dependent variables and controlling for their levels in year -1 and 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. 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 negative and significant for two of three affiliated-banker coefficients in each case. The coefficients 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. In summary, we find no evidence that firms receiving affiliated loans improve in valuation relative to other borrowers.

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

As a final step, we ask whether affiliated lending provides benefits to shareholders that the valuation ratios may fail to capture. In particular, lending might move a 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.

We test for significant and persistent increases in firm leverage following (affiliated) loans to unconstrained firms, using two definitions of leverage: (1) the sum of long-term debt and current liabilities divided by long-term debt plus current liabilities plus book equity for book leverage or divided by market capitalization for market leverage; (2) the difference in assets and book equity divided by assets for book leverage and divided by assets minus book equity plus market equity for market leverage. First, 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 the Fama-French 17 industry dummies.[19]

We find that affiliated bankers lead to a significantly larger increase in book leverage (using either measure) 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. The difference between unaffiliated and affiliated bankers, however, is not statistically significant and disappears by the end of the third year following the loan. Next, we generalize the 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. The results are similar under the first definition of leverage (i.e. affiliated, but not unaffiliated, bankers are associated with higher leverage and larger annual changes in leverage), but weaker under the second. Moreover, there are few significant estimates (for either the loan window or the full sample) if we consider market rather than book leverage, and even these rare cases are not robust across specifications (e.g. the inclusion

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

of firm versus industry effects in the whole sample regressions). Finally, the results are not robust to minor changes in variable definitions; e.g., the treatment of directors whose bank had a lending relationship with the firm prior to their appointment to the board.

There is evidence, then, that the larger loans provided by affiliated bankers carry through to book leverage.[20] However, the effects appear to be short-lived (relative to the impact of unaffiliated bankers) and not part of a systematic strategy to raise leverage.

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 poor internal investment opportunities. Thus, banker dierctors seem to act in the best interest of creditors rather than shareholders. 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 probability 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. External Investment and Public Debt Financing

Our findings so far suggest that financial experts do not improve the efficiency of internal investment decisions, particularly when affected by conflicts of interest. However, directors with financial expertise can also provide valuable input to external investment decisions, especially since major acquisitions require board approval. In this section, we analyze the impact of financial experts on acquisition decisions. The relevant (though conflicted) financial experts in this case are investment bankers. We also, as above, extend the analysis to financing decisions, focusing on the domain of investment bankers, public

[20] Note that the post-loan book leverage results allow us to refine the earlier loan size results. Repeating the loan-size estimations of Table 8 (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.

securities issues. Both as underwriters and (potential) advisors to acquisitions, investment bankers may need to choose between maximizing bank profits and shareholder value.

A. Acquisitions

First, we ask whether investment bankers help to prevent 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 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 Panel A of Table 8. 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 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.

First, we measure announcements effects over a (–2, +2) day event window around merger bids. Since the market beta is likely to be close to 1 for our sample firms, we calculate abnormal returns setting alpha equal to 0 and beta equal to 1. This assumption eliminates biases in the returns estimation due to noise in the joint estimation of alphas and betas. However, the results from a market model with estimated alphas and betas are similar. 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 is significantly lower if the acquiror has investment bankers on the board. Further, the 161 basis-point decline is roughly three times as large as the overall sample average.

In Panel B of Table 8, 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. The results confirm the pattern in the

means. The investment banker coefficient is negative and significant at the 10% level.

Second, we 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. The left graph of Figure 3 shows that, in firms with investment 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 in firms without investment bankers. 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.

We 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.[21] In Table 9, we show that stock returns over all three horizons are significantly lower for firms with investment bankers on the board, by 9 to 18 percentage points. These firms also underperform in terms of Q and ROA, though not always significantly. Thus, the initial underperformance of acquisitions with investment bankers on the board is not reversed over longer horizons. Instead, the gap in performance increases.

As a final robustness check, we ask whether differences in merger financing could explain our results. Loughran and Vijh (1997) show that stock mergers perform significantly worse than cash mergers. Firms with investment bankers on the board may be more likely to acquire using stock. 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, data on the form of payment is only available for about half of the sample, 718 out of the 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

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

bankers. To analyze whether this difference explains the results, we introduce dummy variables for 100% cash and 100% stock financing, "Cash Only" and "Stock Only." The omitted category is mixed financing.[22] We first rerun the regressions of Table 9 in the reduced subsample. The IBANKER coefficients are negative and of similar size as in the full sample, though not always significant. We then include the financing controls. The IBANKER coefficient remains negative at similar magnitudes and significance levels.

Our results are consistent with the hypothesis that investment banker directors are more prone to succumb to a CEO's value-destroying acquisitiveness than other directors. They may even induce acquisitions despite the lack of attractive targets, in the hope of increasing profits for their banks through advisory fees. Our data set does not allow us to differentiate these hypotheses. But, it 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 turn from investment to financing. Given their expertise, we analyze investment bankers' impact on public debt issues.[23]

We obtain contractual data on public debt issues for our sample firms from SDC. The summary statistics are in Table 10. 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. 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 11, we relate the presence of investment bankers on boards to the size and pricing of debt issues, controlling for firm, board, and contract characteristics. We

[22] 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.

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

employ borrower and deal characteristics that are likely to affect debt size and pricing, following previous empirical literature on public debt.[24] 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 size results. 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 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%.[25] In unreported estimations, we also find that investment bankers are associated with more frequent outside financing. 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 public debt issues is similar to

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

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

that of commercial bankers on loans. Investment bankers are associated with larger issues, especially when their bank is underwriting the issue. They are able to obtain lower underwriting fees – possibly due to their negotiation skills and industry networks – but do so only when the objective of maximizing fees to their bank does not get in the way.

IV. Financial Expertise in the Absence of Conflicts of Interests

As the last step in our analysis, we ask whether financial expertise may benefit shareholders in corporate decisions where the interests of financial institutions and shareholders do not conflict, but financial expertise is still valuable, namely the design of executive compensation. We also examine the role of financial experts with fewer (or no) conflicts of interest – finance professors, finance executives (CFOs, VPs for finance) and accountants, and executives of non-bank financial companies (e.g., venture capitalists) – in determining investment and financing policy and executive compensation.

The policy debate about executive compensation suggests that financial expertise may improve compensation policy along two dimensions: the size of executive option grants and pay-performance sensitivity. The common rationale for performance-based compensation – like stock and options – is to align CEO and shareholder interests. It is, however, debated whether the explosion of option compensation in the 1990s was the solution or, rather, the result of such agency problems. Bebchuk and Fried (2003) argue that stock options allowed CEOs to extract additional rents since options are less transparent than cash (e.g., they did not need to be expensed in annual reports) and therefore less likely to violate the shareholders' "outrage constraint." One argument for more financial literacy of directors is to prevent such abuses.

In Table 12, we test directly whether firms with more financial experts on their boards during our 1988-2001 sample period were indeed more immune to the explosion of option compensation.[26] Using the natural logarithm of one plus the Black-Scholes value of option grants as a dependent variable in fixed effects regressions and a standard set of controls (current and lagged stock returns, CEO age and its square, CEO tenure and its square, firm size, board size, the number of outside directors, and year fixed effects),

[26] For this analysis, we supplement the 1988-1994 data from Hall and Liebman with compensation data from ExecuComp for 1995 through 2003. To control for differences in the valuation of CEO option grants between the two data sets, we include an indicator variable for the ExecuComp sample years.

we find no evidence for this proposed benefit of board financial expertise despite the absence of conflicts of interest (Column I). If anything, finance professors appear to increase the size of options grants.

Second, we ask whether financial expertise affects the sensitivity of total (or cash) compensation to current and lagged stock performance using the empirical specification of Hall and Liebman (1998). Clearly, the value consequences of pay-to-performance sensitivity are difficult to assess. Morck, Shleifer, and Vishny (1988), for example, argue that managerial ownership, which increases pay to performance sensitivity, has a non-monotonic relationship with firm valuation (or Tobin's Q). Moreover, we ideally would measure how changes in performance affect CEO wealth (including existing stock and option holdings). Unfortunately, data on individual executive option packages (for the Execucomp sample years) is not available. On the other hand, financial expertise may be particularly valuable in firms which desire to increase the responsiveness of CEO decisions to performance. In Columns II and III, we use changes in the natural logarithm of one plus total compensation as the dependent variables; in Columns IV and V the same for cash compensation.[27] We find little evidence that financial expertise on the board matters. If anything, finance professors appear to actually *lower* than in firms without finance professors on the board. Again, even in the absence of conflicts of interest, there is little evidence that financial expertise matters at all for firm policy.

As a final step, we estimate the effects of non-bank financial experts on general investment policy within the framework 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 conflicts of interests by appointing financial experts without bank ties may also remove the channel through which financial expertise can affect financing decisions.

[27] To construct cash compensation, we splice cash compensation from ExecuComp (TCC) with the sum of salary and bonus from the Hall and Liebman data. To construct total compensation, we 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. We again include an indicator variable for Execucomp sample years to control for differences in the computation of option values in the two data sets.

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 cross-sectional analysis prevalent in previous literature. 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 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 acquisitions. 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. If anything, 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. Though the overall impact of financial experts on shareholder value is difficult to assess, specific policies – like financing, investment, and compensation – do not seem to improve when financial experts join the board of directors. Firms (and policy makers) must tradeoff potential improvements in monitoring against potential losses through the advisory channel when appointing (or mandating the appointment of) financial experts to the board.

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 1. 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 2. 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			
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 3
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%

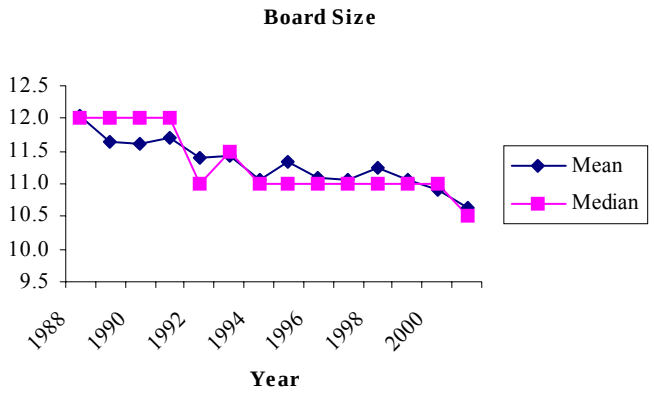

Figure 1. Board Size over the Sample Period. The figure shows the annual mean and median board size (number of directors on the board).

Table 4
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 5
Sensitivity of Investment on Cash Flow: Split-Sample Results

In Panel I, the specification of Table 4, Column III is re-estimated in the subsamples of constrained and unconstrained firms. The sample is split into subsamples at the median value of the Kaplan-Zingales index. In Panel II, the same specification is re-estimated, separating affiliated and unaffiliated commercial bankers. A commercial banker is affiliated if her bank has a prior lending relationship with the firm Industry indicators are coded according to the 48 Fama-French industry groups.

	(I)		(II)	
	Constrained	Unconstrained	Constrained	Unconstrained
Cash flow	-0.800	0.001	2.283	1.222
	(0.32)	(0.04)	(2.11)**	(2.66)***
(COMBANKER)*(Cash flow)	0.072	-0.096		
	(0.75)	(2.31)**		
(Affiliated C.B.)*(Cash flow)			0.113	-0.375
			(0.73)	(2.39)**
(Unaffiliated C.B.)*(Cash flow)			0.084	-0.087
			(0.74)	(1.90)*
(IBANKER)*(Cash flow)	-0.058	-0.011	0.012	-0.001
	(0.38)	(0.18)	(0.08)	(0.01)
COMBANKER	-0.003	0.055		
	(0.16)	(2.33)**		
Affiliated COMBANKER			-0.014	0.135
			(0.55)	(3.01)***
Unaffiliated COMBANKER			-0.003	0.056
			(0.14)	(2.08)**
IBANKER	0.013	0.011	0.000	0.007
	(0.47)	(0.41)	(0.00)	(0.25)
Q	0.057	0.007	0.057	0.010
	(2.12)**	(0.55)	(2.05)**	(0.71)
(Q)*(Cash flow)	-0.028	0.001	-0.027	-0.001
	(0.66)	(0.04)	(0.62)	(0.06)
Firm Size	0.017	0.019	0.022	0.011
	(0.51)	(0.85)	(0.68)	(0.44)
(Firm size)*(Cash flow)	-0.240	-0.110	-0.261	-0.087
	(1.19)*	(2.94)***	(2.08)**	(2.08)**
Board size	0.014	-0.012	0.018	0.005
	(0.23)	(0.18)	(0.30)	(0.09)
(Board size)*(Cash flow)	-0.005	-0.036	-0.056	-.062
	(0.01)	(0.37)	(0.15)	(0.69)
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
(Firm fixed effects)*(Cash flow)	yes	yes	yes	yes
Observations	1350	1364	1358	1352
Observations with (Affiliated C.B.)			97	61
Observations with (Unaffiliated C.B.)			258	287
R-squared	0.89	0.84	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 6
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 7
Commercial Bankers and Loan Size

OLS regressions with loan size (tranche) in $ millions as the dependent variable. Constrained (unconstrained) firms are those with a Kaplan-Zingales index that is above (below) the sample median. 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
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%

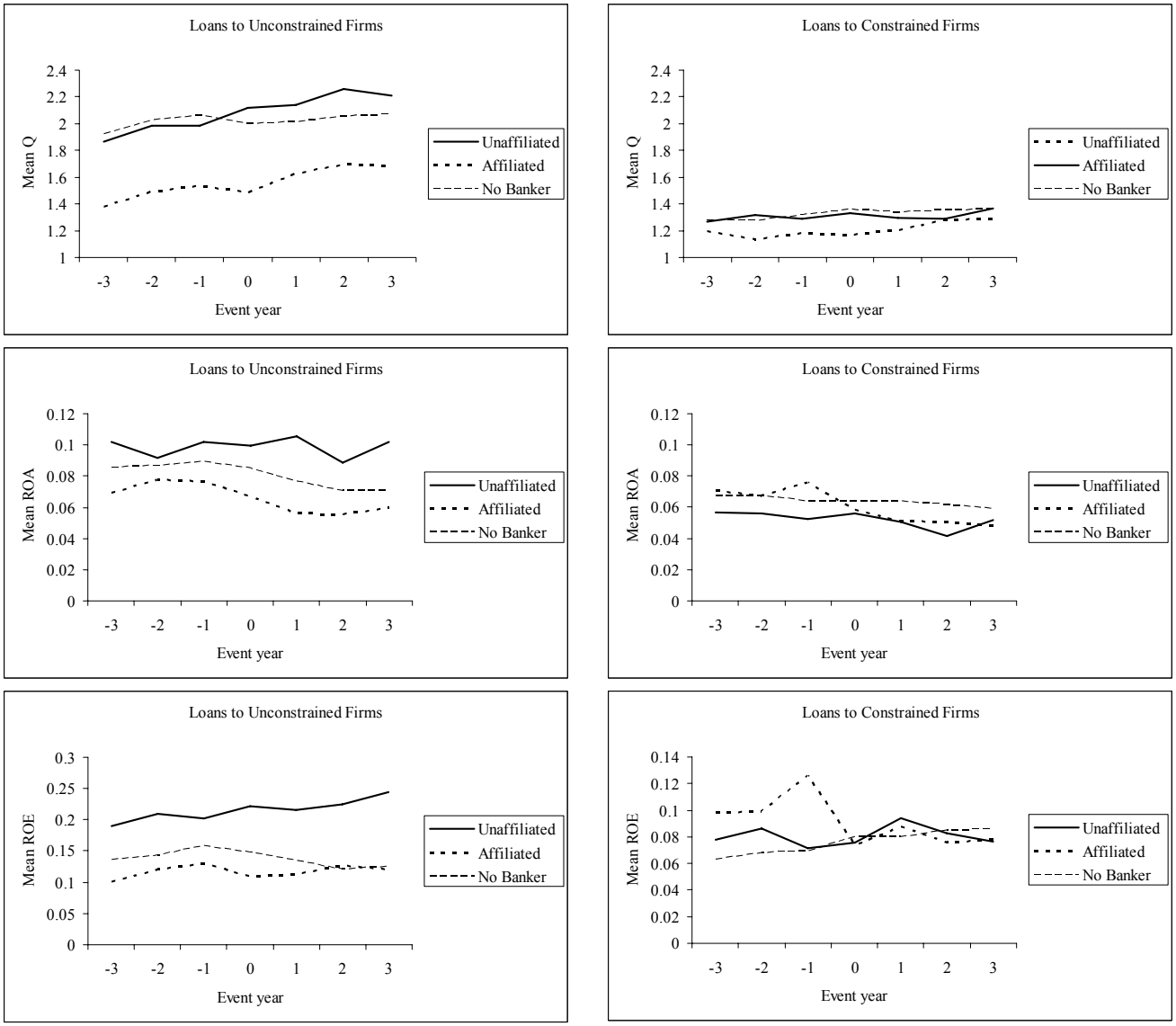

Figure 2. Firm Performance Conditional on Bank Borrowing. The figures depict the sample means of Tobin's Q, ROA and ROE among KZ-unconstrained and KZ-constrained firms. Year 0 denotes the year in which the firm has obtained at least one bank loan.

Table 8

Panel A. 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

Panel B. 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%

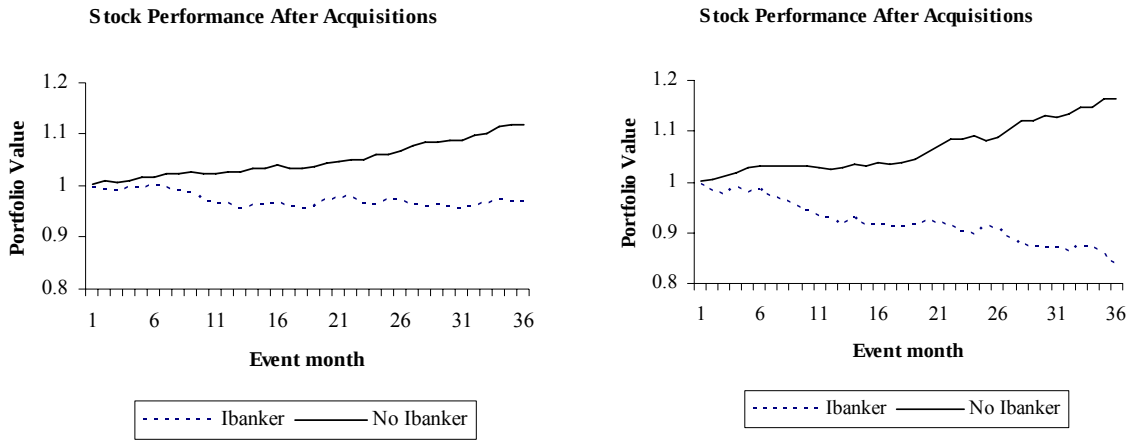

Figure 3. Stock Performance After Acquisitions. Starting the month following the acquisition, stock returns net of the market return are averaged for each "event" month during the 36-month period, separately for firms with and without an investment banker serving on the board. The monthly averaged returns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

Table 9
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 10
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 11
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 12
Financial Experts and Executive Compensation

The dependent variable in column (I) is the natural logarithm of one plus the Black-Scholes value of optio grants; in columns (II) – (III) the change in the natural logarithm of one plus total compensation; and in columns (IV) – (V) the change in the natural logarithm of one plus cash 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 a dummy variable which takes the value 1 in the Execucomp sample years. R is common stock returns over the fiscal year. Column (I) includes controls for outside directors, board size, and their interactions with R_t and R_{t-1}, as well as controls for firm size, CEO Age, CEO Tenure, (CEO Age)^2, (CEO Tenure)^2, year fixed effects and firm fixed effects. Director variables, including board size, are in numbers. Firm size is the natural logarithm of assets at the beginning of the year. Columns (II), and (IV) also include the interactions of outside directors and board size with Rt and Rt-1, Columns (IV) and (VI) include all prior controls and interactions of firm fixed effects with R_t and R_{t-1}.

	(I)	(II)	(III)	(IV)	(V)
Dependent Variable					
R_t	0.486	0.872	3.657	0.393	0.512
	(2.34)**	(2.75)***	(3.13)***	(3.39)***	(1.27)
R_{t-1}	0.071	-0.259	-2.364	-0.115	1.322
	(2.36)**	(0.60)	(1.56)	(0.70)	(2.39)**
Finance Professors	0.501	-0.016	-0.185	0.101	0.039
	(1.73)*	(0.15)	(1.31)	(1.70)*	(0.67)
(Finance Professors)*R_{t-1}		-0.691	0.048	-0.385	-0.104
		(1.88)*	(0.12)	(1.46)	(0.31)
(Finance Professors)*R_t		0.113	0.013	-0.284	-0.369
		(0.63)	(0.04)	(1.65)*	(1.59)
Fin Execs & Accountants	-0.041	-0.015	-0.043	-0.016	0.003
	(0.31)	(0.26)	(0.51)	(0.89)	(0.12)
(Fin Execs & Accountants)*R_{t-1}		-0.019	-0.172	0.029	0.007
		(0.17)	(0.86)	(0.53)	(0.11)
(Fin Execs & Accountants)*R_t		0.035	0.576	-0.019	0.044
		(0.26)	(2.21)**	(0.45)	(0.56)
COMBANKER	-0.064	0.067	-0.011	0.020	0.049
	(0.31)	(1.06)	(0.12)	(0.97)	(1.80)*
(COMBANKER)*R_{t-1}		-0.039	0.239	0.014	-0.147
		(0.19)	(0.56)	(0.23)	(1.25)
(COMBANKER)*R_t		0.028	-0.021	0.002	-0.057
		(0.15)	(0.05)	(0.04)	(0.52)
IBANKER	0.103	-0.016	-0.132	0.026	-0.004
	(0.45)	(0.17)	(0.96)	(1.05)	(0.12)
(IBANKER)*R_{t-1}		-0.339	0.383	-0.005	0.093
		(1.27)	(0.81)	(0.07)	(0.74)
(IBANKER)*R_t		0.169	0.027	-0.078	-0.109
		(0.97)	(0.07)	(1.27)	(0.95)
Execs of Non-bank Fin Cos	0.072	-0.045	-0.043	0.011	-0.001
	(0.73)	(1.22)	(0.75)	(0.89)	(0.06)
(Execs of Non-bank Fin Cos)*R_{t-1}		-0.051	-0.191	-0.003	-0.001
		(1.65)	(1.13)	(0.28)	(0.02)
(Execs of Non-bank Fin Cos)*R_t		0.093	0.178	-0.023	-0.012
		(1.29)	(1.14)	(0.90)	(0.26)
Observations	2909	2471	2471	2487	2487
R-squared	0.18	0.10	0.29	0.14	0.48

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