

External Networking and Internal Firm Governance*

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Abstract

External network ties between CEOs and directors in major U.S. corporations may limit the effectiveness of internal corporate governance. Using comprehensive biographical data on the managers and directors of S&P 1500 companies, we identify connections between directors and their firms' CEOs through external directorships, past employment, education, and other activities (e.g. golf clubs or charity organizations). Consistent with an expectation of weaker monitoring, we find that firms with powerful CEOs are disproportionately likely to add directors with ties to the CEO to the board. Once on the board, such directors are more likely to buy company stock in the open market at the same time as the CEO, even though there is no evidence that they (or the CEO) have better information than other outside directors. Their companies are also less likely to do company-prompted earnings restatements. Turning to real investment choices, we find that acquisitions are more frequent among firms with more connections between their directors and CEO, particularly when those directors serve on the executive committee. We also find that merger bids by such firms destroy value for shareholders: on average, bidding firms lose \$354 million in the three days surrounding merger bids, \$282 million more than bidders with fewer connections between the board and the CEO. Moreover, firms with more network ties between directors and the CEO have lower aggregate market valuations than other firms. Both valuation effects are most pronounced in firms with weak shareholder rights. Finally, we find little evidence that recent governance reforms have reduced the frequency of social ties between directors and their firms' CEOs, suggesting that a broader notion of independence, which accounts for social ties between directors and management, might increase the effectiveness of future governance reforms.

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1 Introduction

Executives and directors of major corporations are linked in many ways. They may serve together on the board of directors of another company or they may have worked together, either as employees or directors, in the past. They may also be connected outside their employment networks. Executives may play golf at the same country clubs, attend Business Roundtable meetings together, or serve as trustees for the same charitable organizations. Or, they may have graduated from the same MBA programs. Such network connections between the management groups of different firms may increase value for shareholders by creating conduits through which valuable information can flow from one firm to another.¹ However, pre-existing network connections between executives and directors *within* a firm may undermine independent corporate governance, reducing firm value.²

We test whether network connections between management and potential directors influence director selection and subsequent firm performance. We find that firms with more powerful chief executive officers (CEOs) are more likely to add new directors with existing network ties to the CEO. Consistent with closer ties to the CEO, these directors are more likely to buy company stock at the same time as the CEO, even though their trades do not predict strong future performance relative to other directors' trades. Moreover, their presence appears to be correlated with weaker monitoring: firms with such directors are less likely to do internally-prompted earnings restatements, though the overall frequency of restatements is the same as other firms. Such directors also have a significant impact on corporate policies: firms with more directors who share external network connections with the CEO make more frequent acquisitions. Their merger bids destroy \$365 million of shareholder value on average, \$282 million more than the bids of other firms. Moreover, these poor decisions appear to result in lower overall market valuations, particularly in the absence of strong shareholder rights to substitute for board monitoring. Finally, we test whether the Sarbanes Oxley Act of 2002

¹For background on the formation of social networks and the role of networks in organizations, see, for example, Watts (2003), Kilduff and Tsai (2003), McPherson, Smith-Lovin, and Cook (2001), Laumann (1973), and Marsden (1987).

²Subrahmanyam (*forthcoming*) constructs a model in which firms trade off information flow about managerial ability against lax monitoring in deciding whether to add networked directors to the board.

(SOX) mitigates the impact of network ties on corporate policies, finding largely negative results.

Following the wave of corporate scandals to begin the decade, lawmakers mandated increases in the independence of corporate boards. Major U.S. exchanges now require the majority of directors in listed firms to be independent. In addition, new regulations have heightened independence requirements for key board committees. For example, audit committees must now consist entirely of independent directors. Yet, there is little empirical evidence linking greater board independence to better firm performance. One potential reason for this empirical failure is the endogeneity of board selection. For example, Hermalin and Weisbach (1998) show that poorly-performing firms increase board independence in equilibrium, undermining the cross-sectional relation between independence and performance. However, Hermalin and Weisbach (1991) and Bhagat and Black (2000) fail to find evidence that board independence improves firm performance, even controlling for this effect.³ Another possibility is that empirical (and statutory) notions of director independence fail to capture the true ideal modeled in corporate governance theories. Directors who share social connections to the CEO may qualify as independent directors, but not perform the intended role as unbiased monitors.

We use a panel data set of S&P 1500 firms to measure the prevalence and impact of directors with network ties to the CEO in large U.S. corporations. We construct several proxies for network connections, using detailed biographical information on CEOs and directors. In each year, we identify directors who share a current employment position outside the firm with the CEO (in most cases, these positions are external directorships). In addition, we identify directors who are active members of the same non-professional organizations as the CEO (e.g. golf clubs or charities). We also consider the employees' personal histories. We identify directors who shared past memberships in non-professional organizations with the CEO, directors who were employed by the same company as the CEO in the past (excluding the current company) and directors who attended the same educational institutions as the CEO. For our main empirical analysis, we construct an aggregate measure of connectedness which sums the connections of all types between each director and the CEO. We also do extensive robustness checks on

³See Hermalin and Weisbach (2003) for a survey of the extensive empirical literature testing the relation between board independence and performance.

the specification of the measure and investigate the specific connections that are responsible for its explanatory power for corporate decisions.

As with independence, the direct impact of network ties to the CEO on firm performance is difficult to assess due to endogenous director selection. We take several steps to address this concern. Throughout the paper, we exploit the time series dimension of our data: We separate the impact of networked directors from latent firm (or board) characteristics by measuring how decisions change when director network ties to the CEO change. Going a step further, we exploit exogenous changes in network ties due to director death or retirement to measure the impact of connections on firm outcomes. We also show that individual director-level decisions are influenced by network ties to the CEO and test whether the selection of directors with pre-existing network ties to the CEO is consistent with an expectation by the CEO of weaker monitoring. By confirming each step of the mechanism through which ties between directors and the CEO impact firm-level decisions, we can more easily interpret regressions linking firm performance directly to board composition.

We begin by analyzing the director selection decision. As bargaining power over the director selection process shifts toward the CEO, the choice of director should be more in line with the CEO's preferences (Hermalin and Weisbach, 1998). If directors with social ties to the CEO are less effective monitors, then firms with more powerful CEOs should be more likely to add connected directors to the board. We consider four common measures of CEO power from prior literature: consolidation of the titles CEO, chairman of the board, and president (Morck, Shleifer, and Vishny, 1989; Adams, Almeida, and Ferreira, 2005); CEO tenure (Hermalin and Weisbach, 1988); the entrenchment index (Bebchuk, Cohen, and Ferrell, 2004); and the ratio of CEO compensation to compensation of the next highest paid firm executive (Hayward and Hambrick, 1997; Bebchuk, Cremers, and Peyer, 2007). Restricting attention to the sample of newly appointed outside directors, we find that firms with powerful CEOs are significantly more likely to choose directors with pre-existing network connections to the CEO. The result is robust to controlling for director characteristics like age and expertise as well as year and industry fixed effects.

Next, we ask whether network ties to the CEO affect director decision-making. We analyze

directors' insider trading decisions in company stock and, in particular, their open market purchases.⁴ Insider trades provide the opportunity to observe and compare active individual decisions of the firm's directors, making the impact of network ties to the CEO on the dynamics of board decision-making easier to separate from firm-level determinants. The firm's independent directors are likely to have similar individual incentives with respect to open market purchases of company stock. However, we find that directors with network ties to the CEO are significantly more likely than other outside directors to purchase stock within 5 days of a CEO stock purchase. The pattern also holds in aggregate: networked directors are more likely than other directors to be net buyers over the fiscal year if the CEO is a net buyer. The results are robust to controlling for director characteristics, like financial expertise, as well as year and firm fixed effects. We test whether the heightened correlation of trading decisions among networked directors and the CEO represents selective information flow within the board. However, we find no evidence of differences in the abnormal returns earned by networked directors and other outside directors over the 10, 30, 60, or 90 trading days following their transactions. Thus, our results support the hypothesis that directors with social network connections to the CEO are more influenced than other directors by the CEO.

We then test whether these closer ties to the CEO translate into more lax monitoring. We find that the frequency of earnings restatement is not significantly different among firms with more directors who have network connections with the CEO. However, conditional on restating earnings, the action is significantly more likely to be prompted by an outsider than by the company itself among firms with more connected directors. Thus, director network ties to the CEO appear to impede internal monitoring and lead to more management-friendly boards.

Next, we test whether friendly boards have value consequences for the firm's claimholders. We focus first on discrete policy choices around which we can measure changes in stock prices. Specifically, we test for differences in the merger and acquisition policies of firms with (more) directors with network ties to the CEO.⁵ We find that such firms acquire at a heightened

⁴Focusing on purchases removes the impact of scheduled selling or sales related to option expiration from our analysis and allows us to better isolate active director decisions.

⁵Mergers are an obvious policy to analyze not only because we can easily observe the market's reaction, but also because we find that directors with ties to the CEO are disproportionately likely to serve on the executive committee (which has the responsibility to analyze and approve major investment projects).

rate. The result holds when we use firm fixed effects to isolate the impact of changes in director - CEO network ties and when we restrict our attention to exogenous changes in those ties due to director deaths and retirements. We then measure the market reaction around the deals to determine the value consequences of this heightened acquisitiveness for shareholders. Excess acquisitiveness may represent an additional failure of monitoring: the CEO's friends on the board may be unwilling to oppose value-destroying policies which provide private benefits to the CEO. It could also represent a failure by the board to perform its advisory role: the CEO's friends may be less likely to bring distinct information to the policy debate. On the other hand, Adams and Ferreira (2007) argue that friends on the board could improve value through the advisory channel: shareholders may accept weaker board monitoring in exchange for better policy advice if CEOs are reluctant to share information with truly independent directors. Consistent with the former theories, we find that the average cumulative abnormal return for the three day window surrounding merger announcements is lower for firms with a higher percentage of connected directors on their boards and that the average value created by the deals (for acquiring shareholders) is negative. We also find that the value destruction is concentrated in firms with weak shareholder rights – measured by the Gompers, Ishii, and Metrick (2003) index – suggesting that external governance can substitute for a lack of board oversight. Finally, we extend our analysis of firm value beyond the reaction to specific investment policies. We measure the impact of exogenous changes in network connections between directors and the CEO due to death and retirement on Tobin's Q. We find that firm value is lower when connectedness of the firm's independent directors to the CEO is higher, and, again, particularly when shareholder rights are also weak.

Overall, our results suggest that social ties between directors and the CEO undermine the effectiveness of internal governance mechanisms. Directors who share a social network with the CEO appear less inclined to speak against the CEO. A natural question is whether the new regulations concerning board structure implemented post-SOX have reduced the frequency with which such directors are added to corporate boards. Though there have been significant increases in board independence following SOX, even among firms which already complied with its provisions prior to 2002, we find no evidence of a significant decline in either the fraction of directors connected with the CEO serving on corporate boards or on the propensity of firms

to choose such directors when adding new members to the board. Thus, an expanded notion of independence could be an effective lever for future governance reform.

Our paper contributes to recent research on the role of social networks in financial markets. Evidence on the value implications of network connections is mixed. Hochberg, Ljungqvist, and Lu (2007) find that network connections based on business interactions increase performance in the venture capital industry. Similarly, Cohen, Frazzini, and Malloy (*forthcoming*) find that mutual fund managers invest more heavily and profitably in firms to which they are connected via education networks. Fracassi (2008) finds greater correlation in investment policies and higher ROA among firms which share more network connections through their leadership teams, consistent with value-increasing information flow. Kuhnen (2007), on the other hand, finds evidence of reduced performance in the mutual fund industry due to preferential hiring of directors who are connected to the advisory firm through other funds. Nguyen-Dang (2008) finds that CEOs with better external connections through cross-directorships are less likely to be fired following poor performance. In addition, several papers find evidence that network connections through cross-directorships lead to higher executive compensation (Larcker, Richardson, Seary and Tuna, 2005; Barnea and Guedj, 2007; Hwang and Kim, *forthcoming*).

Our analysis builds on the latter set of literature, which analyzes the governance effects of network connections within the firm. We differ from prior analyses in several ways. First, we use a broader set of panel data than most existing studies (2,080 firms; 9 years; 20,016 directors), allowing us to identify network effects out of within-firm changes and using exogenous shocks to network ties due to director deaths and retirements. We also consider a broader notion of networks⁶, focusing not only on interlocking directorships, but also on current and past employment networks, other social activities, and education. Moreover, we focus on direct connections between directors and the CEO that imply a personal relationship and not on indirect chains of connections through third parties or broad similarities in background designed to capture homophily. We also analyze the impact of connections between directors and the CEO on individual director-level choices, namely insider stock purchases. This analysis further addresses the endogeneity of board composition by showing not only that directors with

⁶The exception is Fracassi (2008) which uses definitions of network connections similar to those in our analysis.

network ties to the CEO make different individual decisions than other directors within the same firm, but also that their decisions are more aligned with the CEO, providing direct evidence for the economic mechanism linking network ties to firm outcomes. Finally, we provide novel evidence on the value implications of network ties between directors and the CEO by measuring the market’s reaction to discrete investment decisions (merger bids) by firms with and without director network ties to the CEO.

The remainder of the paper is organized as follows. In Section 2, we describe the data and the construction of the main variables we use in our empirical analysis. In Section 3, we test the impact of network ties between directors and the CEO on director selection, decision-making, and firm performance. Section 4 concludes.

2 Data and Variable Definitions

The core of our data set is biographical information on the directors and top five disclosed earners of large U.S. companies, obtained from the BoardEx database of Management Diagnostics Limited. The panel data includes all companies that were part of the S&P 1500 at any point between 1999 and 2007. For each year, we observe demographic information on each of the firms’ directors and top earners, including age, gender, and nationality. We also observe detailed information on their professional and leisure activities. We observe their current place of employment and job title and all corporate boards on which they sit, including information on the board committees on which they serve. We also have information on their annual compensation from each individual source, broken into cash and equity-based components. In addition, we have detailed information on their employment histories, including organizations in which they work, roles, role descriptions, and years of employment. Outside of the professional realm, we observe other organizations – like charities and leisure clubs – to which they belong, the roles they perform in those organizations and the years in which they are members. Finally, we observe their educational histories, including institutions attended and degrees earned.

We use this biographical data to construct several binary measures of network connections

between outside directors and the CEOs of their firms. We consider connections of four types: current employment (CE), past employment (PE), education (ED) and other activities (OA). Current employment connections are typically external directorships in the same firm. Past employment connections capture shared prior employment in any firm *excluding* the firm for which we are measuring social ties between the CEO and the board. Education connections require that the director and CEO attended the same school at the same time. Other activities connections are shared memberships in clubs, organizations, or charities. Prominent examples from our data include Boy Scouts of America, US Business Roundtable, United Way of America, Conference Board Inc, Augusta National Golf Club, American Bar Association, and American Institute of Certified Public Accountants. The latter two examples raise the concern that some OA connections could proxy for various forms of expertise, rather than social ties between the CEO and director. To mitigate this concern, we require active membership in the organization in our definition of OA connections. Thus, for example, a director and CEO who are both members of the American Bar Association would not have an OA connection, but a director and CEO who are both officers would qualify.⁷ We also include direct measures of expertise (e.g. indicator variables for lawyers, accountants, and other financial experts) as control variables in our regressions.

Our main measure of social ties, SNI, aggregates the number of connections of all four types between the outside director and the CEO. For example, a director of GE who went to business school with the CEO and once served together with the CEO on the board of Citibank would receive a social network score of 2. We require past employment and education to occur at the same time to qualify as a network connection, but we do not impose this restriction on other activities.⁸ We also consider several alternative specifications of the measure as robustness

⁷This restriction makes little difference to our results. For some activities – like membership in Augusta National Golf Club – *any* membership is likely to be an “active” membership (since the purpose of the organization is to engage in social activity). We also estimate a specification in which we relax the requirement of active membership for these types of social clubs, with little impact on the results (available upon request).

⁸Though our information on education, employment and other activities is comprehensive, we do not always observe the start and end date for each endeavor. This problem is most severe for other activities. In this case, we do not observe the start date roughly 53% of the time and the end date 38% of the time. For these observations, we cannot classify a director and CEO as linked if we require overlapping tenures. Including them in the control sample may severely attenuate the measured impact of network connections on decision-making. However, the error in our specification is likely to be small. Most of the other activities – like golf memberships and charitable work – are long-lasting activities, so that two members for whom we do not observe the exact

checks. We consider a binary, rather than cumulative measure of connectedness. That is, we classify a director and CEO as connected if they share at least one external network connection. In addition, we recalculate the SNI measure excluding current employment connections, to distinguish our findings from existing studies on the impact of cross-directorships on corporate decision-making. Our results are qualitatively similar under these alternative specifications.

To perform our analysis, we match the biographical data from BoardEx with director, executive, and firm level information from several sources. We add information on insider trades from the Thomson Financial Database of Insider Filings. We limit our analysis to open market stock transactions with codes “P” or “S.” To measure corporate investment choices at the project level, we merge our data with the SDC Platinum Mergers & Acquisitions Database. We include disclosed value deals involving U.S. targets. We check the robustness of our findings to including non-U.S. targets, but exclude this analysis from our main results since only a (potentially non-random) portion of our sample is active in these markets. We also exclude leveraged buyouts, exchange offers, repurchases, spinoffs, minority stake purchases, recapitalizations, acquisitions of remaining interest, self-tenders, and privatizations.

We obtain firm-level financial information from the Compustat Database. We use the natural logarithm of the ratio of the market value of assets to book value to proxy for Tobin’s Q. The book value of assets is total assets. The market value of assets is total assets plus the market value of equity minus the book value of equity. The market value of equity is the fiscal year closing stock price times common shares outstanding. The book value of equity is total stockholders equity [or, if that is missing, the first available of total common equity plus total preferred stock or total assets minus total liabilities] minus the liquidating value of preferred stock [or, if that is missing, the first available of the redemption value of preferred stock or total preferred stock] plus deferred taxes and investment tax credit (if available). We measure cash flow as income before extraordinary items plus depreciation scaled by the lag of total assets. ROA is income before extraordinary items plus interest expense scaled by the lag of total assets.

We obtain information on corporate earnings restatements from the Government Account-

start and end dates are highly likely to have overlapping tenures.

ability Office (GAO), including the date of each restatement and the identity of the party who prompted it. The most common reason for restatements in our sample is improper cost accounting (43%). Other prominent reasons are improper revenue recognition (25%), errors related to the restructuring of assets or inventory (15%)⁹, and improper accounting for derivatives, warrants, stock options, and other convertible securities (14%). The three most common prompters in our data are the company (65%), auditors (14%), and the SEC (9%).

Finally, we retrieve two firm-level governance measures constructed using data from the Risk-Metrics Group: the Gompers, Ishii, and Metrick (2003) governance index, which essentially adds the number of anti-shareholder charter provisions, and the Bebchuk, Cohen, and Ferrell (2004) entrenchment index, which refines the Gompers, Ishii, and Metrick measure by considering only a subset of 6 charter provisions which are most related to managerial entrenchment.

Table I contains summary statistics of the data. In Panel A, we summarize the demographic information on directors as well as our social networking index and its components. The data contains 106,071 director-year observations on 20,016 distinct directors. The average age in the sample is 59.57 and the average director tenure is 8 years. Roughly 70% of director-years are served by independent directors and 10% by women. On average, directors sit on 1.5 boards. In roughly 17% of director-years, the director shares a connection with the CEO (SNI>0). The most common sources of network connections are past employment and other activities and the least common are education and current employment. This pattern is reassuring, since cross-directorships (i.e. current employment connections) are the most challenging to separate from other firm- and industry-level differences. In Panel B, we summarize the firm-level data. Our sample consists of 11,270 observations on 2,080 firms. The average firm is large, with assets of \$14 billion. The typical board has roughly 9 members, 69% of whom are independent. Finally, Panel C presents the distribution of firm-years across the 12 Fama-French industry groups.

In Table II, we present the pairwise correlations of key variables in our analysis. Panel A presents director-level variables. Notably, most of the director characteristics have little correlation with the SNI measure. Not surprisingly, independence is an exception: the correlation of independence with SNI is -0.41 (significant at the 1% level). Thus, we will be careful to

⁹Examples for this category include improper timing of asset write-downs or goodwill.

distinguish the impact of network connections from independence throughout our analysis. In Panel B, we present correlations of the firm-level variables. Here, again, the correlations between SNI and firm characteristics are generally low.

3 Empirical Analysis

Directors with social ties to the CEO may be less likely to oppose management in the boardroom, weakening corporate governance and ultimately reducing firm value. The relation between firm performance and board composition, however, is difficult to test directly due to the endogeneity of director selection. Thus, we break the problem into several steps, providing evidence of the mechanism linking network connections to firm performance, before ultimately measuring the performance relation itself. In Section 3.1, we begin by asking which firms add directors to the board who have network ties to the CEO. If CEOs have an expectation of weaker monitoring by directors with whom they share network ties, firms in which the CEO has influence over the director selection process should be most likely to add the CEO’s friends to the board. As an important pre-condition to weaker monitoring (or other impacts on firm outcomes), we then test whether such directors behave differently from other directors once on the board, and, in particular, display individual preferences more like the CEO. In Section 3.2, we analyze individual director-level decisions to trade in company stock, showing that the trades of directors with ties to the CEO are more correlated to the CEO than the other board members, even though this correlation does not increase trading profits. We then test whether the presence of such directors indeed leads to weaker monitoring. In Section 3.3, we show that the frequency of internally prompted financial restatements is lower in firms with more external network ties between the CEO and “independent” directors. Then, in Section 3.4, we analyze the value consequences of weaker governance for shareholders. We first show, at the project level, that firms with more ties between the CEO and board appear to inefficiently overinvest in acquisitions. Then, using the exogenous shock to network ties provided by director deaths and retirements, we show that this weaker governance leads to lower market valuations, particularly in the absence of strong shareholder rights. Finally, in Section 3.5, we measure the impact of recent governance reforms on the incidence of external network ties between CEOs

and “independent” directors.

3.1 Director Selection

We begin by analyzing the firm’s choice of new directors. If CEOs prefer to have their friends on the board because they expect weaker monitoring, then we should see more directors with network ties to the CEO added in firms in which the CEO is more powerful. In such firms, the CEO has more bargaining power over the director selection process.

We test this prediction using four measures of CEO power: CEO tenure (Hermalin and Weisbach, 1988), the entrenchment index (Bebchuk, Cohen, and Ferrell, 2004), the ratio of CEO compensation to compensation of the next highest paid executive in the firm (Hayward and Hambrick, 1997; Bebchuk, Cremers, and Peyer, 2007), and consolidation of the titles CEO, chairman of the board, and president (Morck, Shleifer, and Vishny, 1989; Adams, Almeida, and Ferreira, 2005). We identify all outside directors added to the board during our sample period and measure their connectedness to the CEO at the time they join the board using the SNI index. We then regress the SNI index on each of the four power measures. We cluster the standard errors at the firm level to account for the possibility that director additions within the same firm are not independent.

Columns 1 through 4 of Table III present the results. For three of the four measures – consolidation of the titles CEO, chairman of the board, and president (BOSS); the entrenchment index; and the ratio of CEO compensation to compensation of the next highest paid executive – we find, as predicted, that non-executive directors added to the board in firms with more powerful CEOs have more existing network ties to the CEO. The effect also appears to be economically significant. For example, mean connectedness is 0.0986 in firms for which BOSS = 0. So, increasing BOSS to 1 is associated with a roughly 20% increase in average connectedness among newly appointed directors. For the fourth (and perhaps noisiest) power measure, CEO tenure, we find essentially no impact on director SNI.

Since these measures are noisy proxies for CEO power, we also use principal component analysis to identify common information in the variables, yielding a single CEO power “index.” The

output of this procedure is a basis of eigenvectors for the data. The first principal component is the eigenvector with the largest associated eigenvalue and explains the largest fraction of the variance in the data. In our sample, both the first and second principal components have eigenvalues greater than 1. The first principal component, which explains 28% of the variance, loads positively on the entrenchment index (coefficient = 0.73) and negatively on CEO tenure (-0.67) and has only a modest relation to the other two power measures (BOSS = 0.08 and compensation ratio = 0.10). The second principal component, which explains 27% of the variance, has a positive loading on all four measures (BOSS = 0.80; CEO tenure = 0.42; compensation ratio = 0.34; entrenchment index = 0.26). Given these loadings, the second principal component appears to be the best candidate for an index measure of CEO power. In our regressions, we include both the first and second principal components as independent variables. Including the first principal component and excluding the third and fourth is not important for our results (i.e. the estimated coefficient of the second principal component), since the principal component vectors are orthogonal to each other by construction. Nevertheless, the coefficient on the first principal component provides a placebo comparison for the coefficient estimate of interest.

In Column 5 of Table III, we present the results of regressing SNI on the first two principal components of the four power measures. We confirm that CEO power, measured by the second principal component, has a positive association with network connections between new directors and the CEO. In Column 6, we add controls for age, independence, ROA, Q, and firm size to the regression. Not surprisingly, connections between new directors and the CEO are more common when the director is older. They are also more common in larger, and worse-performing firms. However, the effect of CEO power remains positive and statistically significant. In Column 7, we add fixed effects for the Fama-French 49 industry groups and in Column 8 we supplement the industry effects with year fixed effects. The industry effects are particularly important as they account for the possibility that certain businesses require a specific expertise in the management team and that individuals with such expertise simply happen to share connections through various professional organizations. The industry effects appear to dampen the coefficient on CEO power, though it remains positive and significant, while the year effects appear to be orthogonal to the effect of CEO power on connectedness.

We perform several robustness checks on the evidence. First, we include a variety of additional controls for director characteristics and expertise that may be correlated with the SNI measure. We include indicator variables for female directors, directors with financial education, engineers, accountants, lawyers, and academics. The effect on our results is negligible. In the Column 6 specification, the estimated coefficient on the second principal component adding these additional controls is 0.019 with a t-statistic of 3.20.

Overall, our evidence supports the hypothesis that CEOs prefer to have their friends on the board to reduce the board's diligence. Newly appointed directors are more likely to have network ties to the CEO in firms with powerful CEOs consistent, for example, with the theoretical predictions of Hermalin and Weisbach (1998). One alternative interpretation of the evidence, however, is that connected directors and powerful CEOs have higher ability. Under this interpretation, they are more likely to have network connections because their services are in higher demand by outsiders. One piece of evidence that is less consistent with this interpretation is that our result holds even if we measure connections using *only* other activities – like charities and golf clubs – in which both the CEO and director participate. In the Column 6 specification, for example, the coefficient on the second principal component is 0.017 with a t-statistic of 3.88 using this notion of network connections as the dependent variable. Thus, our result does not depend on including employment connections which may be contaminated by CEO or director ability.

3.2 Director Decision-making

Our next step is to test for a link between the decision-making of CEOs and the directors with whom they have network connections. To perform this test, we must observe individual decisions made by each of the company's directors and the CEO. We focus on insider trading decisions and, particularly, on open market purchases of company stock. Unlike insider sales which often occur on pre-determined schedules, open market purchases are active, discretionary decisions made by each individual director and executive. We focus on outside directors to control not only for differential access to firm information between executive and outside directors, but also for any restrictions the firm may place on executives' trades in company stock

(relative to outside directors).

Outside directors all have similar incentives in making trading decisions. They should purchase stock if they believe that future performance will be strong and either (1) they wish to profit from expected future appreciation or (2) they wish to signal their beliefs to the market. In either case, these trades provide us the opportunity to measure whether the revealed beliefs of directors with network ties to the CEO are more in line with the beliefs of the CEO than other directors. We consider the subsample of outside director years in which the director made at least one open market transaction in company stock (either a sale or purchase). We exclude non-trading directors to separate the effect of ties with the CEO on the *timing* of trading from the (potential) effect of ties with the CEO on the propensity to trade.¹⁰

We construct an indicator variable which takes the value one if the outside director purchases company stock within 5 days of the CEO.¹¹ We then run a logit regression with this indicator as the dependent variable and the SNI measure of network connections to the CEO as the independent variable. Column 1 of Table IV contains the results. Again, all standard errors are clustered at the firm level, to correct for the (potential) dependence of purchase decisions at the firm level. Coefficients are presented as odds ratios. We find that social network ties to the CEO significantly increase the likelihood that the outside director will purchase stock within 5 days of the CEO. In Column 2, we add director-level controls for age, tenure on the board, gender, and independence. We also include year effects to account for the possibility that all executives and directors trade together, but there are more directors with network ties on the board in times when the incentive to purchase is high. Not surprisingly, we find that independence significantly decreases the likelihood that the director will buy stock within 5 days of the CEO. Tenure on the board also has a negative effect. We still find that network ties increase the correlation between CEO and outside director trades. In Column 3, we include firm fixed effects in the regression in addition to the full set of controls from Column 2. We use a conditional logit specification to avoid the incidental parameters problem and obtain

¹⁰It turns out that this control is not important. Our results still hold including non-trading directors in the control group, suggesting that network ties are not a significant determinant of the decision to trade in company stock.

¹¹Our results are not dependent on the 5 day cutoff. We find qualitatively similar results, for example, using a 10 day cutoff.

consistent coefficient estimates. This specification controls for time-invariant differences across firms in the propensity for outside directors to mirror the CEO's trades. We identify the impact of SNI on the likelihood of buying stock within 5 days of the CEO by comparing directors with (stronger) connections to the CEO to directors with no (weaker) connections to the CEO *within the same firm*. We again find that directors with network ties are more likely to buy stock within 5 days of the CEO. To calculate the economic magnitude of the effect, we consider the impact of increasing the (mean) director's SNI by one standard deviation. In the Column 1 specification, this increase would increase the odds of trading at the same time as the CEO by roughly 12%. In the Column 3 specification, the increase would be roughly 20%.¹²

In Columns 4 to 6 of Table IV, we examine the net trading of outside directors during the fiscal year. We again restrict attention to directors who made at least 1 insider trade during the fiscal year. We identify a director (or the CEO) as a net buyer if the aggregate value of her open market purchases during the fiscal year exceeds the aggregate value of her sales.¹³ In Column 4, we regress the net buyer indicator on SNI, an indicator for whether the CEO is a net buyer during the fiscal year, and the interaction of SNI with the CEO net buyer indicator. We use an OLS specification to estimate the regression (despite the binary dependent variable) because the quantity of interest is the interaction effect. In a linear specification, the coefficient estimate on SNI times the CEO net buyer indicator provides a valid measure of the interaction effect. We find that outside directors are generally more likely to be net buyers if the CEO is also a net buyer of company stock during the fiscal year. However, the effect is significantly more pronounced if the director has network ties to the CEO. Thus, the timing pattern from Columns 1 to 3 carries through to aggregate changes the directors make in their holdings of company stock during the fiscal year. In Column 5, we add the set of controls from Column 2 to the regression both in levels and interacted with the CEO net buyer indicator. From the interactions of the controls with the net buyer indicator, we see that independence and tenure on the board continue to reduce the correlation of outside directors' trades with the

¹²A different way to gauge the economic importance of the effect is to compute the impact of adding a first network tie to the CEO to a director with no existing ties. We re-estimate the logit regressions with a binary version of SNI (i.e. a variable taking the value 1 if the director has at least 1 network connection to the CEO). Here, the odds ratios in the Columns 1 and 3 specifications, respectively, are 1.4 and 1.55.

¹³We obtain similar results if we define net buyer using the number of purchases minus the number of sales or the number of shares purchased minus the number of shares sold.

CEO, though the effect of independence is no longer statistically significant. The level effects of the controls on the likelihood of being a net buyer also reveal interesting patterns. Directors with longer tenure are less likely to be net buyers of company stock, but, perhaps surprisingly, independent directors are more likely to be net buyers. Both effects are strongly significant. We confirm that outside directors are more likely to be net buyers if the CEO is also a net buyer and, again, that the effect is significantly more pronounced if the director has network ties to the CEO. Finally, in Column 6, we add firm fixed effects and their interaction with the CEO net buyer indicator to the regression specification. Among the controls, the interaction of tenure with the net buyer indicator becomes economically and statistically insignificant. However, the interaction of the gender control with net buyer is now positive and strongly significant. The coefficient of interest, the interaction of SNI with CEO net buyer, remains positive, but is no longer significant at conventional levels.

Mirroring Section 3.1, we perform several robustness checks on the evidence. First, we replicate the analysis using the alternative version of SNI which removes current employment connections from the definition. Here, current employment connections might capture access to better information about current market conditions rather than the impact of social connectedness, particularly if directors with ties to the CEO also generally have more external network ties. We find similar results using this alternative measure. For example, the coefficient estimate of SNI in the Column 3 specification is 1.55 with a t-statistic of 2.87. The results are also robust to additional controls for various forms of director expertise: financial education and indicators for lawyers, accountants, engineers, and academics.

Overall, the results suggest a stronger correlation between the decisions of CEOs and outside directors with whom they have network ties. One interpretation is that the CEO selectively shares profitable information about the firm with his friends on the board. Another possibility is that directors with network ties to the CEO are “yes-men,” who, in the context of trading, simply replicate the CEO’s strategy. We look at cumulative abnormal returns around directors’ purchases to test for evidence of timed trading based on favorable information. We measure daily abnormal returns as the difference between the daily stock return and the daily return on the CRSP value-weighted index. We construct cumulative abnormal returns beginning the day

after the director’s purchase and ending 10, 30, 60, and 90 trading days later. As the length of the event window increases, the mean cumulative abnormal return among outside directors becomes more difficult to interpret due to the joint hypothesis problem: a positive effect is consistent either with informed trading or a mis-measurement of expected returns. However, measurement error should affect equally outside directors with and without network ties to the CEO. Thus, we focus on the difference in cumulative abnormal returns between the two types of directors.¹⁴ If the CEO shares better information with outside directors with whom he has network ties, then cumulative abnormal returns following these directors’ trades should be more positive than the returns following other directors’ trades. In untabulated estimations, we find no evidence of differences – economically or statistically – in the cumulative abnormal returns following purchases by directors with network ties to the CEO and other outside directors over any of the four horizons. The results are similar adding controls for director age, tenure, gender, independence and financial education as well as indicators for accountants, lawyers, academics, and engineers. They are also similar if we add year and firm fixed effects. Thus, our findings are difficult to reconcile with a story in which directors with network ties time their trades to match the CEO due to better access to firm information. In the remaining sections, we explore how directors with connections to the CEO perform in a monitoring and advisory capacity to shed additional light on the value implications of such network connections for claimholders.

3.3 Monitoring

The decision-making of outside directors with network ties to the CEO appears to be less independent of the CEO than the decision-making of other outside directors. Next we ask whether this tighter link with the CEO also affects the diligence with which they monitor management. We use data from the General Accountability Office to identify fiscal years in which sample firms did financial restatements as well as the party who prompted the restatement. We then test two hypotheses related to the intensity of board monitoring. First, we ask whether the

¹⁴We do find that mean cumulative abnormal returns are positive and significant over all three horizons. However, mean CARs are also positive (and significant over the three longer horizons) for director *sales*, which is difficult to reconcile with an information interpretation.

number of directors on the board with external network ties to the CEO predicts the frequency with which the firm does earnings restatements. Second, we condition on the firm doing an earnings restatement during the fiscal year and ask whether the number of directors with ties to the CEO predicts the frequency with which the restatements are internally prompted.

In the left panel of Table V, we test the first hypothesis. In Column 1, we run a logit regression on the full sample of firm years with a binary dependent variable indicating an earnings restatement during the next fiscal year and the number of external network ties between the firm's independent directors and the CEO as the explanatory variable. In Column 2, we add several board, executive, and firm level controls to the analysis. At the board level, we control for board size, the number of independent directors, the number of directors with financial education, and the number of accountants on the board. We also control for measures of CEO experience and expertise: CEO tenure and indicator variables for CEO education and accounting expertise. At the firm level, we control for firm size, Q, cash flow, and market leverage. Since restatements may cluster in time, particularly in the wake of the Enron and Worldcom scandals, we add year fixed effects to control for correlation of this clustering with any time patterns in the measure of director ties to the CEO. In Column 3, we include firm fixed effects in addition to the controls from Column 2. This specification identifies the effect of directors with network ties to the CEO using only within-firm variation in the number of connected directors over time. Thus, we can separate the impact of network ties from time-invariant differences in the frequency of earnings restatements across firms. Columns 4 and 5 replicate the specifications of Columns 2 and 3, but include controls for CFO tenure, finance education, and accounting expertise as additional controls. Studies in the accounting literature find that these variables and firm leverage are the most important predictors of earnings restatements (Aier, Comprix, Gunlock, and Lee (2005)). We include them in separate specifications, rather than in Columns 2 and 3, since we only have information on CFO expertise for companies in which the CFO is one of the top five disclosed earners. Thus, the tests in Columns 4 and 5 are less powerful and the specifications are only defined on a non-random subsample of the data. All standard errors account for clustering at the firm level.

Our results are fairly consistent across the five columns. Among the controls, we find that the

number of independent directors reduces the frequency of earnings restatements, consistent with independence as a measure of monitoring incentives. Larger firms are more likely to do restatements. We confirm that leverage increases the likelihood of restatement, but only in the cross-section. We find some evidence that earnings statements are less common in firms with better prospects (measured by Q). Firms are also less likely to do earnings restatements when they have an accountant as the CEO. Surprisingly, the CFO variables have little predictive power in our regressions. Turning to the variable of interest, we find no evidence that the number of network ties between independent directors and the CEO predicts a difference in the likelihood of earnings restatements.

In columns 6 and 7, we test our second hypothesis. We restrict the sample to firm years in which we observe an accounting restatement. We then run a logit regression with a binary dependent variable indicating that the restatement was internally prompted. We run two specifications, one with the set of controls from Column 2 and one adding the CFO controls to the specification.¹⁵ Few of the control variables are significantly related to the likelihood that the company itself prompts the restatement. However, the effect of the number of network ties between independent directors and the CEO is strong and negative. For a one standard deviation change in the number of ties to the CEO (roughly 2), the odds that a restatement is prompted internally decrease by roughly 30%.

Together, our results are consistent with weaker monitoring by boards with more external network ties to the CEO. Company insiders are less likely to prompt earnings restatements when directors are more connected to the CEO, but this lower frequency of internally-prompted restatements is not indicative of an overall lower frequency of earnings restatements. The value implications of these results, however, depend on the relation between director ties to the CEO and the true frequency of accounting errors, which is unobserved. One possibility is that outsiders bridge the gap in internal monitoring. In this case, director ties to the CEO weaken board monitoring, but do not ultimately destroy value for shareholders. Another possibility is that the implied higher frequency of externally-prompted restatements indicates a higher

¹⁵We do not include a specification with firm fixed effects. To identify the networking variable in such a regression, we would need a sufficiently large (selected) sample of firms in which we observe at least 2 restatements and changes in the networking variable between the various restatements.

overall frequency of mistaken financial statements among such companies. In this case, weaker internal monitoring by boards with more network ties to the CEO – indicated by the lower frequency of internally-prompted restatements – allows more fraud to go unreported. Such misbehavior could have negative value consequences for shareholders. But, it is important to note that in either case we confirm our main hypothesis – that network ties between directors and the CEO weaken board monitoring. In the next section, we analyze directly the impact of network ties between (statutorily) independent directors and the CEO on the firm value.

3.4 Real Investment and Shareholder Value

In addition to monitoring management, directors can influence firm policy, both directly and by providing advice to company management. In the latter role, independence may be particularly valuable since it can increase the flow of distinct and unbiased information to company executives. Conversely, a board in which the independent directors are tied to the CEO may produce less diversity of opinion or dissent when it meets, to the detriment of the firm’s claimholders.

In this section, we test whether more network ties between independent directors and the CEO affect firm policies and shareholder value. To identify policy variables over which such directors are likely to have influence, we begin by analyzing the board committees on which they serve. We estimate logit regressions on the sample of non-executive directors using binary indicators for membership on the executive, audit, compensation, or nominating committees as dependent variables. We include several observable director characteristics as controls: age, tenure, gender, independence, and several indicators of specific expertise (lawyers, academics, engineers, and financial education). We also estimate the regressions both with and without firm and year fixed effects. Table VI displays the results. All standard errors are adjusted for firm-level clustering. The control variables generally have the expected effects: for example, independent directors and directors with financial education are disproportionately likely to serve on the audit committee, even controlling for firm and year fixed effects. We find that directors with external network ties to the CEO are over-represented on the executive committee. Since major investment projects, such as acquisitions, fall within the purview of this commit-

tee, we focus the remainder of our analysis on firms' decisions to acquire other companies. We ask first whether there are differences in the frequency with which firms engage in acquisitions depending on the extent to which the board is tied to the CEO and, second, whether there are differences in the value implications of mergers for the acquirers' shareholders.

In Table VII, we analyze the effect of network ties on merger frequency. We estimate a logit regression in which the binary dependent variable indicates at least 1 merger bid in excess of \$10 million during the fiscal year. In Column 1, we present the baseline regression including only the number of ties between independent directors and the CEO, measured at the beginning of the fiscal year, as an explanatory variable. We find a modest positive effect: increasing network ties between the firm's independent directors and the CEO by one standard deviation increases the odds of making an acquisition by roughly 15%. In Column 2, we add standard firm and board level controls: board size, board independence, cash flow, Q, and market leverage. We find a positive impact of cash flow, Q, and board size on acquisition frequency. The effect of network ties decreases in magnitude, but remains statistically significant.

In the context of mergers, the impact of network ties between the board and CEO are particularly challenging to interpret due to endogeneity concerns. Firms may have lots of network ties between directors and the CEO because they have done acquisitions in the past and added directors from the target companies. Or, firms may add directors with lots of network connections (including, potentially, to the CEO) in anticipation of pursuing future acquisitions and utilizing information they can gather through those network conduits. We take several approaches to try to isolate the causal effect of director network ties to the CEO on the firm's acquisition policies. First, as in prior sections, we introduce firm fixed effects in a conditional logit estimation. The fixed effects capture time-invariant differences across firms in acquisitiveness. This specification addresses the concern that there are more network ties between independent directors and the CEO in certain firms due to differences in the type of firm, e.g., firms which grow by acquisition versus firms which grow through internal investment. We report the results in Column 3. The estimated impact of director ties to the CEO on acquisition frequency is similar to the baseline estimate from Column 1. Thus, our results do not appear to be driven by time-invariant differences across firms.

This specification, however, does not rule out the possibility that firms add directors with more external network ties, and therefore also more ties to the CEO, leading up to acquisitions. To address this story, we consider shocks to the network ties between independent directors and the CEO due to director deaths and retirements. We then identify the impact of network ties on acquisitions using only these exogenous within-firm changes in the networking measure. First, we construct a variable which counts the number of independent directors *with network ties to the CEO* who have died during the sample period up to the current fiscal year. We use this instrument in a firm fixed effect specification so that the identifying variation is only the changes in network ties to the CEO among the firm’s directors due to deaths. We also modify the endogenous connections variable to count only the number of directors with connections to the CEO rather than the total number of connections. Our instrument does not have a clear prediction for the total number of ties that should be severed when a connected director dies; however, it does predict unambiguously that the total number of connected directors should decrease. To be valid, the instrument must also be excludable from the second stage regression with merger frequency as the dependent variable. It is clear that these directors are not leaving the board due to the firm’s acquisition policies. Some correlation between director deaths and merger frequency could arise, however, if *any* sudden change in board composition (including the death of an *unconnected* director) causes the firm to refrain from making acquisitions. This channel is unlikely to explain our results since any such effect is likely to be short-lived and, while the board is important in approving or rejecting acquisitions, it is the CEO and top management who typically instigate and drive M&A deals. We also identify a second instrument: retirement of directors with network ties to the CEO. We define a director departure as a retirement if the director is at or beyond the company’s retirement age. The logic of this instrument is similar to director death. However, retirement does allow more room for endogenously timed departure. Though companies set a mandatory retirement age, we do observe that some directors remain on the board beyond the scheduled retirement year. While it is conceivable that directors may decide to step down following restructuring events like an acquisition, it is unlikely that such timing explains our results. Any effect of short run timing of retirement on merger frequency should be short-lived (and average out in our multi-year panel analysis) unless the networked directors who retire following deals would have had a direct

positive impact on the probability the firm completes future deals. But, the latter possibility is exactly the effect we are measuring.

We report the results from the instrumental variables regressions in Columns 5 and 6. We use a two-stage least squares procedure for estimation, so the coefficients are not directly comparable to the odds ratios reported in Columns 1 through 4. Column 5 reports the first stage estimation regressing the number of independent directors with network ties to the CEO on the two instruments, our prior set of control variables and firm and year fixed effects. As expected, both the death and retirement instruments have a strong negative impact on the number of directors tied to the CEO. A Wald test rejects at the 1% level the hypothesis that the instruments have no effect on the endogenous variable. In Column 6, we report the second stage estimation, which regresses the binary indicator of merger activity during the fiscal year on the controls and the variation in the number of networked directors predicted by the instruments. As in the prior estimations, we find a positive, and marginally significant, effect. We also verify that we cannot reject the overidentifying restrictions of the model (p-value = 0.89). Economically, a one standard deviation change in the number of independent directors with network ties to the CEO increases merger frequency by roughly 0.75 standard deviations.

Finally, we tie our results back to our finding from Table VI that directors with network ties to the CEO are most likely to sit on the executive committee. We test whether the impact of networked directors on merger frequency is indeed highest when networked directors sit on the executive committee. One obstacle to this test is that we must restrict our sample to companies which have an identifiable executive committee, lowering the power of our analysis. Nevertheless, Column 4 reports the results of the conditional logit analysis using the number network ties between independent directors on the executive committee and the CEO as the explanatory variable. We also add additional controls for the size and independence of the executive committee. As anticipated, we find an economically stronger positive impact of networked directors on merger frequency. A one standard deviation increase in the number of network ties between the executive committee and the CEO increases the odds of conducting an acquisition by roughly 35%.

Our results on merger frequency have several possible interpretations. If firms underinvest on average, then the extra mergers we observe when the board has closer ties to the CEO could increase shareholder value. In this case, less true independence on the board is optimal, since it removes a roadblock toward implementing value-improving projects. In the absence of frictions leading to underinvestment, however, extra mergers may represent empire-building overinvestment by the CEO, to the detriment of shareholders. In this case, stricter analysis of potential deals by an independent board might improve investment decisions. To distinguish these possibilities, we analyze the market reaction to merger bids. To ensure that deals are large enough to impact the stock price of firms in our sample of S&P 1500 companies, we require that the value of the transaction is at least 10% of the acquirer’s market capitalization at the beginning of the fiscal year in which the deal takes place.¹⁶ We measure daily abnormal returns as the return to the acquirer’s stock minus the same day return on the CRSP value-weighted index. We report cumulative abnormal returns over the three day window (-1, +1), where day 0 is the date on which the firm announces the merger bid. We cluster standard errors by event date to control for cross-sectional return correlation.¹⁷ Row 1 of Table VIII reports the market reaction to all merger bids in our sample (Column 1), stock bids (Column 3), and cash bids (Column 4). We also split merger bids based on the acquirer’s level of the Gompers, Ishii, Metrick (2003) governance index. Column 5 reports the cumulative abnormal returns to bidders with governance index levels below the sample median (10) and Column 6 reports CARs for bidders above the median. Our results are consistent with prior findings: The average bid has a modest negative impact on the acquirer’s stock price. Cash bids have positive and significant CARs, but stock bids have stronger (in magnitude) negative CARs. Bids by companies with weak shareholder rights have negative and significant CARs, but bids by companies with strong shareholder rights have an insignificant impact on acquirer value.

The remaining rows report returns to bidders depending on the connectedness of the acquirer’s directors to the company’s CEO. We measure the percentage of the firm’s independent directors

¹⁶Many prior studies instead use a 5% threshold (see, e.g., Morck, Shleifer, and Vishny (1990)). Our results are robust to using the lower threshold. However, our results appear to be strongest for the largest deals with the greatest implications for the acquirer’s shareholders.

¹⁷Since few events in our sample overlap in time, clustering has little impact on the standard errors. The results are also robust to clustering at the firm level, as elsewhere in the paper.

who have external network ties to the CEO. We then split the sample at the median and compute the CAR to merger bids separately in each group. The final row on the table reports the magnitude and statistical significance of the difference between the market's reaction to bids by firms in the two groups. In Column 2, we repeat the exercise, but restricting attention to the set of acquirers with an executive committee and splitting the sample based on the median percentage of independent directors on the executive committee with network ties to the CEO. We find in Column 1 that the mean CAR to merger bids among firms with a high degree of connectedness between independent directors and the CEO is negative and significant (73 basis points over three days). Among firms with few or no connections, on the other hand, the mean CAR is positive (43 basis points), though insignificant. The difference between the two groups (1.2%) is statistically significant at the 5% level. Thus, value destruction appears to be concentrated among firms with less true independence of the directors from the CEO. In Figure 1, we verify that this short-term loss is not reversed in the long run. Though long run abnormal returns themselves can be difficult to interpret due to the joint hypothesis problem, we see no evidence of performance reversals *comparing* returns to mergers between the high and low connectivity subsamples.

We also do several additional cross-group comparisons of the short run market reaction to merger bids. In Column 2 of Table VIII, we compare CARs among firms with more and fewer connections between the CEO and executive committee, finding similar results. We find little difference in the frequency of stock bids between firms with more and fewer connections between directors and the CEO. Thus, the negative CARs are not explained by differences in financing choices. Most interestingly, we find that the market reacts negatively only to the merger bids of firms with more ties between independent directors and the CEO *and weak shareholder rights*, as measured by the Gompers, Ishii, and Metrick index (Column 6). When shareholder rights are strong, the mean market reaction to merger bids is small and insignificant in firms with and without director ties to the CEO (Column 5). Likewise, in firms with few connections between directors and the CEO, but weak shareholder rights, there is a positive and insignificant mean market reaction to merger bids. This result suggests that strong shareholder rights can substitute for strong internal governance: only when both types of governance are weak do we see excess investment to the detriment of the shareholders.

Finally, to quantify the value destruction due to merger bids, we multiply the three day CAR times the pre-bid acquirer market capitalization for each merger bid. On average, merger bids in the high connections subsample destroy \$365 million in shareholder value, \$282 million more than the average bid in the low connections group.¹⁸

Having established a link between network ties and value destruction at the project level, we ask whether such ties reduce firm value in aggregate. Following prior literature, we measure firm value using Tobin's Q (i.e. the natural logarithm of the ratio between the market and book value of assets).¹⁹ A direct regression of firm value on the SNI measure of connections between directors and the CEO is problematic to interpret due to endogeneity concerns. To circumvent this problem, we identify only the *change* in firm value around exogenous shocks to the external network ties between firms' directors and the CEO due to director deaths or retirements.²⁰ In Columns 2 and 3 of Table IX, we report the results of a two stage least squares estimation of firm value on the number of independent directors with external network ties to the CEO, using death and retirement to instrument for connections and including firm fixed effects.²¹ We correct the standard errors for clustering at the firm level and include controls for firm and board size, board independence, and market leverage. We find that reducing the number of connected directors on the board significantly increases firm value. Economically, removing a director with a network tie to the CEO from the board improves firm value by roughly 20% of a standard deviation. Interestingly, greater board independence is associated with significantly higher firm value (controlling for the network ties to the CEO among the independent directors). Larger firms and firms with higher leverage also have lower valuations.

¹⁸Interestingly, the bulk of this difference comes in stock, and not cash deals. Even though the difference in CARs between high and low connection firms is larger in magnitude for the cash deals, this finding suggests that the larger size of stock deals leads to a greater loss in dollar value.

¹⁹See, e.g., Morck, Shleifer, and Vishny (1988) or Villalonga and Amit (2006).

²⁰We report a "naive" pooled OLS regression of Q on SNI and controls in Column 1 of Table IX simply for comparison.

²¹In the performance context, the retirement instrument may be more problematic with respect to the exclusion criterion. That is, the extent to which directors are able to stay beyond the firm's mandatory retirement age may be related to performance (although the most obvious direct effect would seem to go the wrong way to explain our result). To address this concern, we re-estimate the IV regressions using only the death instrument. The results are similar. Though not statistically significant in the full sample, the impact of network connections is actually stronger in the weak shareholder rights subsample than we estimate using both instruments (-0.139; t=2.5).

Mirroring Table VIII, we split the sample at the median of the GIM governance index and re-estimate the IV regressions on the two subsamples. We find that the implied improvement in firm value from removing a connected director is stronger in the subsample of firms with high index values, or weak shareholder rights (roughly 30% of a standard deviation versus 10% improvement in firms with strong shareholder rights). Thus, again, network ties between management and the board appear to be most problematic in the absence of other governance mechanisms to substitute for board monitoring.

3.5 Corporate Governance Reform

Thus far, we have found evidence consistent with the hypothesis that directors with external network ties to the CEO are less likely to oppose the CEO, even when it would improve shareholder value. One interesting question is the extent to which recent governance reforms following SOX have impacted the appointment of such directors to corporate boards. Romano (2005), for example, argues that reforms mandating increased board independence are window-dressing since firms can circumvent the requirements by hiring directors who satisfy the statutory requirements for independence, but who are nonetheless captured by the CEO. If so, the stronger independence requirements enacted by the exchanges following the passage of SOX in 2002 may increase the rate at which directors with network ties to the CEO are added to U.S. corporate boards. On the other hand, it is possible that SOX (indirectly) decreased the incidence of such appointments due to the closer scrutiny placed on firms' governance practices. In the latter case, the implications of our results for shareholders, directors, and the policy debate would be minimized.

To address these possibilities, we consider the time series of board composition during our sample period. In the top panel of Figure 2, we graph the percentage of independent directors on S&P 1500 boards over the 2000 to 2006 time period and the percentage of independent directors with external network ties to the CEO. We also split the sample into firms which were compliant with the SOX mandate of at least 50% independent directors at the end of the last fiscal year to end prior to passage of the legislation and firms which were not. Confirming the patterns in Duchin, Matsusaka, and Ozbas (2007), we find a sharp increase in board

independence beginning in 2002 and continuing through 2005. We also see convergence in the percentage of independent directors among firms which were compliant with SOX prior to its passage and firms which were not. On the other hand, we see no pattern in the percentage of independent directors with network ties to the CEO over time: the frequency of such directors stays roughly constant throughout the sample period. In the bottom panel of the figure, we replicate this analysis for new appointees to the board, finding a similar pattern. Thus, the evidence does not appear to be consistent with the hypothesis that firms have actively manipulated board composition following SOX to replace non-independent directors with independent directors who are nevertheless closely tied to management. However, we also do not find a significant decline in the rate at which directors with ties to the CEO are added to corporate boards. Thus, these ties to the CEO remain an important issue for optimal board composition and corporate governance design.

4 Conclusion

A well-functioning board of directors provides both valuable advice to management and a check on its policies. An effective director should not only “rubber stamp” management’s actions, but also take a contrarian opinion when management’s proposals are not in the interest of the firm’s shareholders. Thus, it is important to identify director characteristics which affect their ability or willingness to bring valuable new information into the firm and to properly perform their monitoring role. Our results suggest that adding directors with external network ties to the CEO may undermine the effectiveness of corporate governance. Such directors may not only share the CEO’s point of view, but may also lose valuable external social ties by properly performing their monitoring responsibilities. In the latter sense, social ties may be more problematic than a mere lack of independence.

We find that firms with powerful CEOs are significantly more likely to add such directors to the board, consistent with an expectation that they will be weaker monitors. We then test this hypothesis directly. First, we show that such directors make individual decisions that are indeed more aligned with the CEO: they are significantly more likely than other non-executive

directors to buy company stock on the open market within 5 days of the CEO. However, despite the correlated trading, there is no evidence in their trading profits to suggest that they have better information about the firm than their peers on the board. We then look at the frequency with which firms restate their earnings. We find little difference in the rate of restatements depending on the number of ties between independent directors and the CEO. However, we find that restatements are significantly less likely to be prompted from within the company in firms in which the board is more tied to the CEO, consistent with weaker monitoring.

We then ask whether network ties to the CEO affect the board's oversight of corporate decisions. Because directors with such connections are most likely to serve on the executive committee, we consider firms' acquisition policies. We find that the number of ties between the independent directors and the CEO positively predicts the frequency of acquisition, particularly among directors on the executive committee. The results are robust to several strategies designed to address the endogeneity of board composition and acquisition policies. Moreover, the extra acquisitiveness does not appear to benefit shareholders. We find that the market reacts (more) negatively on average to the merger bids of firms with more connections between directors and the CEO. And, we find that exogenous shocks to board composition which reduce connections between directors and the CEO improve aggregate firm value.

Finally, we find two results which inform the debate about optimal corporate governance. First, we find some evidence that external governance mechanisms can substitute for weak internal governance. The negative reaction to merger bids among firms with many network ties between independent directors and the CEO (as well as reduced Tobin's Q) are strongest in firms with weak shareholder rights. Second, we find little evidence that recent governance reforms have had an impact, either positive or negative, on the incidence of ties between CEOs and directors on the board who are supposed to provide independent oversight. Thus, such connections may be a productive target for future governance reforms.

References

- [1] Adams, Renee, Heitor Almeida and Daniel Ferreira, 2005, Powerful CEOs and Their Impact on Corporate Performance, *Review of Financial Studies* 18, pp. 1403-1432.
- [2] Adams, Renee and Daniel Ferreira, 2007, A Theory of Friendly Boards, *Journal of Finance* 62, pp. 217-250.
- [3] Aier, Jagadison, K., Joseph Comprix, Matthew T. Gunlock and Deanna Lee, 2005, The Financial Expertise of CFOs and Accounting Restatements, *Accounting Horizons* 19(3), pp. 123-135.
- [4] Barnea, Amir and Ilan Guedj, 2007, CEO Compensation and Director Networks, Mimeo.
- [5] Bebchuk, Lucian Arye, Alma Cohen and Allen Ferrell, 2004, What Matters in Corporate Governance? Harvard Law School John M. Olin Discussion Paper No. 491.
- [6] Bebchuk, Lucian Arye, Martijn Cremers and Urs Peyer, 2007, CEO Centrality, NBER Working Paper No. 13701.
- [7] Bhagat, Sanjai and Bernard Black, 2000, Board Independence and Long-Term Firm Performance, University of Colorado working paper.
- [8] Cohen, Lauren, Andrea Frazzini and Christopher Malloy, *forthcoming*, The Small World of Investing: Board Connections and Mutual Fund Returns, *Journal of Political Economy*.
- [9] Duchin, Ran, John G. Matsusaka and Oguzhan Ozbas, 2007, When Are Outside Directors Effective? Mimeo.
- [10] Fracassi, Cesare, 2008. Corporate Finance Policies and Social Networks. Mimeo.
- [11] Gompers, Paul, Joy Ishii and Andrew Metrick, 2003, Corporate Governance and Equity Prices, *Quarterly Journal of Economics* 118(1), pp. 107-155.
- [12] Guner, A. Burak, Ulrike Malmendier and Geoffrey Tate, 2008, Financial Expertise of Directors, *Journal of Financial Economics* 88(2), pp. 323-354.
- [13] Hayward, Matthew and Donald Hambrick, 1997, Explaining the Premiums Paid for Large Acquisitions: Evidence of CEO Hubris, *Administrative Science Quarterly* 42, pp. 103-127.
- [14] Hermalin, Benjamin and Michael Weisbach, 1988, The Determinants of Board Composition, *Rand Journal of Economics* 19(4), pp. 589-606.
- [15] Hermalin, Benjamin and Michael Weisbach, 1991, The Effects of Board Composition and Direct Incentives on Firm Performance, *Financial Management* 20(4), pp. 101-112.
- [16] Hermalin, Benjamin and Michael Weisbach, 1998, Endogenously Chosen Boards of Directors and Their Monitoring of the CEO, *American Economic Review* 88, pp. 96-118.
- [17] Hermalin, Benjamin and Michael Weisbach, 2003, Boards of Directors as an Endogenously Determined Institution: A Survey of the Economic Literature, FRBNY Economic Policy Review.

- [18] Hochberg, Yael, Alexander Ljungqvist and Yang Lu, 2007, Whom You Know Matters: Venture Capital Networks and Investment Performance, *Journal of Finance* 62(1), pp. 251-301.
- [19] Hwang, Byoung-Hyoun and Seoyoung Kim, *forthcoming*, It Pays to Have Friends, *Journal of Financial Economics*.
- [20] Kilduff, Martin and Wenpin Tsai, 2003, *Social Networks and Organizations*. Sage Publications.
- [21] Kuhnen, Camelia, 2007, Social Networks, Corporate Governance and Contracting in the Mutual Fund Industry, Mimeo.
- [22] Larcker, David, Scott Richardson, Andrew Seary and Irem Tuna, 2005, Back Door Links Between Directors and Executive Compensation, Mimeo.
- [23] Laumann, Edward, 1973, *Bonds of Pluralism: The Form and Substance of Urban Social Networks*. Wiley.
- [24] Marsden, Peter, 1987, Core Discussion Networks of Americans, *American Sociological Review* 52, pp. 122-131.
- [25] McPherson, Miller, Lynn Smith-Lovin and James Cook, 2001, Birds of a Feather: Homophily in Social Networks, *Annual Review of Sociology* 27, pp. 415-444.
- [26] Morck, Randall, Andrei Shleifer and Robert Vishny, 1988, Management Ownership and Market Valuation: An Empirical Analysis, *Journal of Financial Economics* 20, pp. 293-315.
- [27] Morck, Randall, Andrei Shleifer and Robert Vishny, 1989, Alternative Mechanisms for Corporate Control, *American Economic Review* 79, pp. 842-852.
- [28] Morck, Randall, Andrei Shleifer and Robert Vishny, 1990, Do Managerial Objectives Drive Bad Acquisitions? *Journal of Finance* 45(1), pp. 31-48.
- [29] Nguyen-Dang, Bang, 2008, Does the Rolodex Matter? Corporate Elite's Small World and the Effectiveness of Boards of Directors, Mimeo.
- [30] Romano, Roberta, 2005, The Sarbanes-Oxley Act and the Making of Quack Corporate Governance, *Yale Law Review* 114, pp. 1521-1611.
- [31] Subrahmanyam, Avanidhar, *forthcoming*, Social Networks and Corporate Governance, *European Financial Management*.
- [32] Villalonga, Belen and Raphael Amit, 2006, How Do Family Ownership, Control and Management Affect Firm Value? *Journal of Financial Economics* 80, pp. 385-417.
- [33] Watts, Duncan, 2003, *Six Degrees: The Science of a Connected Age*. W.W. Norton & Company.

Table I
Summary Statistics

Social Network Index is the sum of Current Employment Connection, Prior Employment Connection, Education Connection, and Other Activity Connection. Current Employment Connection indicates that both the director and CEO currently serve externally in at least one common firm. Prior Employment Connection indicates that the director and CEO both served in at least one common company in the past, excluding prior roles in the company in question. Education Connection indicates that the director and CEO attended the same school at the same time. Other Activity Connection indicates that the director and CEO share active membership in at least one non-professional organization. Financial Education is an indicator equal to 1 if the director is an MBA, CPA, CFA, or has a degree in Economics, Management, Accounting, or Business. Financial Role is an indicator for past or current experience as a CFO, Treasurer, Accountant, or Vice President for Finance. Financial Industry Experience is an indicator for current or past employment in a financial firm (SIC 6000-6999). %x is the percentage of directors on the board with characteristic x. For the connection variables, %x excludes the CEO from the numerator. ROA is net income plus interest expense divided by the lag of total assets. Q is total assets plus market equity minus book equity, divided by total assets. Book (market) leverage is long term debt plus debt in current liabilities, divided by the numerator plus book (market) equity. Entrenchment Index measures anti-shareholder charter provisions and is defined and constructed by Bebchuk, Cohen, and Ferrell (2004). Total Compensation Ratio is the ratio of CEO total compensation to the total compensation of the next highest paid executive in the firm.

	Observations	Mean	Median	Standard Deviation	Minimum	Maximum
Panel A. Director-Year Data (20,016 Directors)						
Age	105,966	59.574	60	9.647	23	101
Female	106,071	0.102	0	0.302	0	1
Tenure	101,792	8.064	5.800	7.783	0	70
Years in Sector	105,962	9.833	6.900	9.634	0	120
Independent	106,071	0.690	1	0.463	0	1
Social Network Index (SNI)	94,703	0.183	0	0.433	0	4
Current Employment Connection (CE)	94,703	0.012	0	0.111	0	1
Prior Employment Connection (PE)	94,703	0.092	0	0.289	0	1
Education Connection (Ed)	94,703	0.004	0	0.068	0	1
Other Activity Connection (OA)	94,703	0.074	0	0.261	0	1
Number of Board Seats	106,071	1.541	1	0.917	1	9
Financial Education	106,071	0.436	0	0.496	0	1
Financial Role (Current or Past)	106,071	0.151	0	0.358	0	1
Financial Industry Experience	103,860	0.083	0	0.276	0	1
Engineer	106,071	0.127	0	0.332	0	1
Lawyer	106,071	0.115	0	0.320	0	1
Academic	106,071	0.087	0	0.282	0	1
Panel B. Firm-Year Data (2,080 Firms)						
Assets	11,150	14,463	1,617	73,991	5	1,884,318
ROA	9,706	0.066	0.072	0.297	-22.522	2.534
Q	11,128	2.017	1.515	1.601	0.484	39.119
Book Leverage	11,112	0.335	0.326	0.257	0	1.166
Market Leverage	11,090	0.216	0.160	0.210	0	0.987
CEO age	11,322	55.081	55	8.906	28	101
CEO tenure	10,881	5.032	3.200	5.826	0	55.700
BOSS	11,325	0.302	0	0.459	0	1
Entrenchment Index	8,214	2.473	3	1.299	0	6
Total Compensation Ratio	9,849	3.997	1.791	28.487	0	1,813.659
Board Size	11,272	9.344	9	2.869	1	27
Audit Committee Size	11,272	3.971	4	1.230	0	11
Executive Committee Size	11,272	2.169	0	2.537	0	16
Nominating Committee Size	11,272	3.416	3	2.106	0	14
Compensation Committee Size	11,272	3.813	4	1.361	0	13
% Independent	11,270	0.687	0.714	0.174	0	0.944
Mean Board Age	11,272	59.361	59.5	4.865	39.75	96
Mean Board Tenure	10,835	8.058	7.575	4.105	0	32.067
% SNI	11,270	0.150	0.091	0.203	0	1.500
% CE	11,270	0.010	0	0.043	0	0.625
% PE	11,270	0.078	0	0.146	0	0.929
% Ed	11,270	0.004	0	0.023	0	0.286
% OA	11,270	0.057	0	0.105	0	0.750
Panel C. Fama-French 12 Industry Groups						
Consumer Nondurables	0.055		Telecommunications			0.019
Consumer Durables	0.021		Utilities			0.048
Manufacturing	0.084		Shops			0.000
Energy	0.037		Health			0.088
Chemicals	0.024		Finance			0.172
Business Equipment	0.180		Other			0.273

Table II
Pairwise Correlations

Social Network Index is the sum of Current Employment Connection, Prior Employment Connection, Education Connection, and Other Activity Connection. Current Employment Connection indicates that both the director and CEO currently serve externally in at least one common firm. Prior Employment Connection indicates that the director and CEO both served in at least one common company in the past, excluding prior roles in the company in question. Education Connection indicates that the director and CEO attended the same school at the same time. Other Activity Connection indicates that the director and CEO share active membership in at least one non-professional organization. Financial Education is an indicator equal to 1 if the director is an MBA, CPA, CFA, or has a degree in Economics, Management, Accounting, or Business. % x is the percentage of directors on the board with characteristic x. For the connection variables, %x excludes the CEO from the numerator. ROA is net income plus interest expense divided by the lag of total assets. Q is total assets plus market equity minus book equity, divided by total assets. Market leverage is long term debt plus debt in current liabilities, divided by the numerator plus market equity. Entrenchment Index measures anti-shareholder charter provisions and is defined and constructed by Bebchuk, Cohen, and Ferrell (2004). Total Compensation Ratio is the ratio of CEO total compensation to the total compensation of the next highest paid executive in the firm.

Panel A. Director-Year Variables

	Age	Female	Tenure	Yrs. Sect.	Independ.	N Boards	Fin. Ed.	Engin.	Lawyer	Academic	SNI	CE	PE	Ed	OA
Age	1														
Female	-0.15	1													
Tenure	0.33	-0.09	1												
Years in Sector	0.25	-0.11	0.83	1											
Independent	0.13	0.11	-0.16	-0.26	1										
Number of Board Seats	0.06	0.08	-0.07	-0.02	0.13	1									
Financial Education	-0.15	-0.03	-0.14	-0.10	0.05	0.14	1								
Engineer	0.01	-0.10	-0.03	-0.01	0.00	0.07	0.06	1							
Lawyer	0.03	0.00	0.01	-0.01	0.03	0.04	-0.14	-0.09	1						
Academic	0.07	0.08	-0.02	-0.03	0.09	0.06	-0.04	0.01	0.03	1					
SNI	-0.10	-0.08	0.05	0.13	-0.41	0.07	0.07	0.06	0.00	-0.07	1				
CE	-0.03	-0.03	0.03	0.09	-0.17	0.21	0.05	0.04	0.00	-0.04	0.63	1			
PE	0.00	-0.04	-0.02	0.01	-0.18	0.06	0.02	0.01	0.00	-0.03	0.63	0.39	1		
Ed	-0.16	-0.09	0.06	0.14	-0.46	-0.04	0.09	0.08	-0.03	-0.06	0.76	0.35	0.20	1	
OA	-0.07	-0.06	0.07	0.13	-0.32	0.04	0.05	0.04	0.01	-0.05	0.78	0.29	0.18	0.57	1

Panel B. Firm-Year Variables

	Assets	ROA	Q	Mkt. Lev.	CEO age	CEO ten.	BOSS	Eindex	Comp. Rat.	Size	% SNI	% CE	% PE	% Ed	% OA
Assets	1														
ROA	-0.01	1													
Q	-0.08	0.06	1												
Market Leverage	0.27	-0.03	-0.45	1											
CEO age	0.03	0.01	-0.07	0.07	1										
CEO tenure	-0.04	0.02	0.01	-0.04	0.29	1									
BOSS	-0.01	-0.01	-0.05	0.05	0.04	0.11	1								
Entrenchment Index	-0.12	-0.03	-0.13	0.13	-0.03	-0.14	0.09	1							
Total Compensation Ratio	-0.01	-0.02	0.03	0.00	-0.01	-0.01	0.03	0.01	1						
Board Size	0.28	0.03	-0.18	0.29	0.07	-0.10	-0.03	0.10	-0.03	1					
% SNI	0.15	0.00	-0.10	0.18	0.09	0.02	0.06	0.07	0.00	0.23	1				
% CE	0.04	0.01	-0.04	0.07	0.04	0.02	0.02	0.02	0.00	0.08	0.40	1			
% PE	0.09	-0.01	-0.07	0.10	0.06	-0.02	0.02	0.03	0.01	0.10	0.80	0.16	1		
% Ed	0.01	-0.02	0.05	0.00	0.01	0.07	0.01	0.01	-0.01	-0.01	0.15	-0.01	0.01	1	
% OA	0.14	0.01	-0.10	0.18	0.08	0.03	0.08	0.08	0.00	0.28	0.62	0.15	0.09	0.06	1

Table III
CEO Power and Director Selection

The sample is restricted to the first sample observation of newly appointed non-executive directors. The dependent variable is Social Network Index (SNI), defined as the sum of Current Employment Connection, Prior Employment Connection, Education Connection, and Other Activity Connection. Current Employment Connection indicates that both the director and CEO currently serve externally in at least one common firm. Prior Employment Connection indicates that the director and CEO both served in at least one common company in the past, excluding prior roles in the company in question. Education Connection indicates that the director and CEO attended the same school at the same time. Other Activity Connection indicates that the director and CEO share active membership in at least one non-professional organization. BOSS is a dummy equal to 1 if the CEO is also Chairman of the Board and President. CEO Tenure is measured in years. Entrenchment Index measures anti-shareholder charter provisions and is defined and constructed by Bebchuk, Cohen, and Ferrell (2004). Compensation Ratio is the ratio of CEO total compensation to the total compensation of the next highest paid executive in the firm, taken in log form. First (Second) Principal Component is the first (second) factor from a principal components analysis of BOSS, CEO Tenure, Entrenchment Index, and Compensation Ratio. Age is the director's age, measured in years. Independence is an indicator variable equal to 1 if the director is independent. ROA is net income plus interest expense, scaled by the lag of total assets. Q is the natural logarithm of the ratio of the market value of assets to the book value of assets. Firm Size is the natural logarithm of total assets. ROA, Q, and Firm Size are measured at the beginning of the fiscal year. Industries are the Fama-French 49 industry groups. All standard errors are clustered at the firm level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS
BOSS	0.0178 (1.78)*							
CEO Tenure		-0.0001 (0.05)						
Entrenchment Index			0.0159 (3.38)***					
Compensation Ratio				0.0283 (2.31)**				
First Principal Component					0.0129 (1.98)**	0.0061 (1.02)	0.0015 (0.24)	0.0014 (0.23)
Second Principal Component					0.0145 (2.53)**	0.0192 (3.27)***	0.0154 (2.67)***	0.0151 (2.62)***
Age						0.0022 (3.19)***	0.002 (2.92)***	0.002 (3.02)***
Independence						0.0253 (1.63)	0.0343 (2.13)**	0.0456 (2.69)***
ROA						-0.0571 (0.90)	-0.0451 (0.68)	-0.0491 (-0.74)
Q						-0.0029 (0.21)	0.0018 (0.12)	0.0006 (0.04)
Firm Size						0.0181 (5.05)***	0.0125 (3.17)***	0.0126 (3.11)***
Industry Fixed Effects	no	no	no	no	no	no	yes	yes
Year Fixed Effects	no	no	no	no	no	no	no	yes
Observations	7,024	6,704	5,381	6,352	4,886	4,165	4,148	4,148
R-squared	0	0	0	0	0	0.02	0.03	0.04

Robust t statistics in parentheses. Constant included. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table IV
Director Network Ties to the CEO and Insider Trading

The sample is restricted to fiscal years in which non-executive directors made at least one open market transaction in firm stock. The dependent variable in Columns (1) - (3) is a binary indicator which takes the value 1 if the director purchased company stock within 5 days of the CEO. The dependent variable in Columns (4) - (6) is a binary indicator which takes the value 1 if the aggregate value of company stock the director purchased in the year exceeds the aggregate value of company stock sold. Social Network Index (SNI) is defined as the sum of Current Employment Connection, Prior Employment Connection, Education Connection, and Other Activity Connection. Current Employment Connection indicates that both the director and CEO currently serve externally in at least one common firm. Prior Employment Connection indicates that the director and CEO both served in at least one common company in the past, excluding prior roles in the company in question. Education Connection indicates that the director and CEO attended the same school at the same time. Other Activity Connection indicates that the director and CEO share active membership in at least one non-professional organization. CEO Net Buyer is a binary indicator which takes the value 1 if the aggregate value of company stock the CEO purchased in the year exceeds the aggregate value of company stock sold. Age and Tenure are measured in years. All standard errors are clustered at the firm level. Coefficient estimates in Columns (1) - (3) are presented as odds ratios.

	Buy within 5 Days of CEO			Net Buyer		
	Logit (1)	Logit (2)	Logit (3)	OLS (4)	OLS (5)	OLS (6)
SNI	1.3646 (2.69)***	1.3244 (2.32)**	1.6181 (3.34)***	-0.0195 (1.37)	-0.0128 (0.88)	-0.0168 (0.94)
SNI * CEO Net Buyer				0.0944 (2.94)***	0.0679 (2.27)**	0.0489 (1.34)
CEO Net Buyer				0.4227 (20.45)***	0.4287 (4.55)***	
Age		1.0078 (1.49)	0.9989 (0.21)		0.0006 (0.98)	-0.0009 (1.41)
Tenure		0.9074 (6.13)***	0.9798 (1.64)		-0.0160 (16.64)***	-0.0195 (15.79)***
Female		0.885 (0.47)	1.0313 (0.15)		0.0312 (1.47)	-0.0340 (1.66)*
Independent		0.7306 (2.85)***	0.9843 (0.13)		0.0944 (7.26)***	0.0949 (6.15)***
Age * CEO Net Buyer					0.0002 (0.13)	0.0034 (2.71)***
Tenure * CEO Net Buyer					-0.0053 (2.27)**	0.0013 (0.42)
Female * CEO Net Buyer					0.0293 (0.72)	0.1028 (2.60)***
Independent * CEO Net Buyer					-0.0119 (0.37)	-0.0167 (0.47)
Year Fixed Effects	no	yes	yes	no	yes	yes
Year * CEO Net Buyer Effects	no	no	no	no	yes	yes
Firm Fixed Effects	no	no	yes	no	no	yes
Firm * CEO Net Buyer Effects	no	no	no	no	no	yes
Observations	19,238	18,151	3,305	11,140	10,622	10,622
R-squared				0.15	0.25	0.56

Robust t-statistics in parentheses in Columns (4) - (6). Robust z-statistics in parentheses in remaining columns. Constant included. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table V
Director Network Ties to the CEO and Earnings Restatements

The dependent variable in the Full Sample regressions is an indicator equal to 1 if the firm did a financial restatement in the next fiscal year. The dependent variable in the Restatement Sample is an indicator equal to 1 if the firm did a financial restatement prompted by the company itself. In these columns, the sample is restricted to observations for which there is a financial restatement in the next fiscal year. Social Network Index (SNI) is defined as the sum of Current Employment Connection, Prior Employment Connection, Education Connection, and Other Activity Connection. Current Employment Connection indicates that both the director and CEO currently serve externally in at least one common firm. Prior Employment Connection indicates that the director and CEO both served in at least one common company in the past, excluding prior roles in the company in question. Education Connection indicates that the director and CEO attended the same school at the same time. Other Activity Connection indicates that the director and CEO share active membership in at least one non-professional organization. # Independent SNI aggregates the number of SNI connections among independent directors. Board Size is in numbers. Board Independence, Financial Education, and Accountants are the number of directors with each trait. Firm Size is the natural logarithm of assets. Q is the natural logarithm of the ratio of the market value of assets to the book value of assets. Cash Flow is net income plus depreciation scaled by the lag of total assets. Market Leverage is total debt plus debt in current liabilities, divided by the numerator plus market equity. CEO (CFO) Financial Education and CEO (CFO) Accountant are indicators equal to 1 for CEOs (CFOs) with each trait. CEO (CFO) Tenure is measured in years. Financial Education is an indicator equal to 1 if the director is an MBA, CPA, CFA, or has a degree in Economics, Management, Accounting, or Business. All standard errors are clustered at the firm level. Coefficients presented as odds ratios.

	Full Sample					Restatement Sample	
	Logit (1)	Logit (2)	Logit (3)	Logit (4)	Logit (5)	Logit (6)	Logit (7)
# Independent SNI	1.0238 (0.75)	0.9848 (0.37)	0.9237 (0.73)	0.9780 (0.42)	1.0275 (0.20)	0.836 (2.32)**	0.8492 (1.76)*
Board Size		1.0334 (0.87)	1.0687 (0.72)	1.0351 (0.77)	1.0788 (0.69)	1.1321 (1.38)	1.1689 (1.50)
Board Independence		0.9313 (1.68)*	0.9974 (0.02)	0.9338 (1.40)	0.9781 (0.19)	0.9541 (0.50)	0.9621 (0.35)
Board Financial Education		1.0226 (0.63)	1.1065 (0.84)	1.0206 (0.49)	1.192 (1.25)	1.0979 (0.97)	1.0822 (0.74)
Board Accountants		0.906 (1.08)	0.6383 (1.72)*	0.9441 (0.55)	0.6279 (1.63)	1.0276 (0.13)	1.2046 (0.73)
Firm Size		1.0888 (1.93)*	2.8615 (2.27)**	1.0741 (1.29)	2.0748 (1.44)	0.9292 (0.63)	0.9238 (0.50)
Q		0.6252 (2.72)***	0.4557 (1.83)*	0.631 (2.40)**	0.988 (0.03)	0.8212 (0.39)	0.5107 (1.03)
Cash Flow		1.0336 (0.10)	0.7567 (0.37)	0.9194 (1.07)	0.474 (0.55)	0.0377 (1.95)*	0.009 (1.40)
Market Leverage		2.4947 (2.34)**	1.0855 (0.08)	2.8764 (2.16)**	9.2413 (1.76)*	0.3456 (1.31)	0.1331 (2.08)**
CEO Financial Education		1.1444 (1.06)	1.1809 (0.58)	1.2628 (1.55)	1.4158 (0.91)	0.8813 (0.42)	0.6372 (1.25)
CEO Accountant		1.1883 (0.59)	0.4404 (1.43)	1.3184 (0.80)	0.2966 (1.99)**	2.1834 (1.16)	2.6018 (1.36)
CEO Tenure		1.002 (0.17)	1.0293 (1.53)	1.0043 (0.33)	1.0408 (1.71)*	0.9797 (0.90)	0.9836 (0.68)
CFO Financial Education				0.8049 (1.23)	0.7473 (0.53)		1.8759 (1.40)
CFO Accountant				0.9558 (0.24)	0.9826 (0.04)		0.8424 (0.41)
CFO Tenure				0.9672 (1.46)	1.0280 (0.72)		1.0047 (0.10)
Year Fixed Effects	no	yes	yes	yes	yes	yes	yes
Firm Fixed Effects	no	no	yes	no	yes	no	no
Observations	9,717	8,604	1,426	5,901	934	327	237

Robust z statistics in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table VI
Director Network Ties to the CEO and Committee Membership

The sample is restricted to non-executive directors. The dependent variable in Columns (1) & (2) is an indicator for membership on the executive committee; in Columns (3) & (4) for membership on the audit committee; in Columns (5) & (6) for membership on the compensation committee; and in Columns (7) & (8) for membership on the nominating committee. Social Network Index (SNI) is defined as the sum of Current Employment Connection, Prior Employment Connection, Education Connection, and Other Activity Connection. Current Employment Connection indicates that both the director and CEO currently serve externally in at least one common firm. Prior Employment Connection indicates that the director and CEO both served in at least one common company in the past, excluding prior roles in the company in question. Education Connection indicates that the director and CEO attended the same school at the same time. Other Activity Connection indicates that the director and CEO share active membership in at least one non-professional organization. Age and Tenure are measured in years. Financial Education is an indicator equal to 1 if the director is an MBA, CPA, CFA, or has a degree in Economics, Management, Accounting, or Business. All standard errors are clustered at the firm level. Coefficient estimates are presented as odds ratios.

	Executive Committee		Audit Committee		Compensation		Nominating Committee	
	Conditional		Conditional		Conditional		Conditional	
	Logit (1)	Logit (2)	Logit (3)	Logit (4)	Logit (5)	Logit (6)	Logit (7)	Logit (8)
SNI	1.3524 (6.84)***	1.4246 (6.64)***	0.7976 (6.80)***	0.8183 (5.16)***	0.962 (1.27)	1.0584 -1.49	1.0101 (0.31)	1.09 (2.21)**
Independent	0.9002 (2.05)**	0.8177 (3.09)***	3.6045 (32.04)***	4.5566 (32.10)***	2.907 (27.40)***	3.4839 (26.50)***	2.7782 (23.69)***	3.2475 (22.12)***
Age	1.0063 (2.57)**	1.0045 (1.57)	1.008 (5.06)***	1.0098 (5.35)***	1.0081 (5.30)***	1.0104 (5.69)***	1.0126 (7.53)***	1.0165 (8.67)***
Tenure	1.0531 (14.71)***	1.0817 (17.03)***	0.9902 (4.81)***	0.9919 (3.11)***	1.0063 (2.82)***	1.0135 (4.91)***	1.0145 (6.33)***	1.0236 (8.28)***
Financial Education	1.2477 (5.36)***	1.2432 (4.41)***	1.5128 (13.70)***	1.6315 (13.94)***	0.9554 (1.51)	0.9343 (1.99)**	0.9384 (2.04)**	0.902 (2.90)***
Engineer	1.0625 (0.97)	0.9514 (0.71)	0.8338 (4.04)***	0.7821 (4.64)***	1.1358 (3.02)***	1.1448 (2.72)***	1.1274 (2.56)**	1.1176 (2.04)**
Lawyer	1.1758 (2.75)***	1.2354 (3.14)***	0.9324 (1.55)	0.934 (1.31)	0.8645 (3.21)***	0.8493 (3.22)***	1.3411 (6.60)***	1.4511 (7.36)***
Academic	0.7809 (3.69)***	0.7544 (3.78)***	0.7812 (4.90)***	0.7807 (4.37)***	0.8041 (4.30)***	0.8017 (3.98)***	1.1377 (2.65)***	1.2023 (3.29)***
Female	0.6213 (7.54)***	0.5274 (9.33)***	1.0274 (0.59)	1.1341 (2.53)**	0.8495 (3.73)***	0.9022 (2.16)**	1.0817 (1.76)*	1.1943 (3.63)***
Year Fixed Effects	no	yes	no	yes	no	yes	no	yes
Firm Fixed Effects	no	yes	no	yes	no	yes	no	yes
Observations	46,947	45,545	83,055	82,458	82,567	81,763	71,478	70,097

Robust z statistics in parentheses. Constant included. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table VII
Director Network Ties to the CEO and M&A Decisions

The dependent variable in all columns, but column (5) is a binary indicator which equals 1 if the firm did at least 1 acquisition valued in excess of \$10 million during the fiscal year. The dependent variable in column (5) is # Independent SNI. Social Network Index (SNI) is defined for independent directors as the sum of Current Employment Connection, Prior Employment Connection, Education Connection, and Other Activity Connection. Current Employment Connection indicates that both the director and CEO currently serve externally in at least one common firm. Prior Employment Connection indicates that the director and CEO both served in at least one common company in the past, excluding prior roles in the company in question. Education Connection indicates that the director and CEO attended the same school at the same time. Other Activity Connection indicates that the director and CEO share active membership in at least one non-professional organization. In columns (1) - (4), # Independent SNI aggregates the number of SNI connections among independent directors. In columns (5) and (6), # Independent SNI aggregates the number of directors with SNI connections to the CEO. All independent variables are measured at the beginning of the fiscal year. Board Size (Independence) count the number of directors (independent directors). Cash Flow is net income plus interest expense, scaled by the lag of total assets. Q is the natural logarithm of the ratio of the market value of assets to the book value of assets. Market Leverage is long term debt plus debt in current liabilities, divided by the numerator plus market equity. Retired Director counts the number of independent directors with SNI ties to the CEO who have retired during the sample period, up to the current fiscal year. Deceased Director counts the number of independent directors with SNI ties to the CEO who have died within 1 year of leaving the board, up to the current fiscal year. All standard errors are clustered at the firm level. Coefficients in columns (1) - (4) are presented as odds ratios.

					<u>IV Regression</u>	
	Logit (1)	Logit (2)	Conditional Logit (3)	Conditional Logit (4)	First Stage (5)	Second Stage (6)
# Independent SNI	1.0746 (4.13)***	1.0424 (2.16)**	1.0867 (1.86)*			0.1053 (1.65)*
# Exec. Com. Ind. SNI				1.2785 (2.70)***		
Board Size		1.0630 (3.51)***	0.9933 (0.20)	0.9497 (0.87)	0.0184 (1.48)	-0.0029 (0.51)
Executive Committee Size				0.9575 (0.46)		
Cash Flow		2.2271 (2.47)**	5.9671 (2.31)**	15.3087 (2.55)**	-0.0099 (0.43)	0.1105 (2.84)***
Q		1.2385 (2.55)**	1.1948 (1.14)	1.1267 (0.36)	0.0807 (2.26)**	0.0316 (1.33)
Market Leverage		0.9724 (0.12)	0.0459 (5.86)***	0.05 (3.53)***	0.3798 (2.70)***	-0.4578 (6.08)***
Independence		1.0075 (0.40)	0.9227 (1.92)*	1.0314 (0.44)	0.0946 (5.99)***	-0.0208 (2.31)**
Exec. Com. Independence				0.9368 (0.62)		
Retired Director					-0.5019 (4.11)***	
Deceased Director					-0.6220 (5.86)***	
Year Fixed Effects	no	no	yes	yes	yes	yes
Firm Fixed Effects	no	no	yes	yes	yes	yes
Observations	9,204	8,560	5,099	2,177	8,334	8,334

Robust t-statistics in parentheses in Columns (5) & (6). Robust z-statistics in parentheses in remaining columns. Constant included. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table VIII**Director Network Ties to the CEO and Merger Performance**

The sample consists of all merger bids with transaction value at least 10% of the acquirer's beginning-of-fiscal-year market capitalization. The dependent variable is the cumulative abnormal return to the acquirer's stock in the three trading days surrounding the merger bid, with the announcement date as day 0. Cumulative abnormal returns are the sum of abnormal returns, where expected returns are daily returns on the CRSP value-weighted index. % (Exec. Com.) Connected is the % of independent (directors on the executive committee) directors who share a Current Employment, Past Employment, Education, or Other Activity network link to the CEO. Current Employment Connection indicates that both the director and CEO currently serve externally in at least one common firm. Prior Employment Connection indicates that the director and CEO both served in at least one common company in the past, excluding prior roles in the company in question. Education Connection indicates that the director and CEO attended the same school at the same time. Other Activity Connection indicates that the director and CEO share active membership in at least one non-professional organization. Stock Bids are deals in which any portion was financed using equity. Cash Bids are 100% cash and/or debt financed. GIM is the Gompers, Ishii Metrick (2003) governance index. All standard errors are clustered by event date.

	All Bids		Stock Bids	Cash Bids	GIM < Median	GIM ≥ Median
	(1)	(2)	(3)	(4)	(5)	(6)
Full Sample	-0.0043 (814; 1.65)*	-0.0035 (316; 1.04)	-0.0225 (386; 5.27)***	0.0120 (428; 3.98)***	-0.0017 (351; 0.42)	-0.0075 (366; 2.16)**
% Connected ≥ Median	-0.0073 (328; 2.02)**		-0.0219 (155; 3.64)***	0.0058 (173; 1.50)	-0.0007 (138; 0.14)	-0.0132 (149; 2.81)***
% Exec. Com. Connected ≥ Median		-0.0102 (130; 2.40)**				
% Connected < Median	0.0043 (324; 1.01)		-0.0166 (135; 2.07)**	0.0192 (189; 4.26)***	0.0013 (144; 0.24)	0.0053 (148; 0.88)
% Exec. Com. Connected < Median		0.0012 (186; 0.26)				
Difference	-0.0116 (652; 2.11)**	-0.0115 (316; 1.83)*	-0.0053 (290; 0.54)	-0.0133 (362; 2.24)**	-0.0020 (282; 0.27)	-0.0185 (297; 2.40)**

Number of observations and robust t-statistics in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table IX
Director Network Ties to the CEO and Market Value

The dependent variable in Columns (1), (3), (5), and (7) is Tobin's Q, measured as the natural log of the ratio of the market value of assets to the book value of assets. The dependent variable in columns (2), (4), and (6) is # Independent SNI. Social Network Index (SNI) is defined for independent directors as the sum of Current Employment Connection, Prior Employment Connection, Education Connection, and Other Activity Connection. Current Employment Connection indicates that both the director and CEO currently serve externally in at least one common firm. Prior Employment Connection indicates that the director and CEO both served in at least one common company in the past, excluding prior roles in the company in question. Education Connection indicates that the director and CEO attended the same school at the same time. Other Activity Connection indicates that the director and CEO share active membership in at least one non-professional organization. In column (1), # Independent SNI aggregates the number of SNI connections among independent directors. In columns (2) - (7), # Independent SNI aggregates the number of directors with SNI connections to the CEO. All independent variables are measured at the beginning of the fiscal year. Board Size (Independence) count the number of directors (independent directors). Firm Size is the natural log of total assets. Market Leverage is long term debt plus debt in current liabilities, divided by the numerator plus market equity. GIM is the Gompers, Ishii Metrick (2003) governance index. Retired Director counts the number of independent directors with SNI ties to the CEO who have retired during the sample period, up to the current fiscal year. Deceased Director counts the number of independent directors with SNI ties to the CEO who have died within 1 year of leaving the board, up to the current fiscal year. All standard errors are clustered at the firm level.

	IV Regression						
	OLS	Full Sample		GIM < Median		GIM ≥ Median	
		(1)	First Stage (2)	Second Stage (3)	First Stage (4)	Second Stage (5)	First Stage (6)
# Independent SNI	-0.0102 (2.95)***		-0.1005 (3.14)***		-0.0484 (1.96)**		-0.1232 (2.67)***
Board Size	-0.0124 (2.65)***	0.0099 (0.73)	0.0019 (0.56)	0.0000 (0.00)	-0.0038 (0.75)	0.0268 (1.05)	0.0123 (2.11)**
Independence	0.0098 (1.94)*	0.0975 (5.61)***	0.0109 (2.03)**	0.0994 (4.29)***	0.0116 (1.87)*	0.1156 (3.70)***	0.0073 (0.89)
Firm Size	0.0051 (0.70)	0.0834 (1.81)*	-0.193 (10.86)***	0.0705 (1.09)	-0.164 (7.45)***	0.2503 (2.39)**	-0.1613 (4.78)***
Market Leverage	-1.3549 (28.34)***	0.1876 (1.35)	-0.3966 (7.59)***	0.157 (0.71)	-0.2848 (3.65)***	-0.0296 (0.12)	-0.3674 (5.24)***
GIM	-0.0065 (2.02)**						
Retired Director		-0.5142 (4.00)***		-0.7488 (6.25)***		-0.463 (2.27)**	
Deceased Director		-0.5668 (4.53)***		-0.8001 (12.18)***		-0.591 (3.49)***	
Observations	7,004	8,725	8,725	3,556	3,556	3,145	3,145

Robust t statistics in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

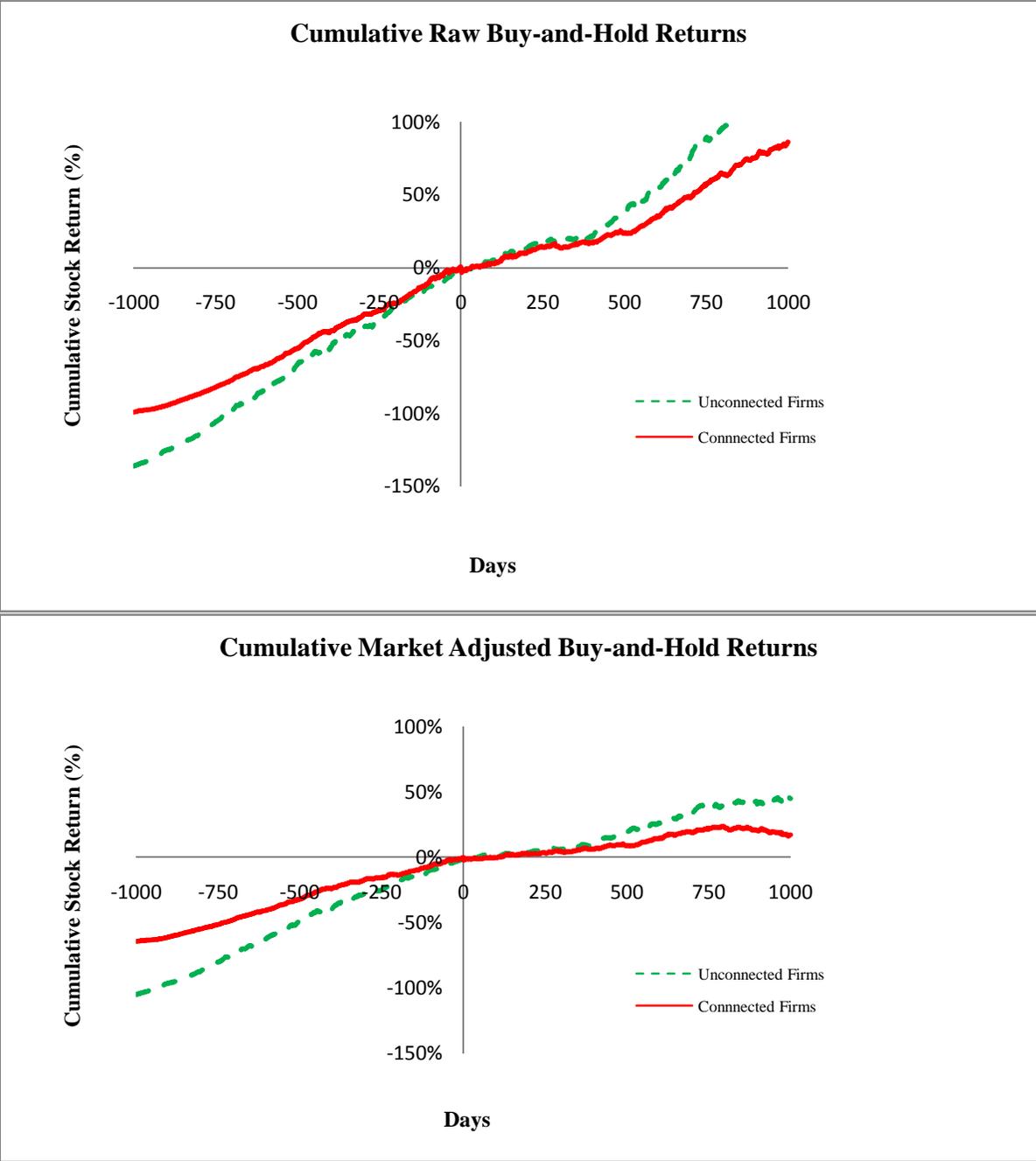


Figure 1. Long Run Stock Performance Around Mergers. The figures show stock performance around mergers in event time. Day 0 is the day in which the firm announced a merger bid. The sample consists of all merger bids with transaction value at least 10% of the acquirer's beginning-of-fiscal-year market capitalization. Leveraged buyouts, recapitalizations, self-tenders, acquisitions of subsidiaries, spin-offs, exchange offers, repurchases, minority stake purchases, privatizations, and acquisitions of remaining interests are excluded. All returns are buy and hold, i.e. compounded daily over the relevant interval. For days 0 to 1000, the figures display buy and hold returns from days 0 to day x. For days -1000 to 0, the figures display buy and hold returns from day -x to 0, downward shifted so that the cumulative return as of day 0 is 0. In the top figure, daily raw returns are compounded for each merger event and then averaged across events within the connected and unconnected firms subsamples. In the bottom figure, market returns (CRSP value-weighted index) are first subtracted off the monthly raw returns before compounding. Connected is defined using the Social Network Index (SNI). SNI is the sum of Current Employment Connection, Prior Employment Connection, Education Connection, and Other Activity Connection. Current Employment Connection indicates that both the director and CEO currently serve externally in at least one common firm. Prior Employment Connection indicates that the director and CEO both served in at least one common company in the past, excluding prior roles in the company in question. Education Connection indicates that the director and CEO attended the same school at the same time. Other Activity Connection indicates that the director and CEO share active membership in at least one non-professional organization.

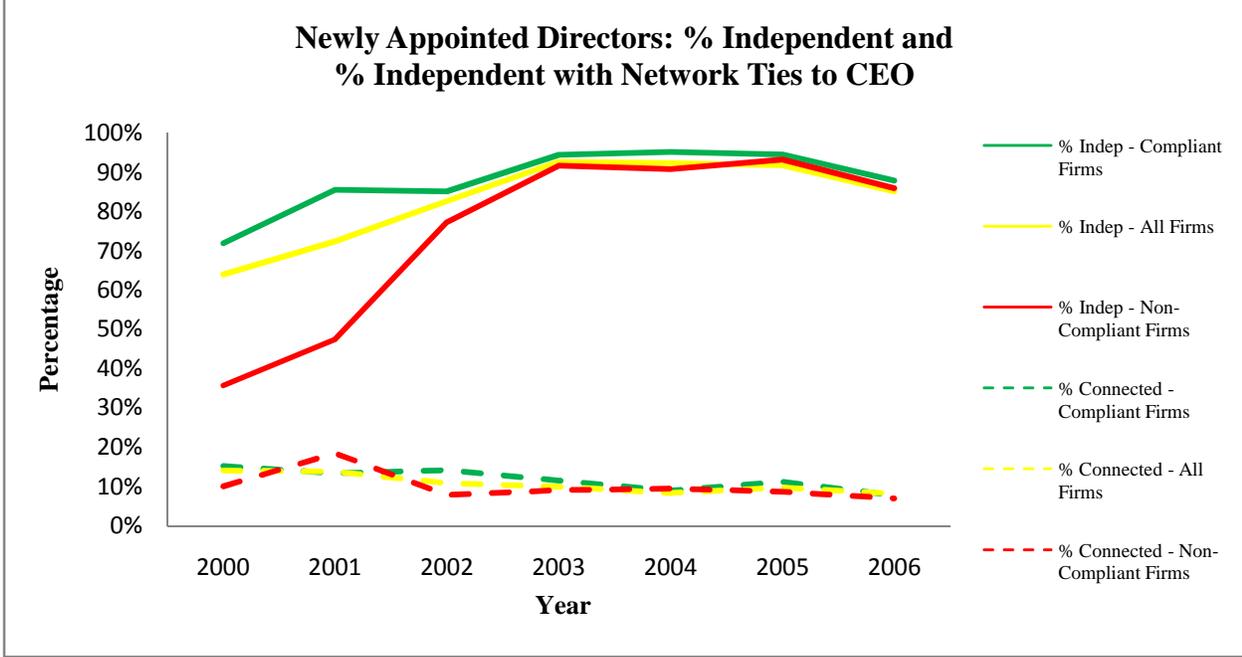
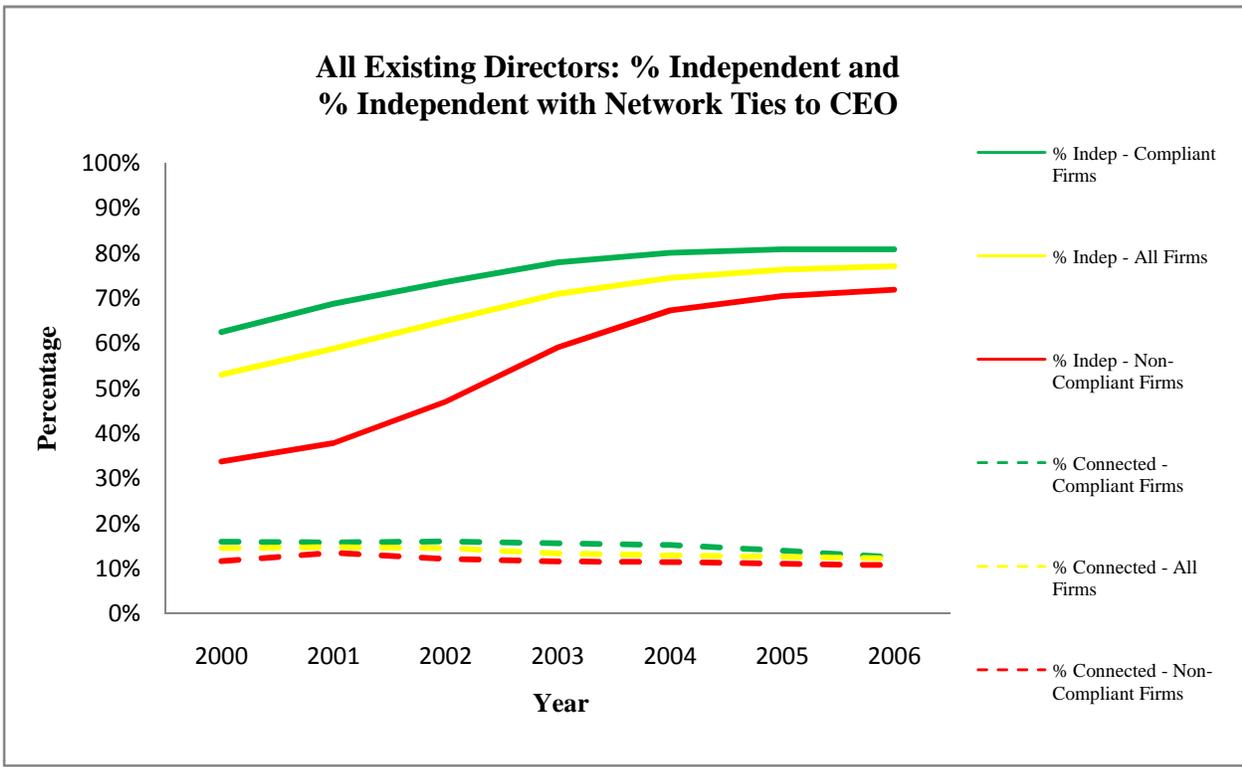


Figure 2. Frequency of Social Ties between Directors and the CEO. Connected is defined using the Social Network Index (SNI). SNI is the sum of Current Employment Connection, Prior Employment Connection, Education Connection, and Other Activity Connection. Current Employment Connection indicates that both the director and CEO currently serve externally in at least one common firm. Prior Employment Connection indicates that the director and CEO both served in at least one common company in the past, excluding prior roles in the company in question. Education Connection indicates that the director and CEO attended the same school at the same time. Other Activity Connection indicates that the director and CEO share active membership in at least one non-professional organization.