IT PAYS TO HAVE FRIENDS

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Currently, a director is classified as independent if he or she has neither financial nor familial ties to the CEO or to the firm. We add another dimension: social ties. Using a unique data set, we find that 87% of boards are conventionally independent but that only 62% are conventionally and socially independent. Furthermore, firms whose boards are conventionally and socially independent award a significantly lower level of compensation, exhibit stronger pay-performance sensitivity, and exhibit stronger turnover-performance sensitivity than firms whose boards are only conventionally independent. Our results suggest that social ties do matter and that, consequently, a considerable percentage of the conventionally independent boards are substantively not.

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1. Introduction

Amid corporate scandals and conflicts of interest, increased board independence is an oft prescribed remedy. Many academic studies examine the monitory benefits of independent boards (e.g., Weisbach, 1988; Byrd and Hickman, 1992; Brickley, Coles, and Terry, 1994; Cotter, Shivdasani, and Zenner, 1997; Mayers, Shivdasani, and Smith, 1997; and Paul, 2007), and mutual fund investors are calling for more independent directors to oversee fund managers. Moreover, recent corporate-governance reforms issued by the NYSE, Amex, and Nasdaq require that listed firms (with some exceptions) have independent boards. But are these "independent" boards really independent?

Currently, a director is classified as independent if he has neither financial nor familial ties to the chief executive officer (CEO) or to the firm. Absent from these conventional criteria are social ties; that is, the nonfamilial, informal connections. However, given that agents are not driven solely by economic gains (e.g., Mills and Clark, 1982; Silver, 1990; and Uzzi, 1996), social ties are a potentially rich source of a director's dependence to the CEO. Board consultants in the popular press broach this issue, saying that when directors debate whether or how to fire a CEO, "they [the directors] typically need the most help in dealing with their attachment to the CEO" (Business Week, 2007). Our purpose is to incorporate these heretofore omitted ties into the definition of board independence and to examine their relevance to the monitory and disciplinary effectiveness of the board.

Drawing from the economics and sociology literatures, we propose mutual alma mater, military service, regional origin, academic discipline, and industry as indications of an informal tie between a director and the CEO. These mutual qualities and experiences, through homophily (i.e., an affinity for similar others), facilitate interactions and thereby foster personal connections. Whether it is conscious or not, actors enjoy an easier mutual understanding and are more comfortable with others who share similar characteristics and experiences (Marsden, 1987; and McPherson, Smith-Lovin, and Cook, 2001), and "contact between similar people occurs at a higher rate than among dissimilar people" (McPherson, Smith-Lovin, and Cook, 2001, p. 416).

Using hand-collected data, we focus on the Fortune 100 firms from 1996 to 2005. We find that, under the conventional measure of independence, 87% of the boards in our sample are classified as independent; that is, these boards have a majority composition of conventionally independent directors. Under our new measure, which augments the conventional definition with the proposed social restrictions, this percentage drops to 62%. Moreover, the incidence of socially linked directors increases as a new CEO's tenure at the firm progresses, suggesting that CEOs select directors along these social dimensions.

To illustrate a conventionally independent board that is not conventionally and socially independent, we consider the board of Cardinal Health. In the year 2000, this board had 13 directors, ten of whom were conventionally independent of the CEO. However, one conventionally independent director was not only from the same hometown, but also graduated from the same university as the CEO (incidentally, this director provided a job, at his own firm, for the CEO's son). Another conventionally independent director graduated from the same university and specialized in the same academic discipline as the CEO. Similarly, three others shared informal ties with the CEO, and ultimately, only five of the 13 directors were conventionally and socially independent of the CEO.

To test the monitory relevance of these social ties, we examine the differential association between board independence and the level of CEO compensation when we replace the conventional measure of board independence (which does not consider social ties) with our new measure. If these social ties do not affect the disciplinary or monitory capacity of directors, then a director who is conventionally independent but socially linked to the CEO is an equally effective monitor as a director who is both conventionally and socially independent. As such, we would expect no differential association between board independence and the level of compensation attributed to this distinction.

We find no significant difference in the CEO's total annual compensation when a conventionally independent board is present. However, when a conventionally and socially independent board is present, the CEO's total compensation decreases, on average, by $3.3 million. This magnitude is not only statistically significant, but also economically meaningful (average annual compensation is $12.8

million), and we make similar observations with respect to the CEO's annual salary plus bonus. In addition, we find a compensation differential within the subsample of firms with conventionally independent boards; those firms with boards that are conventionally independent but not conventionally and socially independent award a significantly higher level of compensation to their CEOs. These results further signify that it is not only the conventional ties but also the social ties that matter. Moreover, the excess compensation attributed to this type of board extends to a negative association with subsequent operating performance. This evidence punctuates the monitory relevance of these social ties because alternative interpretations of this excess component of compensation (e.g., the CEO of a more complex firm could require a higher level of compensation and a friendlier board) cannot explain its negative association with the firm's subsequent performance.

We also examine the role of social ties in other supervisory and disciplinary actions of the board, such as CEO turnover and pay-performance elasticity. We find that, within the subsample of firms with conventionally independent boards, those CEOs whose boards are not conventionally and socially independent exhibit a lower sensitivity of turnover and compensation to performance. We also find that CEOs whose audit committees are conventionally independent but socially linked (to the CEO) receive larger bonuses than otherwise equivalent CEOs whose audit committees are both conventionally and socially independent, suggesting that social ties affect the audit committee's oversight of financial statements.

Overall, our results suggest that social ties affect how directors monitor and discipline the CEO and that, consequently, a considerable percentage of the boards currently classified as independent are substantively not.

This paper is organized as follows. In Section 2, we discuss the significance of social ties, we develop our hypotheses, and we discuss our measures for social ties. In Section 3, we describe our data sources, variables, and summary statistics. In addition, we examine what determines the incidence of socially dependent directors. In Section 4, we examine the monitory relevance of social ties in the level of compensation, pay-performance elasticity, and CEO turnover. Moreover, we explore alternative

interpretations of the excess compensation attributed to social ties. In Section 5, we discuss our contribution to the corporate governance literature, and in Section 6, we conclude.

2. Motivation, hypotheses, and identification of social ties

Given that actors are not driven solely by financial motives, social ties have a potentially large impact on a director's monitory and disciplinary capacity. In particular, when two actors share a social bond, there is a shift in normative expectations, whereby their actions are governed by communal norms, which promote mutual caring and trust, as opposed to exchange-based norms, which promote dispassionate reciprocation (Mills and Clark, 1982; and Silver, 1990). Furthermore, a social relationship "disposes one to interpret favorably another's intentions and actions" (Uzzi, 1996, p. 678). Thus, when a CEO enjoys a personal tie with a director, the director's resulting concern for the CEO clouds objective monitoring and disciplining of the CEO.[1]

There is considerable evidence that social ties influence economic outcomes. Uzzi (1996) studies the apparel industry and observes that social ties promote cooperation and "voluntary, non-obligating exchanges of assets and services between actors" (p. 678). For example, a buyer will find alternate uses for fabric mistakes rather than refuse the material at the manufacturer's cost. Uzzi (1999) studies middle-market banking and finds that social ties between firms and their lenders affect firms' access to and cost of capital. Ingram and Roberts (2000) find a substantial increase in hotel yields (i.e., revenue per room) when competing hotel managers share a social tie. This increased yield is not achieved through explicit collusion or price-fixing, but through collaboration, information exchange, and the mitigation of aggressive competitive behavior. Westphal, Boivie, and Chng (2006) find that managers form social ties with the managers of firms to which they are vertically dependent in order to mitigate opportunism, and Cohen, Frazzini, and Malloy (2008; 2009) find that mutual fund managers and sell-side equity analysts enjoy an informational advantage via their education networks.

[1] His disutility from violating the normative expectations imposed by social ties is also a factor. This disutility can be self-imposed (e.g., guilt) or imposed by others (e.g., disapproval) (Elster, 1989).

2.1. Measuring and identifying social ties

Unlike family or business ties, social ties are neither legally defined nor straightforward to identify. Studies on social embeddedness generally rely on surveys and interviews to identify the explicit social ties between actors (e.g., Uzzi, 1996, 1999; Westphal, 1999; Ingram and Roberts, 2000; McDonald and Westphal, 2003; and Westphal, Boivie, and Chng, 2006); that is, individuals are asked to report whether and with whom they share social ties.[2] In contrast, our approach is to operationalize social ties through mutual qualities and experiences, which, through homophily (i.e., an affinity for similar others), facilitate interactions and thereby foster personal connections. Whether it is conscious or subconscious, "contact between similar people occurs at a higher rate than among dissimilar people" (McPherson, Smith-Lovin, and Cook, 2001, p. 416), and actors enjoy an easier mutual understanding and are more comfortable with others who share similar characteristics and experiences (Marsden, 1987; and McPherson, Smith-Lovin, and Cook, 2001). Cohen, Frazzini, and Malloy (2008; 2009) use a similar approach, linking mutual-fund managers and sell-side equity analysts to corporate officers and directors via shared education networks (i.e., mutual alma mater).

This approach has several advantages. For one, unlike survey-based measures, the measures we propose are broadly observable and (relatively) easy to identify. The systematic availability of characteristics such as educational institution, regional origin, and military service makes such measures attractive for use in future studies. Furthermore, surveys are designed to capture conscious "friendship ties" (e.g., see sample survey question in the footnote from the previous paragraph), whereas many homophilous ties are likely built subconsciously, making them difficult to pinpoint in survey responses.

Drawing from the economics and sociology literature, we propose mutual alma mater, military service, regional origin, discipline, and industry as indications of an informal tie between a director and

[2] For instance, survey participants are asked to "indicate whether each person is (i) among your closest friends, (ii) a friend, but not among your closest friends, (iii) less than a friend but more than an acquaintance, (iv) an acquaintance" (Westphal, Boivie, and Chng, 2006, p. 433). Answers (i) and (ii) are coded "friendship ties," whereas answers (iii) and (iv) are not.

the CEO. Because the probability of a social connection increases with similarity (McPherson, Smith-Lovin, and Cook, 2001), we require that a director and CEO (directly) share at least two of these ties to constitute social dependence. Alternatively, a director and CEO can share one direct tie and one third-party connection (to whom each is directly dependent), which enhances an existing tie by strengthening shared normative expectations (Granovetter, 2005) as well as facilitating further contact. Defining director dependence in dichotomous terms (a director is either independent or not) allows us to define whether a majority of board members are independent, which in turn allows us to examine whether the boards currently classified as independent are still classified as such once social ties are considered. Later, we explore various other specifications, such as the extent of a director's dependence (i.e., the number of ties shared).

Regional Origin. There are unique regional qualities that vary within the United States. For instance, there is a marked regional distinction in the choice of leisurely activities that is unexplained by demographic and socioeconomic differences (Marsden, Reed, Kennedy, and Stinson, 1982), and "[Americans] think of themselves as linked geographically by certain traits, such as New England self-reliance, southern hospitality, midwestern wholesomeness, western mellowness" (US Department of State, 2003). This regional clustering of dialect, beliefs, culture, and lifestyle contributes to an affinity for others from the same locale. For example, regional homophily appears in the social choices of college students, exceeding what is expected if social circles are formed randomly with respect to regional origin (Reed, 2003). We define regional origin as the non-US country or US region of birth, because birthplace is a readily available and easily defined measure, as opposed to the more difficult concept of being from somewhere. Moreover, birthplace is highly correlated with this vaguer notion of home. From 1995 to 2000, 8.7% of nationals changed their state of residence, and only 4.6% changed regions (US Census Bureau, 2003).[3] In accordance with the US Census Bureau, we cluster US states and territories into the

[3] One possible concern is that the childhood mobility patterns of CEOs and directors are much higher, because they likely come from more educated and therefore more mobile families. However, of the educated, married population

following regions: South, Northeast, Midwest, Mountain, Pacific, and Territories.[4] We focus on these broader regional categories to keep with the theoretical and empirical groundwork on regional homophily. However, we also consider a finer classification of regional origin using individual states.

Mutual alma mater, military service, discipline, and industry. Connections forged through a mutual alma mater enjoy enhanced interaction via in-jokes, shared traditions, and a sense of group belonging, as evidenced by alumni networks, newsletters, donations, and college sports events. Similarly, veterans share a bond through their common experiences (Crosse and Hocking, 2004; and Friedman, 2005). Crosse and Hocking (2004) argue that veterans are in an environment that "depends on a highly structured, organized force… [with] a demand not paralleled in any other work environment," suggesting that this unique shared experience contributes to a steadfast bond among veterans. Mutual industry and academic discipline signify additional similarities through shared interests and common experiences, providing further points of contact. Moreover, these shared characteristics denote similarities beyond the common experiences they provide, because they are endogenously determined.

In our classification scheme, we classify the university ties in tandem with the director's and the CEO's age class(es), because an overlapping period of attendance starkly increases similarities in experiences. Moreover, university cohorts are more likely to have known each other prior to an appointment. To determine mutual industry and discipline, we partition industries of primary employment using the Fama-French (1997) 49-industry classification, and we partition academic majors into 26 categories from the *US News and World Report*. A full list of academic disciplines is provided in Appendix A.

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of young adults (ages 25 to 39), only 18.6% changed their state of residence from 1995 to 2000 (US Census Bureau, 2003), and we project that even fewer changed regions.

[4] Details are available at http://www.census.gov/geo/www/us_regdiv.pdf.

2.2. Hypothesis development

In terms of agency theory, the board's primary role is to enforce shareholders' interests and to mitigate the CEO's self-serving behavior. With respect to executive compensation, this framework specifies that the board's role is to lower the level of total compensation. In reality, however, many directors themselves are not perfect agents and likewise suffer the agency problems they were designed to address. Thus, agency theory prescribes that boards be primarily composed of independent directors because they are more likely to objectively monitor and discipline the CEO (Fama and Jensen, 1983). This is not to say that an independent board is an unconditionally more effective one. Studies focusing on the advisory role of the board argue the merits of a friendlier board (Adams and Ferreira, 2007; Coles, Daniel, and Naveen, 2008; and Linck, Netter, and Yang, 2008), but insofar as its disciplinary or supervisory role is concerned, the board is more effective as an independent unit. Because compensation is a monitory issue, the possible advisory benefits of a dependent board do not extend to (shareholder) benefits in terms of CEO compensation.

We expect that it is not only the conventional (i.e., financial and familial) ties that affect a board's monitory effectiveness, but also the social ties that matter. To test the relevance of these social ties, we examine the differential association between board independence and the level of executive compensation when we augment the conventional definition of board independence with our proposed social restrictions. If social ties are irrelevant, then we should observe no differential relation between board independence and the level of compensation when we replace the conventional board-independence measure with our new measure. Moreover, we examine the variation in compensation within the subset of firms whose boards are conventionally independent. There are two types of conventionally independent boards: those that are conventionally and socially independent, and those that are not. If social ties do not matter, then there should be no compensation differential attributed to this distinction.

3. Data description

This section discusses our data sources and regression variables. We also explore the determinants of a board's social composition, in particular the hypothesis that CEOs desire directors along our proposed social characteristics.

3.1. Sources

We focus on the Fortune 100 firms (as declared in 2005) and obtain a list of these Fortune 100 directors and CEOs from the Investor Responsibility Research Center (IRRC) and Compustat Executive Compensation databases. Our sample period runs from 1996 to 2005 and was determined by the availability of the IRRC Directors database. We hand-collect data for each CEO and director's educational institution, military service, regional origin, and academic discipline from the Marquis Who's Who database. To determine each director's industry of employment, we first exploit the Primary Employment field provided by the IRRC Directors database, and for the remaining director-years with a blank Primary Employment field, we collect this information from the Marquis Who's Who and Notable Names databases. Next, we match each of these firms to an SIC code (we create a separate category for retired directors), and we use the Fama-French (1997) 49-industry classification to define industry ties. For publicly traded firms, we obtain the corresponding SIC code through the Center for Research in Security Prices (CRSP), and for the remaining firms, we determine SIC codes using a combination of the Manta, Websters Online, Goliath, Alacra Store, American Hospital Directory, Law Firm Directory, Martindale-Hubbell, and HG.org databases. Furthermore, we collect CEO-award information from the *Business Week* archives, and we collect information on family-run firms by cross-examining the information provided in *Family Business* with proxy disclosures, the Compustat Executive Compensation database, the IRRC Directors database, and the Blockholders database. We obtain executive compensation, financial statement, and stock price data from the Compustat Executive Compensation, Compustat, and CRSP databases, respectively.

Of the Fortune 100 firms, four are not publicly traded, and of the 96 publicly traded firms, three are not covered by the IRRC Directors database. In regressions using past performance as a measure of the incumbent CEO's quality, we further exclude those firm-years in which there are new arrivals because past firm performance cannot be attributed to an incoming CEO. Our final sample consists of 704 firm-years (1,568 directors and CEOs).

3.2. Regression variables

3.2.1. Executive compensation

We use two different measures of the level of compensation, our dependent variable: *Salary + Bonus* and *Total Compensation*. *Salary + Bonus* consists of only the base salary plus bonus. *Total Compensation* is calculated as the sum of base salary, bonus, long-term incentive payouts, the value of restricted stock grants, and the Black-Scholes value of option grants converted into their stock equivalents using the options' median delta.[5]

3.2.2. Board independence

Following regulatory convention, the board-independence dummy is an indicator variable that equals one if a majority of the directors are classified as independent, and zero otherwise.[6] We compare and contrast two classifications of director independence, which we refer to as the c*onventional measure* and the *new measure*.

Under the *conventional measure* (as specified by the IRRC), a director is classified as independent if he or she is not a current or former employee of the firm (or of a subsidiary of the firm), a relative of an executive officer, a customer of or a supplier to the company, a provider of professional

[5] Following Baker and Hall (2004), we use a delta of 0.7, which approximates the median delta in the Hall and Liebman (1998) data.

[6] Other studies using an independence dummy or piece-wise linear approach include Weisbach (1988), Hermalin and Weisbach (1991), Byrd and Hickman (1992), Cotter, Shivdasani, and Zenner (1997), and Masulis, Wang, and Xie (2007).

services, a recipient of charitable funds, a designee under a documented agreement by a significant shareholder or group, or interlocked with an executive of the firm.[7] An interlocking directorate, also known as board cooptation, is a situation in which an executive of firm X is a director at firm Y at the same time that an executive of firm Y is a director at firm X. The list of independence criteria also includes a catchall phrase for any other type of affiliation that poses a potential conflict of interest, because there are a myriad of possibilities that cannot be definitively specified. However, the scope of this catchall is limited to proxy disclosures, and firms are not inclined to report beyond what is explicitly required.

Under the *new measure*, a director is classified as independent if he or she is both conventionally and socially independent, whereby a director is classified as socially dependent if the director and CEO have two or more of the following in common: 1) served in the military, 2) graduated from the same university (and were born no more than three years apart), 3) were born in the same US region or the same non-US country, 4) have the same academic discipline, 5) have the same industry of primary employment, or 6) share a third-party connection through another director to whom each is directly dependent. For example, suppose that the CEO is a 55-year-old, Stanford-educated, business major who served in the military and was born in the Northeast, and director A is a 55-year-old, Stanford-educated, electrical engineering major born in the South. Although the director and CEO share only one direct tie (i.e., through mutual alma mater), if there is third-party director B who is a 57-year-old Stanford graduate who studied electrical engineering and served in the military, then we consider director A socially dependent to the CEO (because in addition to their mutual alma mater connection, the two are socially connected to a mutual third party with whom each shares two direct ties).

[7] Details are available at http://wrds.wharton.upenn.edu/support/docs/irrc/directors_terms.doc.

3.2.3. Other regression variables

In addition to the board-independence dummy, we include the following control variables: *ln(Total Assets)*, *ln(MB)*, *ROA*, *RET*, σ^2, *CEO Equity Holdings*, *CEO Award*, *CEO=Chairman*, *CEO Tenure*, *ln(Board Size)*, *Old Directors*, *Busy Board*, *Directors' Equity Holdings*, *CEO from Other Company*, *Classified Board*, *Democracy Firm*, *Dictatorship Firm*, and *Family Firm* (Appendix B has a description of each variable and its expected relation with the level of CEO compensation). We also include year dummies as well as industry dummies using the Fama-French (1997) five-industry classification.[8] We use the five-industry classification because finer industry classifications result in much sparser partitions, with many industry categories having only one or two firms. Thus, using such fine classifications to define our industry dummies would amount to including firm-specific dummies, which we do not include due to the high persistence of many of the governance variables (e.g., board independence, classified-board provision).

3.3. Breakdown of social ties

In Table 1, we present summary statistics on the average proportions of directors with various ties to the CEO or to the firm. We determine average proportions by first calculating, for each firm-year, the proportion of directors with the relation in question, and then taking the pooled mean of these proportions. For instance, the average proportion of directors with a social tie is obtained by calculating for each firm-year the proportion of directors with a social tie and then taking the pooled average across all firm-years.

In our sample, we find that social ties between CEOs and directors are about as common as conventional ties. The average proportion of conventionally dependent directors is 0.296, and the average proportion of socially dependent directors is 0.276. The average proportion of directors who are either

[8] Obtained from Ken French's website: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

conventionally or socially dependent (or both) is 0.416, indicating a substantial presence of social ties among the directors who have a conventional tie to the CEO.

We also examine what proportion of the socially dependent directors share each of the following specific ties with the CEO: military service, alma mater, regional origin, academic discipline, industry, and third-party ties. We find that, of all socially dependent directors, 8.9% share a military connection with, 49.6% graduated from the same university as, 68.0% share regional origin with, 60.2% have the same academic discipline as, 65.2% have the same industry of primary employment as, and 66.0% share a third-party connection with the CEO. Moreover, we observe a substantial presence of these specific ties among the directors who have a conventional tie to the CEO. Of the conventionally dependent directors, 6.6% share a military connection with, 39.0% graduated from the same university as, 44.9% share regional origin with, 42.6% have the same academic discipline as, 66.0% have the same industry of primary employment as, and 43.7% share a third-party connection with the CEO.

3.4. Board characteristics and the determinants of the incidence of socially linked directors

In Table 2, we present summary statistics on various CEO and board characteristics. In Column 1, which presents statistics for the entire sample, we observe that 87.4% of the boards are conventionally independent. However, when we augment the conventional definition of director independence with the additional social restrictions, the percentage of independent boards drops to 62.4%. Thus, if social ties matter, then a substantial proportion of conventionally independent boards are not truly independent.

We now explore the determinants of a board's social dependence. A CEO's clout in the board-selection process "comes from his perceived ability relative to a replacement" (Hermalin and Weisbach, 1998, p. 97). Thus, if CEOs desire socially dependent directors, we expect that the incidence of such directors increases with quality or power signals, such as tenure and board chairmanship. Consistent with this hypothesis, we observe in Table 2 that, on average, the CEOs of firms whose boards are conventionally independent but not conventionally and socially independent (Column 4) have greater tenure and more often have busy boards; these CEOs are also more likely to have received a "Business

Week Best Manager" award than the CEOs of firms whose boards are both conventionally and socially independent (Column 3).

In Table 3, we present the results from a pooled regression of the board's social-dependence fraction on various CEO, board, and firm characteristics. We use lagged values of the economic variables, such as past performance and firm size, because selection power and selection decisions based on economic determinants must be based on past values of such variables. To ensure that past performance is matched to the appropriate CEO, we exclude those firm-years in which there are new arrivals because past firm performance cannot be attributed to an incoming CEO. On the other hand, we use contemporaneous values of the board-composition variables, because directors can be selected mid-year, and the CEO's current power in the selection process is based on the current governance structure. To address potential timing concerns, we also estimate our regression using lagged values of the governance variables, and we obtain similar results (untabulated). We include year dummies and industry dummies using the Fama-French (1997) five-industry classification, and all *t*-statistics are calculated using White standard errors adjusted for clustering (by firm), which account for heteroskedasticity and serial correlation (Petersen, 2009).

We find that *CEO Tenure* has a significantly positive relation with the incidence of socially dependent directors. On average, a CEO with six more years of tenure has a board with a social-dependence fraction that is 0.042 greater (*t*-statistic = 2.11). Moreover, when the CEO has received a "Business Week Best Manager" award, the social-dependence fraction increases by 0.077 (*t*-statistic = 2.12). This positive association lends further support to the hypothesis that CEOs desire socially dependent directors, because a "Best Manager" distinction alludes to the CEO's power and thereby to his clout in the selection process. The social-dependence fraction is also significantly higher, both economically and statistically, when the board is busy (coefficient estimate = 0.052, *t*-statistic = 2.30) as well as when there is a greater proportion of old directors on the board (coefficient estimate = 0.263, *t*-statistic = 3.12); presumably, these variables indicate a lack of director oversight, which also empowers the CEO. Finally, the coefficient estimates on the industry dummies (untabulated) indicate that, all else

equal, the *Health* industry has the highest incidence of socially dependent directors, followed by the *High-Tech* and *Other* industries, respectively. The *Consumer* and *Manufacturing* industries have the lowest incidence of socially dependent directors.

The positive association between the degree of social dependence and indicators of CEO quality or power is consistent with the idea that CEOs select directors with whom they share social ties. To further explore this interpretation, in Fig. 1, we examine the changes in a board's social dependence when a new CEO is appointed. If CEOs do not seek socially linked directors, then, on average, we expect to see no time-series increase in the social-dependence fraction as the new CEO advances in tenure. Using an unbalanced panel of 81 CEO appointments, we plot the evolution of the board's social dependence, in event time, from the year prior to the new CEO's arrival ($t = 0$) to the third year of the new CEO's tenure ($t = 3$).[9] In Panel A, we plot the average fraction of directors who are socially dependent with respect to the incumbent CEO, and in Panel B, we plot the percentage change in the average fraction of socially dependent directors relative to time $t = 0$. Upon arrival of the new CEO, we observe an 8.1% decrease from 0.272 to 0.250 in the average proportion of directors who are socially dependent to the incumbent CEO. Then, as the new CEO's time with the firm progresses, he seems to rebuild the board's social dependence. By his third year, the average social-dependence fraction is back up to 0.284, suggesting that CEOs select directors along these social dimensions.

Given that other indicators of quality or power are associated with greater clout in the director selection process, we expect the rate at which a board's social dependence increases with tenure to be higher for those CEOs who exhibit these quality or power signals. Consistent with this hypothesis, we

[9] One possible concern with the use of an unbalanced panel is that our figure could reflect cross-sectional variation in social ties as opposed to time-series variation. In particular, the positive association between CEO tenure and the board's social dependence could come solely from a socially dependent board's unwillingness to replace a CEO to whom it is socially linked. This interpretation signifies the disciplinary importance of social ties, but it is likewise interesting to know whether CEOs actively select such directors. Thus, we also investigate a balanced panel of CEO appointments, and we observe a similar pattern depicting an overall increase in the incidence of social ties over time (untabulated).

find that, when we interact CEO tenure with the various indicators of CEO quality or power (untabulated), ten of the 14 interactions terms have the predicted sign and an *F*-test indicates significance at the 0.01 level, suggesting that such measures contribute to a faster increase in the incidence of socially dependent directors.

4. Empirical results

We now proceed to examine the effect of social ties on executive compensation. In Table 4, we present summary statistics on CEO compensation and various firm characteristics (Appendix C contains a correlation matrix of variables, including the governance variables from Table 2 and our dependent variable, CEO compensation). The overall average salary plus bonus and total compensation are $3.8 million and $12.8 million, respectively (Column 1). In a cross-panel comparison, we observe that CEO salary plus bonus and total compensation are lower at firms whose boards are both conventionally and socially independent (Column 3) than at firms whose boards are conventionally independent but not conventionally and socially independent (Column 4). This observation is consistent with our conjecture that conventionally-and-socially independent boards are more effective at controlling agency issues than boards that are only conventionally independent. However, there are many other determinants of executive compensation for which we need to control.

4.1. Level of CEO compensation

To test the relevance of social ties, we estimate the following regression:

$$C_{i,t} = \alpha + \beta_1 BoardIndependence_{i,t} + X\beta_{2\text{-}19} + Year\ \beta_{20\text{-}28} + Industry\ \beta_{29\text{-}32} + \varepsilon_{i,t,}. \quad (1)$$

$C_{i,t}$, the dependent variable, is the level of compensation in millions for the CEO of firm *i* in year *t*. We use two different measures of compensation: *Base Salary + Bonus*, and *Total Compensation*, calculated as the sum of base salary, bonus, long-term incentive payouts, the value of restricted stock grants, and the Black-Scholes value of option grants converted into their stock equivalents using the options' median delta. $BOARD\ INDEPENDENCE_{i,t}$ is a dummy that equals one if the board of firm i is classified as

independent (under the criteria in question), and zero otherwise. *X* is a set of the following control variables: *ln(Total Assets)*, *ln(MB)*, *ROA*, *RET*, σ^2, *CEO Equity Holdings*, *CEO Award*, *CEO=Chairman*, *CEO Tenure*, *ln(Board Size)*, *Old Directors*, *Busy Board*, *Directors' Equity Holdings*, *CEO from Other Company*, *Classified Board*, *Democracy Firm*, *Dictatorship Firm*, and *Family Firm*. Following Core, Holthausen, and Larcker (1999), we use lagged values of the economic determinants and contemporaneous values of the governance variables. However, to address potential timing concerns, we also estimate our regressions using lagged values of the governance variables and we obtain similar results (untabulated). To ensure that past performance is matched to the appropriate CEO, we exclude those firm-years in which there are new arrivals because past firm performance cannot be attributed to an incoming CEO. *Year* denotes the year dummies, $Year_{1997}$ through $Year_{2005}$, and *Industry* denotes the industry dummies, $Industry_2$ through $Industry_5$, using the Fama-French (1997) five-industry classification. All *t*-statistics are calculated using White standard errors adjusted for clustering (by firm).

The results, presented in Table 5, show a substantially stronger coefficient estimate when we replace the conventional measure of board independence (which does not incorporate social ties) with our new measure. When we regress the CEO's salary plus bonus on the conventional board-independence dummy (Column 1), we obtain a coefficient estimate of -0.755 (*t*-statistic = -1.16). However, when we replace the conventional dummy with the new board-independence dummy (Column 2), we obtain a coefficient estimate of -0.780 (*t*-statistic = -2.31). This magnitude is also economically meaningful; the CEO's salary plus bonus decreases by roughly $0.8 million when a conventionally-and-socially independent board is present (average salary plus bonus is $3.8 million).

In Columns 3 and 4, we extend our analysis to the CEO's total compensation. When we regress total compensation on the conventional board-independence dummy (Column 3), we obtain a coefficient estimate of 0.572 (*t*-statistic = 0.24). However, when we replace the conventional dummy with the new board-independence dummy (Column 4), the coefficient estimate sharply increases in magnitude to -3.347 (*t*-statistic = -2.50). This translates to a total compensation decrease of roughly $3.3 million when

the board is both conventionally and socially independent of the CEO (average total compensation is $12.8 million)

The new board-independence measure's greater association with compensation suggests that our proposed social ties are an important source of a director-CEO connection that affects the board's monitory capacity. Moreover, consistent with prior literature, the regression results indicate that the level of compensation is higher for CEOs of large firms, for CEOs of growth firms, for CEOs who have strong prior performance, when the CEO is also the chairman of the board, for CEOs whose boards include a higher proportion of old directors, and when at least one of the directors is the CEO at another firm. Also consistent with prior literature, *CEO Equity Holdings* has a statistically significant (but economically insubstantial), negative relation with the level of compensation. Due to clustering, which oftentimes more than doubles OLS standard errors, many variables that otherwise would be (and may have been found to be) significant determinants of CEO compensation are no longer so once this adjustment is applied to account for time-series persistence.

As an additional test of the relevance of social ties, we examine the variation in compensation within the subset of firms with conventionally independent boards, which allows us to determine whether social ties have a significant contribution beyond that of conventional ties. Focusing on this subsample, we estimate the same regression as in Eq. (1), but, in place of the board-independence dummy, we use a $NOT\ INDEPENDENT_{i,t}$ dummy that equals one if the board (despite being conventionally independent) is not conventionally and socially independent, and zero otherwise. If social ties are irrelevant, then we expect no compensation differential attributed to this distinction. By focusing on firms with conventionally independent boards, we ensure that any compensation differential we observe is due to the extent of the directors' social ties to the CEO.

The results, presented in Table 6, show a significant difference in CEO compensation between the conventionally independent boards that are conventionally and socially independent, and those that are not. In Column 1, we observe that the CEO of a firm with a conventionally-but-not-conventionally-and-socially independent board receives a salary plus bonus that is $0.6 million greater ($t$-statistic = 1.71) than

that of his conventionally-and-socially independent counterpart, despite each board's conventionally independent status. In Column 2, we observe that this compensation differential extends to the CEO's total compensation package; the CEO of a firm with a conventionally-but-not-conventionally-and-socially independent board receives a total compensation that is $4.1 million greater (*t*-statistic = 2.69) than that of his conventionally-and-socially independent counterpart. These results further signify the monitory importance of these social ties, because within the subsample of firms with conventionally independent boards, a compensation premium is awarded by firms whose boards' degree of social dependence rules out conventional-and-social independence.

4.2. Subsequent operating performance

The results thus far suggest that social ties affect the board's monitory effectiveness. However, there are alternative explanations for the higher level of compensation associated with having a board that is conventionally independent but not conventionally and socially independent. One possibility is that, when a CEO's job is more difficult or complex, he requires not only a higher level of compensation but also a board with a greater advisory role (i.e., perhaps a friendlier board). Thus, the compensation premium associated with social ties could reflect the firm's complexity as opposed to the board's decreased monitory capacity. A similar argument applies to a high-quality CEO, who has more freedom and bargaining power in the board selection process (Hermalin and Weisbach, 1998). Such a CEO could benignly desire more socially dependent directors, and receive a higher level of compensation due to his high quality.[10] Whether through facilitated expropriation, increased counsel, or CEOs' benign preferences for socially dependent directors, all of these possibilities highlight the relevance of these social ties. Our purpose now is to disentangle these competing interpretations.

[10] For example, a CEO from University X could view his alma mater as a signal of quality and may desire directors who hold degrees from University X with the intent to form a higher quality board (as opposed to a less independent one).

Following Core, Holthausen, and Larcker (1999), we examine the relation between subsequent operating performance and the excess component of compensation attributed to having a board that is not conventionally and socially independent. If greater social dependence reflects either a high-quality CEO's preferences (other than to entrench himself) or a complex firm's advisory needs, then we expect to see no relation or perhaps a positive relation between subsequent performance and this excess component of compensation. To ensure that any relation we observe is due to the extent of the directors' social ties to the CEO, we focus our analysis on the subsample of firms with conventionally independent boards. Then, we estimate the following regression:

$$\overline{Performance}_{i,t+1,t+3} = \alpha + PredictedExcessCompensation_{i,t}\beta_{1-2} + X\beta_{3-5} + Year\beta_{6-14} + Industry\beta_{15-18} + \varepsilon_{i,t}. \quad (2)$$

$\overline{Performance}_{i,t+1,t+3}$, the dependent variable, is the operating performance averaged over the subsequent one-, two-, or three-year period. We use three different measures of operating performance: return on assets (*ROA*), return on sales (*ROS*), and return on equity (*ROE*). *Predicted Excess Compensation*$_{i,t}$ consists of two variables: *Excess(NOT INDEPENDENT*$_{i,t}$*)*, the predicted excess compensation attributed to having a board that is not conventionally and socially independent (despite being conventionally independent); and *Excess(Other Governance Variables*$_{i,t}$*)*, the predicted excess compensation from the remaining governance variables: *CEO Equity Holdings*, *CEO=Chairman*, *ln(Board Size)*, *Old Directors*, *Busy Board*, *Directors' Equity Holdings*, *CEO from Other Company*, *Classified Board*, *Democracy Firm*, *Dictatorship Firm*, and *Family Firm*. Predicted excess components of total compensation are calculated using the coefficient estimates reported in Table 6 and are scaled by total compensation. *X* is a set of the following control variables: *ln(Total Assets)*, *ln(MB)*, and σ^2. We use time-*t* values of *ln(Total Assets)* and σ^2, and we use time-(*t-1*) values of *ln(MB)* to avoid unduly capturing market expectations of upcoming earnings as opposed to expectations of growth opportunities. *Year* denotes the year dummies, *Year*$_{1997}$ through *Year*$_{2005}$, and *Industry* denotes the industry dummies, *Industry*$_2$ through *Industry*$_5$, using the Fama-French (1997) five-industry classification. All *t*-statistics are calculated using White standard errors adjusted for clustering (by firm).

The results, presented in Table 7, show a significantly negative relation between subsequent operating performance and the excess compensation attributed to having a board that is not conventionally and socially independent. To gauge the economic importance, consider a one standard deviation increase (0.418) in *Excess(NOT INDEPENDENT$_{i,t}$)*. For the one-year performance measures, such an increase is associated with a 0.4% decrease in *ROA* (*t*-statistic = -1.89), a 0.5% decrease in *ROS* (t-statistic = -1.72), and a 0.8% decrease in *ROE* (*t*-statistic = -2.61). For the two-year measures, such an increase is associated with average, annual decreases of 0.5% in *ROA* (*t*-statistic = -2.10), 0.5% in *ROS* (*t*-statistic = -1.86), and 0.8% in *ROE* (*t*-statistic = -2.54). For the three-year measures, such an increase is associated with average, annual decreases of 0.4% in *ROA* (*t*-statistic = -2.46), 0.5% in *ROS* (t-statistic = -2.24), and 0.7% in *ROE* (*t*-statistic = -2.08).

Because all of these firms have conventionally independent boards, the negative associations that we find are explicitly due to the extent of social ties to the CEO. These results further punctuate the monitory and disciplinary importance of social ties, because neither the advisory needs of a complex firm nor the innocent social preferences of a high-quality CEO can explain this negative association between subsequent operating performance and the excess compensation attributed to having a board that is not conventionally and socially independent.

4.3. Other channels of monitoring

We now examine the role of social ties in other supervisory and disciplinary duties of the board. To ensure that any relation we observe is due to the extent of the directors' social ties to the CEO, we focus our analyses on the subsample of firms with conventionally independent boards.

4.3.1. Board independence and pay-performance elasticity

Here, we examine the role of social ties in the CEO's pay-performance relation. Jensen and Murphy (1990) and Murphy (1999) argue that the relation between CEO pay and performance (i.e., the change in shareholder wealth) is weak. One explanation is that lack of oversight leads to compensation plans in

which interests are not adequately aligned between shareholders and risk-averse, self-interested CEOs. If social ties do not exacerbate this conflict, then we expect no difference in the pay-performance relation attributed to the extent of the board's social ties to the CEO.

Within the subsample of firms with conventionally independent boards, we regress the percentage change in CEO compensation on $RET_{i,t}$, $RET_{i,t}$ x $NOT\ INDEPENDENT_{i,t}$, and *INTERACT*, which consists of various other interaction terms. $NOT\ INDEPENDENT_{i,t}$ is a dummy that equals one if the board (despite being conventionally independent) is not conventionally and socially independent, and zero otherwise. *INTERACT* is a set of interaction terms in which $RET_{i,t}$ is interacted with each of the following variables: *CEO Award*, *CEO=Chairman*, *CEO Tenure*, *ln(Board Size)*, *Old Directors*, *Busy Board*, *Directors Equity Holdings*, *CEO from Other Company*, *Classified Board*, *Democracy Firm*, *Dictatorship Firm*, *Family Firm*, and σ^2. In accordance with previous studies, we use contemporaneous values of all independent variables. We include year and industry dummies, and all *t*-statistics are calculated using White standard errors adjusted for clustering (by firm).

We interact $RET_{i,t}$ with σ^2 because, consistent with the predictions of the principal-agent model, Aggarwal and Samwick (1999) find that pay-performance sensitivity decreases in stock return volatility. The remaining interactions are with variables that proxy a CEO's clout with his board or lack of director oversight, which we expect to lessen the relation between pay and performance. Finally, in regressing the percentage change in pay on the percentage change in shareholder wealth, we estimate pay-performance elasticity as opposed to pay-performance sensitivity, which examines the dollar change in pay with respect to the dollar change in shareholder wealth (Murphy, 1999). We opt to estimate pay-performance elasticity because, in doing so, we obtain greater explanatory power of our dependent variable. However, we obtain similar results when we estimate pay-performance sensitivity (untabulated).

The results, presented in Table 8, show a significant difference in pay-performance elasticity within the subsample of firms with conventionally independent boards. Consistent with prior literature, we observe a significantly positive relation between the percentage change in compensation and the percentage change in shareholder wealth (Columns 1 and 3). However, the CEO of a firm with a

conventionally-but-not-conventionally-and-socially independent board receives a total compensation package that is 0.510 less elastic with respect to performance (*t*-statistic = -1.91) than that of his conventionally-and-socially independent counterpart (Column 4). In other words, for a 20% decrease in stock returns, the CEO of a firm with a conventionally-but-not-conventionally-and-socially independent board has a total compensation package that decreases by 10.2% less than that of an otherwise equivalent CEO of a firm with a conventionally-and-socially independent board. Ultimately, firms with conventionally-and-socially independent boards exhibit, on average, an 18% decrease in the CEO's total compensation for a 20% decrease in shareholder wealth (untabulated).

4.3.2. Board independence and CEO turnover

Here, we examine the role of social ties in the CEO's turnover-performance sensitivity. CEO turnover is another area in which social ties potentially hinder the board from acting in shareholders' best interests. Board consultants in the popular press broach this issue, saying that when directors debate whether or how to fire a CEO, "they [the directors] typically need the most help in dealing with their attachment to the CEO" (Business Week, 2007), and academic studies find weaker sensitivity of turnover to performance with the presence of factors indicating that the board is beholden to the CEO (e.g., Weisbach, 1988; Yermack, 1996; and Faleye, 2007). If social ties do not cloud objective disciplining, then we expect no difference in turnover-performance sensitivity attributed to the extent of the board's social ties to the CEO.

Within the subsample of firms with conventionally independent boards, we use the logistic function to estimate a binary response model of the $Turnover_{i,t}$ indicator on $RET_{i,t-1}$, $RET_{i,t-1}$ x *NOT INDEPENDENT*$_{i,t-1}$, and *NOT INDEPENDENT*$_{i,t-1}$, as well as *INTERACT*, which consists of various other interaction terms, and *X*, which consists of various controls. $Turnover_{i,t}$ is a dummy that equals one if a CEO turnover occurs at firm *i* in year *t*, and zero otherwise. *NOT INDEPENDENT*$_{i,t-1}$ is a dummy that equals one if in year *t-1* the board (despite being conventionally independent) is not conventionally and socially independent, and zero otherwise. The set *X* consists of the following variables: *CEO Award*,

CEO=Chairman, *CEO Tenure*, *ln(Board Size)*, *Old Directors*, *Busy Board*, *Directors Equity Holdings*, *CEO from Other Company*, *Classified Board*, *Democracy Firm*, *Dictatorship Firm*, and *Family Firm*, which proxy a CEO's clout with his board or lack of director oversight, as well as *CEO Age*, which serves to distinguish voluntary retirements from involuntary departures (as does *CEO Tenure*). Departures of mature CEOs with long tenure are more likely to be voluntary (Murphy, 1999). *INTERACT* is a set of interaction terms in which $RET_{i,t-1}$ is interacted with each of the variables in *X*, except for *CEO Age*. In accordance with previous studies, we use lagged values of all independent variables. Because this regression involves lagged board-structure variables, which are unavailable in 1995, we begin our analysis in 1997. We include year and industry dummies, and all *p*-values account for clustering (by firm).

The results, presented in Table 9, show a significant difference in the probability of a CEO turnover within the subsample of firms with conventionally independent boards; all else equal, the probability of turnover decreases, on average, by 3.7% for firms with boards that are conventionally independent but not conventionally and socially independent (*p*-value = 0.09). Moreover, we observe a suggestive difference in turnover-performance sensitivity attributed to this distinction. The CEO of a firm with a conventionally-but-not-conventionally-and-socially independent board is less likely to be terminated based on poor performance (*p*-value = 0.18) than his conventionally-and-socially independent counterpart. For a one standard-deviation decrease (from the mean) in returns, the probability of turnover increases by roughly 3.2% less when the board is not conventionally and socially independent.

4.3.3. Audit-committee independence and CEO bonus

Here, we examine the role of social ties in the audit committee's oversight responsibilities. The audit committee's function is to oversee the integrity of the firm's financial statements, of which accounting earnings are the primary determinant of the CEO's bonus (Murphy, 1999). There is evidence that managers attempt to manipulate earnings to maximize their bonuses (Healy, 1985), and related studies suggest that the level of earnings manipulation is a function of the firm's governance and ownership

structure (e.g., Dechow, Sloan, and Sweeney, 1996; and Warfield, Wild, and Wild, 1995). In particular, Klein (2002) argues that firms with independent audit committees engage in less earnings management. If social ties do not cloud objective monitoring, then we expect no bonus differential (and thus no difference in earnings manipulation) attributed to the presence of social ties between the CEO and members of the audit committee.

Within the subsample of firms whose audit committees consist entirely of conventionally independent directors, we regress the CEO's bonus (in millions) on a $NOT\ INDEPENDENT_{i,t}$ dummy, the CEO's total compensation minus his bonus, and the same set of controls, X, as in regression Eq. (1). $NOT\ INDEPENDENT_{i,t}$ is a dummy that equals one if the audit committee (despite consisting entirely of conventionally independent directors) has one or more directors who are socially dependent to the CEO, and zero otherwise. Because this regression involves audit committee data (which are not available until after 1997), we begin our analysis in 1998. We control for the CEO's total compensation (minus bonus), because the CEO's bonus is positively associated with his overall level of compensation and audit committee independence is positively associated with board independence. We include year and industry dummies, and all *t*-statistics are calculated using White standard errors adjusted for clustering (by firm).

The results, presented in Table 10, show a significant bonus differential within the subsample of firms with conventionally independent audit committees. On average, the CEO of a firm with a conventionally-but-not-conventionally-and-socially independent audit committee receives a bonus that is \$0.734 million greater (*t*-statistic = 1.75) than that of his conventionally-and-socially independent counterpart (average CEO bonus is \$2.6 million), thereby lending support to the monitory relevance of social ties in the audit committee's supervision of the firm's financial statements. This bonus premium is not a by-product of our earlier compensation results, because we control for the CEO's overall compensation. We obtain similar results when we control for base salary in place of total compensation (untabulated), with a coefficient estimate of 0.813 (*t*-statistic = 1.95).

4.4. Additional analyses

To ensure that our results are not sensitive to alternative specifications, we now examine various board-independence classifications and alternative regression specifications. All untabulated analyses are available upon request.

4.4.1. Alternative classifications of conventionally-and-socially independent boards

In Table 11, we present the results from a range of sensitivity tests of alternative, independence classifications. As in Table 5, we estimate regression Eq. (1) using two different measures of compensation: *Salary* + *Bonus* (Panel A) and *Total Compensation* (Panel B), and all *t*-statistics are calculated using White standard errors adjusted for clustering (by firm). In Columns 1 through 3, we present the results from using a board-independence dummy, whereby, in Column 1, we require that a 50% majority of directors be independent; in Column 2, we require that a 60% majority of directors be independent; and in Column 3, we require that all members of the compensation committee be independent. In regressions using the 60% cutoff, we also include a mixed-board dummy that equals one if the percentage of independent directors is between 40% and 60%, and zero otherwise. Moreover, for regressions involving compensation committee information, our analyses begin in 1998 in accordance with data availability. In Column 4, we present the results from using the fraction of independent directors (as opposed to an independence dummy). Finally, in Column 5, we present the results from using the board's average number of ties per director, which we calculate by dividing the total number of director-CEO ties (with a maximum of seven per director) by the number of directors for that firm-year. In contrast to the other measures (including the independence fraction), which categorize directors in dichotomous terms, this last measure allows us a finer metric to define the extent of a director's dependence to the CEO. For each of these measures of board independence, we present the results from using two different specifications of director independence. In the first row, we consider only the conventional ties, and in the second row, we augment the conventional criteria with our social criteria.

We find that our earlier results are robust to different board-independence cutoffs, to the use of an independence fraction instead of a dummy, and to the use of an average-ties measure. Across our various specifications of board independence, the coefficient estimates on the conventional-and-social independence measures (Row 2) are both economically meaningful and statistically significant. Moreover, we observe similarly significant results when we redefine regional ties by a finer state-wise classification (untabulated). In comparison, the coefficient estimates on the conventional-independence measures (Row 1) are substantially smaller in economic and statistical significance.

Using these alternative specifications, we also replicate Table 6 (which provides a clearer picture of the monitory relevance of social ties beyond that of conventional ties because we examine the variation in compensation within the subsample of firms with conventionally independence boards), and we obtain even stronger results (untabulated).

4.4.2. Additional sensitivity tests

In additional tests (untabulated), we include an outside blockholder dummy as a control variable, because an outside blockholder has increased supervisory incentives due to his large stake in the firm. An outside blockholder is a shareholder who has at least 5% ownership in the firm and is not an officer, a director, an affiliated entity, or otherwise employed by the firm. The board-independence coefficient estimates are equal in magnitude to those obtained in our original regressions, but, because the blockholder database ends in 2001, our sample size sharply decreases to 350 observations with the inclusion of this variable, thereby increasing the standard errors of the board-independence coefficient estimates (resulting in *t*-statistics of -1.86 and -1.65, respectively, when using the *Salary* + *Bonus* and *Total Compensation* measures). As always, we use White standard errors adjusted for clustering by firm. Whether the outside blockholder dummy is included or not, compensation regressions within this reduced sample (of 350 observations) yield very similar board-independence coefficient estimates and standard errors.

Furthermore, our results continue to hold under the following alternative specifications of our empirical tests (untabulated): calculating total compensation using the Black-Scholes value of options

instead of converting them into their stock equivalents; estimating quantile regressions to reduce the influence of potential outliers; including the CEO's first-year level of compensation as an additional control for CEO quality; adding squared values of our independent variables to capture possible nonlinearities; adjusting variables by the industry median (as opposed to adjusting by the mean); including an *Other Provisions* index in place of the *Democracy* and *Dictatorship* dummies (the *Other Provisions* index is equal to the GIM index minus one if the firm has a classified-board provision, and minus zero otherwise); and including the Bebchuk, Cohen, and Ferrell (2004) index in place of the *Classified-Board*, *Democracy*, and *Dictatorship* dummies (the BCF index accrues one point for each of the following provisions: classified board, poison pill, golden parachute, limits to bylaw amendments, supermajority requirements for charter amendments, and supermajority requirements for mergers).

4.4.3. Missing data

Social ties are indeterminate for some directors due to missing data points. We have 81.2% coverage in terms of educational institution, 66.8% coverage in terms of regional origin, 57.8% coverage in terms of discipline, and 96.1% coverage in terms of industry. Because military service is a noteworthy career point, we assume that a blank military service field indicates that the director or CEO in question simply did not serve in the military. Overall, we have at least one social ties data point for 98.4% of directors, we have at least two data points for 82.3% of directors, and we have at least three data points for 76.2% of directors.

Directors who are missing data along our social criteria, by default, are not linked socially to the CEO. One possible concern, then, is that the missing data share a systematic component, resulting in a spurious correlation between social ties and CEO compensation. To the contrary, we find that our coverage rates are not significantly related to firm size, market-to-book, or the various governance variables (nor do they vary significantly across industries), suggesting that the missing social ties data are missing at random.

To further ensure that our results are not driven by the missing data, we re-estimate regression Eq. (1) (untabulated), this time separating the (conventionally and socially) independent directors into two categories: those who have low coverage (less than two data points) in terms of social ties data, and those who have high coverage (at least three data points). Unless the missing data share a systematic component associated with lower CEO compensation, we expect a weaker relation between compensation and low-coverage independent directors than between compensation and high-coverage independent directors (because independent directors with lower data coverage are less certain to be truly independent than those with higher data coverage). Consistent with this notion, we find that in a regression of *Salary* + *Bonus* on the low- and high-coverage independence fractions, the high-coverage coefficient estimate is stronger, both in magnitude and statistical significance, than the low-coverage coefficient estimate. We make similar observations when we regress *Total Compensation* on the low- and high-coverage independence fractions, and in both cases, only the high-coverage coefficient estimates are reliably different from zero. Moreover, we make similar observations under different cutoffs of high versus low data coverage. The stronger association between CEO compensation and the high-coverage independent directors substantiates that our results are not driven by the missing social ties data, and provides further evidence that our proposed measures contribute to a decline in monitory and disciplinary effectiveness.

5. Contribution and discussion

Our paper contributes to the governance literature in the following ways. First, we propose a measure of social ties between directors and their CEOs, and we provide evidence of its practical applicability. In contrast to the survey-based measures generally employed by studies pertaining to social embeddedness (e.g., Uzzi, 1996, 1999; Westphal, 1999; Ingram and Roberts, 2000; McDonald and Westphal, 2003; and Westphal, Boivie, and Chng, 2006), our measure is based on several broadly available characteristics. In this respect, our measure is similar to that of Cohen, Frazzini, and Malloy (2008), who study the effects of

social ties between mutual fund managers and corporate officers or directors via mutual alma mater.[11] We add to their measure by suggesting that it is not only a shared educational institution that contributes to a mutual affinity, but also shared military service, regional origin, discipline, and industry.

Moreover, we are the first to examine whether social ties affect a director's monitory and disciplinary effectiveness (above and beyond any effect that the conventional ties may have) and whether boards that are currently (i.e., conventionally) classified as independent are essentially so. Thus, the evidence presented in this paper is relevant to the many academic studies examining the monitory benefits of independent boards (e.g., Weisbach, 1988; Byrd and Hickman, 1992; Brickley, Coles, and Terry, 1994; Cotter, Shivdasani, and Zenner 1997; Mayers, Shivdasani, and Smith, 1997; and Paul, 2007), because our findings suggest that a board's independent mindedness depends not only on conventional ties to the CEO, but also on our proposed social ties. We specifically contribute to the executive compensation, CEO turnover, and earnings management literatures as follows:

Executive Compensation. Studies examining the relation between board composition and executive compensation include Mehran (1995); Westphal and Zajac (1995), Yermack (1996), Hallock (1997), Core, Holthausen, and Larcker (1999), Larcker, Richardson, Seary, and Tuna (2005), and Faleye (2007), who find that executive compensation is higher and is less sensitive to performance in the presence of certain structural measures indicating weaker governance, as well as when directors and CEOs have similar perspectives on corporate strategy. We add to this literature by providing evidence that social ties contribute, beyond any impact that conventional ties may have, to both the level and composition of compensation. We find that conventionally independent boards have a substantially weaker, negative relation with executive compensation than boards that are both conventionally and

[11] In a digressive (but related) vein, some studies use various demographics, such as age, insider versus outsider status (i.e., whether the director is an employee of the firm), and level of formal education to capture similarities in strategic decision making (e.g., Wally and Baum, 1994; Westphal and Zajac, 1995; Papadakis, Lioukas, and Chambers, 1998). For instance, they argue that risk tolerance decreases with age, that cognitive ability increases with the level of formal education, and that outsiders could be "more likely to recognize opportunities for change" whereas insiders "tend to favor the status quo" (p. 64).

socially independent. Moreover, we find that pay-performance elasticity is substantially weaker when boards are not both conventionally and socially independent of the CEO, further suggesting that conventional measures of independence do not fully capture a board's monitory effectiveness.

CEO Turnover. We also contribute to the literature examining the sensitivity of turnover to performance in the presence of factors indicating that the board is beholden to the CEO (e.g., Weisbach, 1988; Yermack, 1996; and Faleye, 2007) by providing suggestive evidence that social ties contribute to weaker turnover-performance sensitivity. Within the subsample of firms with conventionally independent boards, the probability of a CEO turnover is less sensitive to performance at firms with boards with that are not conventionally and socially independent (though not at a statistically significant level).

Earnings Management. Finally, we contribute to the literature examining the association between governance and earnings management (e.g., Dechow, Sloan, and Sweeney, 1996; and Klein, 2002). We contend that it is not only managerial stock holdings (Warfield, Wild, and Wild, 1995) or conventionally independent audit committees (Klein, 2002) that contribute to less earnings manipulation, but also the absence of social ties. Focusing on the subsample of firms whose audit committees consist entirely of conventionally independent directors, we find a significantly higher level of bonus associated with the presence of audit committee social ties to the CEO, providing suggestive evidence that even if audit committees are wholly conventionally independent, social ties allow CEOs to influence earnings in order to increase their bonuses.

6. Conclusion

Directors are not dispassionate. It is not only financial and familial ties that interfere with their disciplinary and monitory roles; social ties also matter. Here, we propose several observable characteristics that likely connect a director (socially) to the CEO: mutual alma mater, military service, regional origin, discipline, and industry. We augment the conventional definition of board independence with these additional social restrictions and find that the percentage of independent boards in our sample drops from 87% to 62%. Moreover, we provide evidence that CEOs select directors along these social

dimensions and that these social ties have a significant impact on directors' monitory and disciplinary effectiveness. Thus, we conclude that social ties compromise arms-length contracting and, as such, are relevant to the classification of independent directors.

References

Adams, R.B., Ferreira, D., 2007. A theory of friendly boards. Journal of Finance 62, 217-250.

Aggarwal, R.K., Samwick, A.A., 1999. Executive compensation, strategic competition, and relative performance evaluation: theory and evidence. Journal of Finance 54, 1999-2043.

Baker, G.P., Hall, B.J., 2004. CEO incentives and firm size. Journal of Labor Economics 22, 767-798.

Baker, G.P., Jensen, M.C., Murphy, K.J., 1988. Compensation and incentives: practice vs. theory. Journal of Finance 43, 593-616.

Banker, R.D., Datar, S.M., 1989. Sensitivity, precision, and linear aggregation of signals for performance evaluation. Journal of Accounting Research 27, 21-39.

Bebchuk, L.A., Cohen, A., 2005. The costs of entrenched boards. Journal of Financial Economics 78, 409-433.

Bebchuk, L.A., Cohen, A., Ferrell, A., 2004. What matters in corporate governance? Unpublished working paper. Harvard University, Cambridge, MA.

Bebchuk, L.A., Fried, J.M., 2003. Executive compensation as an agency problem. Journal of Economic Perspective 17, 71-92.

Brickley, J.A., Coles, J.L., Terry, R., 1994. Outside directors and the adoption of poison pills. Journal of Financial Economics 35, 371-390.

Byrd, J.W., Hickman, K.A., 1992. Do outside directors monitor managers? Journal of Financial Economics 32, 195-221.

Cohen, L., Frazzini, A., Malloy, C.J., 2008. The small world of investing: board connections and mutual fund returns. Journal of Political Economy 116, 951-979.

Cohen, L., Frazzini, A., Malloy, C.J., 2008. Sell side school ties. Unpublished working paper. Harvard University, Cambridge, MA.

Coles, J.L., Daniel, N.D., Naveen, L., 2008. Boards: does one size fit all? Journal of Financial Economics 87, 329-356.

Core, J.E., Holthausen, R.W., Larcker, D.F., 1999. Corporate governance, chief executive officer compensation, and firm performance. Journal of Financial Economics 51, 371-406.

Cotter, J.F., Shivdasani, A., Zenner, M., 1997. Do independent directors enhance target shareholder wealth during tender offers? Journal of Financial Economics 43, 195-218.

Crosse, C., Hocking, B., 2004. Social rehabilitation: what are the issues? DVA National Rehabilitation Conference, Canberra, Australia.

Cyert, R.M., Kang, S.-H., Kumar, P., 2002. Corporate governance, takeovers, and top-management compensation: theory and evidence. Management Science 48, 453-469.

Dechow, P.M., Sloan, R.G., Sweeney, A.P., 1996. Causes and consequences of earnings manipulation: an analysis of firms subject to enforcement actions by the SEC. Contemporary Accounting Research 13, 1-36.

Elster, J., 1989. Social norms and economic theory. Journal of Economic Perspective 3, 99-117.

Faleye, O., 2007. Classified boards, firm value, and managerial entrenchment. Journal of Financial Economics 83, 501-529.

Fama, E.F., French, K.R., 1997. Industry costs of equity. Journal of Financial Economics 43, 153-193.

Fama, E.F., Jensen, M.C., 1983. Separation of ownership and control. Journal of Law and Economics 26, 301-325.

Fich, E.M., Shivdasani, A., 2006. Are busy boards effective monitors? Journal of Finance 61, 689-724.

Finkelstein, S., Hambrick, D.C., 1989. Chief executive compensation: a study of the intersection of markets and political processes. Strategic Management Journal 10, 121-134.

Friedman, M.J., 2005. Veterans' mental health in the wake of war. New England Journal of Medicine 352, 1287-1290.

Gaver, J.J., Gaver, K.M., 1993. Additional evidence on the association between the investment opportunity set and corporate financing, dividend, and compensation policies. Journal of Accounting and Economics 16, 125-160.

Gompers, P., Ishii, J., Metrick, A., 2003. Corporate governance and equity prices. Quarterly Journal of Economics 118, 107-155.

Granovetter, M., 2005. The impact of social structure on economic outcomes. Journal of Economic Perspective 19, 33-50.

Hall, B.J., Liebman, J.B., 1998. Are CEOs really paid like bureaucrats? Quarterly Journal of Economics 113, 653-691.

Hallock, K.F., 1997. Reciprocally interlocking boards of directors and executive compensation. Journal of Financial and Quantitative Analysis 32, 331-344.

Healy, P.M., 1985. The effect of bonus schemes on accounting decisions. Journal of Accounting and Economics 7, 261-279.

Hermalin, B.E., Weisbach, M.S., 1991. The effects of board composition and direct incentives on firm performance. Financial Management 20, 101-112.

Hermalin, B.E., Weisbach, M.S., 1998. Endogenously chosen boards of directors and their monitoring of the CEO. American Economic Review 88, 96-118.

Ingram, P., Roberts, P.W., 2000. Friendships among competitors in the Sydney hotel industry. American Journal of Sociology 106, 387-423.

Jensen, M.C., Murphy, K.J., 1990. Performance pay and top-management incentives. Journal of Political Economy 98, 225-264.

Klein, A., 2002. Audit committee, board of director characteristics, and earnings management. Journal of Accounting and Economics 33, 375-400.

Larcker, D.F., Richardson, S.A., Seary, A.J., Tuna, I., 2005. Back door links between directors and executive compensation. Unpublished working paper. Stanford University, Stanford, CA.

Linck, J.S., Netter, J., Yang, T., 2008. The determinants of board structure. Journal of Financial Economics 87, 308-328.

Lipton, M., Lorsch, J.W., 1992. A modest proposal for improved corporate governance. Business Lawyer 48, 59-77.

Marsden, P.V., 1987. Core discussion networks of Americans. American Sociological Review 52, 122-131.

Marsden, P.V., Reed, J.S., Kennedy, M.D., Stinson, K.M., 1982. American regional cultures and differences in leisure time activities. Social Forces 60, 1023-1049.

Masulis, R.W., Wang, C., Xie, F., 2007. Corporate governance and acquirer returns. Journal of Finance 62, 1851-1889.

Mayers, D., Shivdasani, A., Smith, C.W., 1997. Board composition and corporate control: evidence from the insurance industry. Journal of Business 70, 33-62.

McDonald, M.L., Westphal, J.D., 2003. Getting by with the advice of their friends: CEOs' advice networks and firms' strategic responses to poor performance. Administrative Science Quarterly 48, 1-32.

McPherson, M., Smith-Lovin, L., Cook, J.M., 2001. Birds of a feather: homophily in social networks. Annual Review of Sociology 27, 415-444.

Mehran, H., 1995. Executive compensation structure, ownership, and firm performance. Journal of Financial Economics 38, 163-184.

Mills, J., Clark, M.S., 1982. Exchange and communal relationships. Review of Personality and Social Psychology 3, 121-144.

Murphy, K.J., 1999. Executive compensation. North Holland, Amsterdam.

NACD, 1996. Report of the NACD blue ribbon commission on director professionalism. National Association of Corporate Directors, Washington, DC.

Papadakis, V.M., Lioukas, S., Chambers, D., 1998. Strategic decision-making processes: the role of management and context. Strategic Management Journal 19, 115-147.

Paul, D.L., 2007. Board composition and corrective action: evidence from corporate responses to bad acquisition bids. Journal of Financial and Quantitative Analysis 42, 759-784.

Petersen, M.A., 2009. Estimating standard errors in finance panel data sets: comparing approaches. Review of Financial Studies 22, 435-480.

Reed, J.S., 2003. Do southerners prefer one another's company? Southern Cultures 9, 84-90.

Rosen, S., 1982. Authority, control, and the distribution of earnings. Bell Journal of Economics 13, 311-323.

Silver, A., 1990. Friendship in commercial society: eighteenth-century social theory and modern sociology. American Journal of Sociology 95, 1474-1504.

Smith, C.W., Watts, R., 1992. The investment opportunity set and corporate financing, dividend, and compensation policies. Journal of Financial Economics 32, 263-292.

US Census Bureau, 2003. Domestic migration across regions, divisions, and states: 1995-2000. In: Franklin, R.S. (Ed.), Census 2000 Special Reports. Government printing office, Washington, DC.

US Census Bureau, 2003. Migration of the young, single, and college educated: 1995-2000. In: Franklin, R.S. (Ed.), Census 2000 Special Reports. Government printing office, Washington, DC.

US Department of State, 2003. Portrait of the USA. Government printing office, Washington, DC.

Uzzi, B., 1996. The sources and consequences of embeddedness for the economic performance of organizations: the network effect. American Sociological Review 61, 674-698.

Uzzi, B., 1999. Embeddedness in the making of financial capital: how social relations and networks benefit firms seeking financing. American Sociological Review 64, 481-505.

Villalonga, B., Amit, R., 2006. How do family owernship, control and management affect firm value? Journal of Financial Economics 80, 385-417.

Wally, S., Baum, J.R., 1994. Personal and structural determinants of the pace of strategic decision making. Academy of Management Journal 37, 932-956.

Warfield, T.D., Wild, J.J., Wild, K.L., 1995. Managerial ownership, accounting choices, and informativeness of earnings. Journal of Accounting and Economics 20, 61-91.

Weisbach, M.S., 1988. Outside directors and CEO turnover. Journal of Financial Economics 20, 431-460.

Westphal, J.D., 1999. Collaboration in the boardroom: behavioral and performance consequences of CEO-board social ties. Academy of Management Journal 42, 7-24.

Westphal, J.D., Boivie, S., Chng, D.H.M., 2006. The strategic impetus for social network ties: reconstituting broken CEO friendship ties. Strategic Management Journal 27, 425-445.

Westphal, J.D., Zajac, E.J., 1995. Who shall govern? CEO board power, demographic similarity, and new director selection. Administrative Science Quarterly 40, 60-83.

Yermack, D., 1996. Higher market valuation of companies with a small board of directors. Journal of Financial Economics 40, 185-211.

Appendix A
Academic disciplines

This is a list of the academic discipline categories. We begin with the basic partition from the *US News and World Report*, which we augment with several disciplines that are not available in this guide (denoted by *). Our final list ensures that every reported major is assigned to one of these categories.

Areas of concentration

1 Business
2 Law
3 Medicine
4 Engineering
5 Education
6 Biological sciences
7 Chemistry
8 Computer science
9 Earth sciences
10 Mathematics
11 Physics
12 Library and information studies
13 Criminology
14 Economics
15 English
16 History
17 Political science
18 Psychology
19 Sociology
20 Health
21 Public affairs
22 Fine arts
23 Theology*
24 Agriculture*
25 Foreign languages*
26 Journalism*

Appendix B
Description of variables

This is a discussion of our control variables and their expected relations with the level of CEO compensation.

Firm Size (Total Assets): To measure firm size, we use the book value of total assets in millions (in our regressions, we use the log of this variable). Previous studies find a positive relation between size and the level of compensation (Murphy, 1999; Baker, Jensen, and Murphy, 1988), and there are various alternative explanations regarding the reasons. Some argue that larger firms employ superior managers (Rosen, 1982). Others argue that managers exploit size to justify higher compensation (Bebchuk and Fried, 2003).

Growth Opportunities (MB): To measure growth opportunities, we take the ratio of the market value of equity to the book value of equity plus deferred taxes (in our regressions, we use the log of this variable). Growth firms likely need better managers, implying that the level of compensation increases with the market-to-book ratio (Smith and Watts, 1992; and Gaver and Gaver, 1993).

Prior Firm Performance (ROA)/Past Returns (RET): To measure prior firm performance, we calculate the cumulative stock return and the return on assets (i.e., the ratio of net income to total assets) from the previous fiscal year. From an agency standpoint, compensation should be an increasing function of performance. Moreover, firms with poor prior performance might be forced to decrease the level of compensation to reduce expenses or public outrage, and excellent prior performance can justify higher compensation. To ensure that firm performance is matched to the appropriate CEO, we exclude new arrivals from our regressions because past firm performance cannot be attributed to the incoming CEO. We use one-year measures of performance to minimize the number of observations we lose.

Variance of Residuals (σ^2): To proxy for firm-specific risk, we calculate the variance of the residuals from the market-model regression over the past five-year period. Theoretically, firm risk could be positively or negatively associated with the level of compensation (Banker and Datar, 1989).

CEO Equity Holdings: We also control for the percentage of the company's shares that are owned by the CEO. Some hypothesize that (from a managerial-power point of view) executive compensation increases with CEO ownership, but they allow for a possible inverted U-shaped association (Finkelstein and Hambrick, 1989). Others argue that the association between the level of compensation and the CEO's equity holdings is "theoretically ambiguous" (Cyert, Kang, and Kumar, 2002, p. 454).

Quality (CEO Award): This is a dummy that equals one if the CEO has ever won the "Business Week Best Manager Award", and zero otherwise. We hand-collect this information from the *Business Week* archives. The idea is that recipients of this award might be of higher quality and that higher quality deserves higher total compensation. Alternatively, this award might signify greater power over the board.

CEO=Chairman of the Board (CEO=Chairman): This is a dummy that equals one if the CEO also serves as the chairman of the board, and zero otherwise. If the CEO is also the chairman of the board, the board could be easier for the CEO to control, a hypothesis that is empirically supported by Yermack (1996) and Core, Holthausen, and Larcker (1999), among others. Thus, we expect chairman CEOs to receive a higher level of compensation than their non chairman counterparts.

CEO Tenure: This is the number of years the CEO has been in office. Higher tenure alludes to the CEO's quality (because he is worth keeping) and his worth as a "rare commodity" (Hermalin and Weisbach, 1998, p. 97). Thus, we expect compensation to increase with tenure.

Board Size: Board size is the number of directors on the board (in our regressions, we use the log of this variable). Lipton and Lorsch (1992) argue that larger boards are more susceptible to managerial control and have increased coordination and free-rider problems, and Yermack (1996) finds that firm value is decreasing in board size. To the contrary, Coles, Daniel, and Naveen (2008) find that firms with greater advisory needs exhibit a positive association between board size and firm value. However, because executive compensation is a monitory, not an advisory, issue, we expect a positive relation between board size and compensation.

Old Directors: Following the mandatory age requirements of many firms, we define a director as old if he or she is 70 years or older, and we calculate the *Old Directors* variable as the fraction of directors over the

age of 69. Older directors are possibly less effective monitors (NACD, 1996; and Core, Holthausen, and Larcker 1999). Thus, we expect this fraction to have a positive impact on the level of compensation.

Busy Board: This is a dummy that equals one if the board is busy, and zero otherwise. Following Fich and Shivdasani (2006), we designate a board as busy if a majority of the independent directors concurrently serve on three or more boards. Some argue that directors who serve on too many boards do not have sufficient time to provide adequate monitoring (NACD, 1996). Core, Holthausen, and Larcker (1999) and Fich and Shivdasani (2006) present evidence that busy boards indicate weak corporate governance. If busy directors are less effective monitors, then busy boards should be positively associated with the level of compensation.

Directors' Equity Holdings: We also control for the average percentage of the company's shares that are owned by the directors. Greater equity ownership suggests that the directors' interests are more aligned with those of the shareholders. As such, the directors are incensed to be better monitors and, accordingly, we expect the level of CEO compensation to be lower.

CEO from Other Company: This is a dummy that equals one if at least one of the directors is the CEO of another firm, and zero otherwise. We expect that CEOs award their fellow CEOs a higher level of compensation, regardless of whether or not they are interlocked**.**

Classified Board: This is a dummy that equals one if the firm has a classified-board provision (i.e., the directors have a staggered election-term structure), and zero otherwise. Bebchuk and Cohen (2005) argue that classified boards entrench management and find that they are negatively associated with firm value. Faleye (2007) further argues that classified boards reduce director effectiveness and finds that CEO turnover and compensation are less sensitive to performance at firms with classified boards. If board-staggering empowers managers, then we expect these managers to receive a higher level of compensation.

Democracy/Dictatorship Firm: Following Gompers, Ishii, and Metrick (2003), *Democracy Firm* is a dummy that equals one if the firm's GIM index is less than or equal to five, and zero otherwise. *Dictatorship Firm* is a dummy that equals one if the firm's GIM index is greater than or equal to 14, and zero otherwise. A firm's GIM index takes on a value between 0 and 24, accruing one point for each

provision that increases managerial power or depresses shareholder activism. We expect that firms with higher indices award higher levels of compensation.

Family Firm: This is a dummy that equals one if at least one relative of the founder is an officer, a director, or a 5% minimum blockholder (either individually or as a group) of the firm, and zero otherwise (we do not consider family firms in which the founder is still a chairman or CEO of the firm). Descendent-run firms have significantly lower firm value, and minority shareholders in these firms are "worse off than they would be in nonfamily firms" (Villalonga and Amit, 2006, p. 388). Thus, we expect a positive association between *Family Firm* and the level of compensation.

Appendix C
Correlation matrix

This table presents a correlation matrix of the independent variables used in our main analysis.

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1)	*Board Independence Dummy$_{new}$*	**1.00**										
(2)	*Board Independence Dummy$_{conv}$*	0.49	**1.00**									
(3)	*Board Independence Fraction$_{new}$*	**0.81**	0.48	**1.00**								
(4)	*Board Independence Fraction$_{conv}$*	**0.51**	**0.75**	**0.67**	**1.00**							
(5)	*ln(Total Assets)*	-0.05	0.05	-0.03	0.08	**1.00**						
(6)	*ln(MB)*	-0.05	-0.02	-0.10	-0.08	-0.24	**1.00**					
(7)	*ROA*	0.09	0.02	0.05	0.00	-0.33	**0.64**	**1.00**				
(8)	*RET*	-0.08	-0.07	-0.11	-0.12	-0.08	0.23	0.11	**1.00**			
(9)	*Variance*	0.05	-0.01	0.09	0.06	-0.14	-0.06	-0.02	0.08	**1.00**		
(10)	*CEO Equity Holdings*	-0.11	-0.22	-0.18	-0.24	-0.06	0.01	0.09	0.11	0.10	**1.00**	
(11)	*CEO Award*	0.01	0.08	-0.01	0.08	0.15	0.18	0.19	-0.01	-0.06	-0.09	**1.00**
(12)	*CEO=Chairman*	0.07	0.17	0.09	0.19	0.08	-0.09	-0.08	-0.06	-0.15	0.02	-0.13
(13)	*CEO Tenure*	-0.23	-0.25	-0.30	-0.29	0.00	0.04	-0.02	0.07	-0.05	0.43	-0.20
(14)	*ln(Board Size)*	0.00	0.05	0.02	-0.06	0.21	0.13	-0.03	-0.01	-0.31	-0.32	0.07
(15)	*Old Directors*	-0.15	-0.09	-0.12	-0.02	0.19	-0.23	-0.17	-0.06	-0.02	0.03	-0.07
(16)	*Busy Board*	0.00	0.15	0.00	0.13	0.10	-0.02	-0.03	0.00	-0.13	-0.10	0.06
(17)	*Directors Equity Holdings*	-0.20	-0.35	-0.20	-0.36	-0.05	-0.03	0.06	0.06	0.04	0.43	-0.01
(18)	*CEO from Other Company*	0.10	0.14	0.14	0.19	0.16	0.06	0.01	-0.12	0.06	-0.15	0.11
(19)	*Classified Board*	0.02	0.04	0.05	0.10	-0.33	0.03	-0.03	0.04	0.18	-0.06	-0.16
(20)	*Democracy Firm*	-0.08	-0.12	-0.13	-0.16	0.08	0.09	0.05	-0.03	-0.06	-0.04	0.09
(21)	*Dictatorship Firm*	0.01	0.02	0.00	-0.02	-0.08	-0.07	-0.04	0.05	-0.01	-0.03	-0.07
(22)	*Family Firm*	-0.09	-0.17	-0.12	-0.18	-0.01	-0.19	-0.15	-0.03	0.02	0.01	-0.06

		(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
(1)	*Board Independence Dummy$_{new}$*											
(2)	*Board Independence Dummy$_{conv}$*											
(3)	*Board Independence Fraction$_{new}$*											
(4)	*Board Independence Fraction$_{conv}$*											
(5)	*ln(Total Assets)*											
(6)	*ln(MB)*											
(7)	*ROA*											
(8)	*RET*											
(9)	*Variance*											
(10)	*CEO Equity Holdings*											
(11)	*CEO Award*											
(12)	*CEO=Chairman*	**1.00**										
(13)	*CEO Tenure*	0.16	**1.00**									
(14)	*ln(Board Size)*	0.16	0.07	**1.00**								
(15)	*Old Directors*	0.05	0.12	0.00	**1.00**							
(16)	*Busy Board*	0.08	-0.18	-0.03	-0.15	**1.00**						
(17)	*Directors Equity Holdings*	-0.08	0.13	-0.09	-0.01	-0.10	**1.00**					
(18)	*CEO from Other Company*	0.10	-0.05	0.15	-0.03	-0.01	-0.04	**1.00**				
(19)	*Classified Board*	0.10	0.05	-0.03	0.02	-0.06	-0.16	-0.09	**1.00**			
(20)	*Democracy Firm*	-0.22	0.06	0.09	0.03	-0.06	0.13	0.01	-0.32	**1.00**		
(21)	*Dictatorship Firm*	0.06	0.03	0.02	0.09	-0.08	-0.03	0.02	0.13	-0.04	**1.00**	
(22)	*Family Firm*	-0.17	-0.10	-0.14	0.00	-0.08	0.40	-0.10	-0.18	0.15	-0.04	**1.00**

Table 1
Proportions of directors with conventional or social ties

This table presents pooled means of the proportions of directors with various ties to the CEO or to the firm. Our sample includes all Fortune 100 firms as of 2005 for which we could obtain the necessary financial data. Overall, our data consists of $N = 704$ firm-years over the period 1996 to 2005. The "Affiliation to CEO" column presents general ways in which a director can be affiliated or dependent to the CEO. A conventional affiliation (i.e., conventional dependence) indicates that the director has a financial or familial tie, as specified by the IRRC, to the CEO or to the firm. A social affiliation (i.e., social dependence) indicates that the director and the CEO share at least two of the following ties: miltary service, alma mater, regional origin, background (i.e., academic discipline), industry of primary employment, or third-party connection through another director. Mutual alma mater must be accompanied by no greater than a three-year age difference to constitute a tie between the director and the CEO. Conventional or social signifies that the director is either conventionally or socially affiliated (or both). The "Proportion of affiliated directors" column presents the pooled means, across all firm-years, of the fraction of the board having the specified general affiliation or dependence to the CEO. The "Proportion of affiliated directors with specific tie" columns present the pooled means, across all firm-years, of the fraction of type-*X* affiliated directors having the specific tie *Y* to the CEO.

Affiliation to CEO	Proportion of affiliated directors $\left(\frac{\#\text{ of affiliated directors on the board}}{\#\text{ of all directors on the board}}\right)$	Proportion of affiliated directors with specific tie $\left(\frac{\#\text{ of affiliated directors on the board with specific tie}}{\#\text{ of affiliated directors on the board}}\right)$					
		Military	School	Regional origin	Background	Industry	Third party
Conventional	0.296	0.066	0.390	0.449	0.426	0.660	0.437
Social	0.276	0.089	0.496	0.680	0.602	0.652	0.660
Conventional or social	0.416	0.063	0.310	0.478	0.445	0.522	0.510

Table 2
CEO and board characteristics

This table presents the pooled means of various CEO and board characteristics. *Independent (conventional)* and *Independent (new)* are dummies that equal one if a majority of directors are independent under the classification in question, and zero otherwise. The *conventional measure* classifies a director as affiliated if he has either financial or familial ties, as specified by the IRRC, to the CEO or to the firm. In addition to the conventional criteria, the *new measure* further classifies a director as affiliated if the director and the CEO share at least two of the following ties: miltary service, alma mater, regional origin, background (i.e., academic discipline), industry of primary employment, or third-party connection through another director. Mutual alma mater must be accompanied by no greater than a three-year age difference to constitute a tie between the director and the CEO. The remaining variables are as defined in Appendix B. Column 1 represents all firms, Column 2 represents the subset of firms with conventionally independent boards, Column 3 represents the subset of firms with conventionally-and-socially independent boards, and Column 4 represents the subset of firms with conventionally independent boards that are not conventionally and socially independent.

Variable	All	Conventional	New	Conventional only
Independent (conventional)	0.874	1.000	1.000	1.000
Independent (new)	0.624	0.714	1.000	0.000
CEO Equity Holdings (%)	0.938	0.579	0.547	0.659
CEO Award	0.203	0.218	0.205	0.250
CEO = Chairman	0.835	0.857	0.854	0.864
CEO Tenure	6.777	6.099	5.485	7.631
Board Size	12.298	12.340	12.189	12.717
Old Directors	0.109	0.129	0.118	0.156
Busy Board	0.358	0.387	0.365	0.442
Directors' Equity Holdings (%)	0.289	0.145	0.120	0.207
CEO from Other Company	0.700	0.725	0.736	0.698
Classified Board	0.509	0.515	0.515	0.515
Democracy Firm	0.094	0.079	0.075	0.089
Dictatorship Firm	0.017	0.018	0.018	0.018
Family Firm	0.070	0.054	0.052	0.059
Number of observations	704	615	439	176

Table 3
Determinants of social dependence

This table presents estimates from a pooled regression of the board's social-dependence fraction (i.e., the proportion of directors who are socially dependent to the CEO) on various CEO, board, and firm characteristics. All independent variables are as defined in Appendix B. We include year dummies and industry dummies using the Fama-French (1997) five-industry classification. All *t*-statistics are calculated using White standard errors adjusted for clustering (by firm).

Variable	Expected sign	Coefficient (*t*-statistic)
$CEO\ Equity\ Holdings_{i,t}$	?	0.000
		(0.47)
$CEO\ Award_{i,t}$	+	0.077
		(2.12)
$CEO = Chairman_{i,t}$	+	0.015
		(0.52)
$CEO\ Tenure_{i,t}$	+	0.007
		(2.11)
$ln(Board\ Size)_{i,t}$	+	-0.065
		(-1.10)
$Old\ Directors_{i,t}$	+	0.263
		(3.12)
$Busy\ Board_{i,t}$	+	0.052
		(2.30)
$Directors\ Equity\ Holdings_{i,t}$	?	0.001
		(0.13)
$CEO\ from\ Other\ Company_{i,t}$	+	-0.018
		(-0.65)
$Classified\ Board_{i,t}$	+	-0.004
		(-0.11)
$Democracy\ Firm_{i,t}$	-	0.062
		(1.17)
$Dictatorship\ Firm_{i,t}$	+	-0.049
		(-0.82)
$Family\ Firm_{i,t}$	+	0.008
		(0.12)
$ROA_{i,t-1}$	+	-0.702
		(-2.95)
$RET_{i,t-1}$	+	0.025
		(1.65)
$ln\left(Total\ Assets_{i,t-1}\right)$	+	0.004
		(0.28)
$ln\left(MB_{i,t-1}\right)$	+	0.032
		(1.54)
Year/industry dummies		Yes/Yes
Number of observations		704
Adjusted R^2		0.17

Table 4
Firm characteristics and CEO compensation

This table presents the pooled means of CEO compensation and various firm characteristics. Standard deviations are reported in brackets. *Total Assets* (denoted in millions), *MB*, *ROA*, and *RET* are as defined in Appendix B. *Salary + Bonus* is the sum of base salary and bonus in millions. *Total Compensation* is the CEO's total compensation in millions, defined as the sum of base salary, bonus, long-term incentive payouts, the value of restricted stock grants, and the Black-Scholes value of option grants converted into their stock equivalents using the options' median delta. Column 1 represents all firms, Column 2 represents the subset of firms with conventionally independent boards, Column 3 represents the subset of firms with conventionally-and-socially independent boards, and Column 4 represents the subset of firms with conventionally independent boards that are not conventionally and socially independent. A board is classified as independent if a majority of its members are classified as independent. The *conventional measure* classifies a director as affiliated if he has either financial or familial ties, as specified by the IRRC, to the CEO or to the firm. In addition to the conventional criteria, the *new measure* further classifies a director as affiliated if the director and the CEO share at least two of the following ties: miltary service, alma mater, regional origin, background (i.e., academic discipline), industry of primary employment, or third-party connection through another director. Mutual alma mater must be accompanied by no greater than a three-year age difference to constitute a tie between the director and the CEO.

Variable	All	Conventional	New	Conventional only
Total Assets	96,231 [171,692]	98,016 [177,839]	75,655 [135,644]	153,791 [246,030]
MB	4.159 [4.229]	4.093 [4.210]	3.957 [4.086]	4.432 [4.499]
ROA	0.058 [0.056]	0.058 [0.057]	0.061 [0.055]	0.051 [0.061]
RET	0.227 [0.433]	0.214 [0.427]	0.200 [0.435]	0.249 [0.405]
Salary + Bonus	3.778 [3.148]	3.748 [2.950]	3.419 [2.114]	4.569 [4.289]
Total Compensation	12.755 [14.072]	12.931 [13.677]	11.393 [10.781]	16.767 [18.565]
Number of observations	704	615	439	176

Table 5
Board independence and CEO compensation

This table presents estimates from the following pooled regression:

$$C_{i,t} = \alpha + \beta_1 BoardIndependence_{i,t} + X\beta_{2-19} + Year\,\beta_{20-28} + Industry\,\beta_{29-32} + \varepsilon_{i,t}\,.$$

$C_{i,t}$, the dependent variable, is the level of compensation in millions for the CEO of firm i in year t. We use two different measures of compensation: *Salary + Bonus* (Columns 1 and 2) and *Total Compensation* (Columns 3 and 4) calculated as the sum of base salary, bonus, long-term incentive payouts, the value of restricted stock grants, and the Black-Scholes value of option grants converted into their stock equivalents using the options' median delta. *BOARD INDEPENDENCE*$_{i,t}$ is a dummy that equals one if a majority of directors are classified as independent, and zero otherwise. We compare two classification schemes of independence. The *conventional measure* (Columns 1 and 3) classifies a director as affiliated if he has either financial or familial ties, as specified by the IRRC, to the CEO or to the firm. In addition to the conventional criteria, the *new measure* (Columns 2 and 4) further classifies a director as affiliated if the director and the CEO share at least two of the following ties: miltary service, alma mater, regional origin, background (i.e., academic discipline), industry of primary employment, or third-party connection through another director. Mutual alma mater must be accompanied by no greater than a three-year age difference to constitute a tie between the director and the CEO. X is a set of the following control variables: *ln(Total Assets*$_{i,t-1}$*)*, *ln(MB*$_{i,t-1}$*)*, *ROA*$_{i,t-1}$, *RET*$_{i,t-1}$, $\sigma^2_{i,t-1}$, *CEO Equity Holdings*$_{i,t}$, *CEO Award*$_{i,t}$, *CEO=Chairman*$_{i,t}$, *CEO Tenure*$_{i,t}$, *ln(Board Size*$_{i,t}$*)*, *Old Directors*$_{i,t}$, *Busy Board*$_{i,t}$, *Directors Equity Holdings*$_{i,t}$, *CEO from Other Company*$_{i,t}$, *Classified Board*$_{i,t}$, *Democracy Firm*$_{i,t}$, *Dictatorship Firm*$_{i,t}$, and *Family Firm*$_{i,t}$, which are as defined in Appendix B. *Year* denotes the year dummies, *Year*$_{1997}$ through *Year*$_{2005}$. *Industry* denotes the industry dummies using the Fama-French (1997) five-industry classification. All t-statistics are calculated using White standard errors adjusted for clustering (by firm).

		Coefficient (t-statistic)			
		Salary + Bonus		*Total Compensation*	
Variable	Expected sign	(1)	(2)	(3)	(4)
BOARD INDEPENDENCE$_{i,t,conventional}$	-	-0.755		0.572	
		(-1.16)		(0.24)	
BOARD INDEPENDENCE$_{i,t,new}$	-		-0.780		-3.347
			(-2.31)		(-2.50)
$ln(Total\ Assets_{i,t-1})$	+	1.057	1.066	3.337	3.355
		(5.38)	(5.60)	(4.12)	(4.47)
$ln(MB_{i,t-1})$	+	0.696	0.631	3.717	3.364
		(2.56)	(2.39)	(2.44)	(2.44)
$ROA_{i,t-1}$	+	-1.062	0.142	2.022	8.403
		(-0.31)	(0.04)	(0.10)	(0.45)
$RET_{i,t-1}$	+	0.477	0.444	6.315	6.129
		(2.05)	(1.90)	(4.06)	(3.92)
$\sigma^2_{i,t-1}$	?	13.024	16.329	196.483	214.860
		(0.42)	(0.53)	(1.07)	(1.10)
CEO Equity Holdings$_{i,t}$	?	-0.141	-0.134	-0.300	-0.269
		(-3.48)	(-3.38)	(-1.45)	(-1.30)

$CEO\ Award_{i,t}$	+	0.016	-0.070	1.051	0.747
		(0.04)	(-0.19)	(0.51)	(0.38)
$CEO = Chairman_{i,t}$	+	1.097	1.064	3.344	3.722
		(3.33)	(3.39)	(1.60)	(1.84)
$CEO\ Tenure_{i,t}$	+	0.030	0.025	0.084	0.023
		(1.28)	(0.94)	(0.79)	(0.18)
$ln(Board\ Size)_{i,t}$	+	-0.048	-0.020	-3.995	-3.799
		(-0.09)	(-0.04)	(-2.00)	(-1.80)
$Old\ Directors_{i,t}$	+	3.641	3.334	4.798	2.689
		(3.43)	(3.23)	(1.38)	(0.75)
$Busy\ Board_{i,t}$	+	0.202	0.105	0.178	-0.104
		(0.69)	(0.36)	(0.12)	(-0.07)
$Directors\ Equity\ Holdings_{i,t}$	-	0.020	0.012	-0.223	-0.556
		(0.09)	(0.06)	(-0.39)	(-1.05)
$CEO\ from\ Other\ Company_{i,t}$	+	0.356	0.422	2.505	3.108
		(0.75)	(0.94)	(1.62)	(1.99)
$Classified\ Board_{i,t}$	+	-0.343	-0.350	0.702	0.720
		(-0.94)	(-1.00)	(0.50)	(0.53)
$Democracy\ Firm_{i,t}$	-	-1.291	-1.285	1.681	1.744
		(-2.17)	(-2.08)	(0.51)	(0.58)
$Dictatorship\ Firm_{i,t}$	+	1.467	1.494	-3.184	-3.113
		(1.81)	(1.95)	(-1.35)	(-1.42)
$Family\ Firm_{i,t}$	+	0.880	0.903	3.304	3.309
		(0.74)	(0.78)	(1.07)	(1.27)
Year/industry dummies		Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes
Number of observations		704	704	704	704
Adjusted R^2		0.35	0.36	0.20	0.21

Table 6
Compensation differential within subsample of conventionally independent boards

This table presents estimates from the following pooled regression, within the subset of firms with conventionally independent boards:

$$C_{i,t} = \alpha + \beta_1 NotIndependent_{i,t} + X\beta_{2-19} + Year\,\beta_{20-28} + Industry\,\beta_{29-32} + \varepsilon_{i,t}\,.$$

$C_{i,t}$, the dependent variable, is the level of compensation in millions for the CEO of firm i in year t. We use two different measures of compensation: *Salary + Bonus* (Column 1) and *Total Compensation* (Column 2). *NOT INDEPENDENT*$_{i,t}$ is a dummy that equals one if the board (despite being conventionally independent) is not conventionally and socially independent, and zero otherwise. X is a set of the following control variables: *ln(Total Assets*$_{i,t-1}$*)*, *ln(MB*$_{i,t-1}$*)*, *ROA*$_{i,t-1}$, *RET*$_{i,t-1}$, $\sigma^2_{i,t-1}$, *CEO Equity Holdings*$_{i,t}$, *CEO Award*$_{i,t}$, *CEO=Chairman*$_{i,t}$, *CEO Tenure*$_{i,t}$, *ln(Board Size*$_{i,t}$*)*, *Old Directors*$_{i,t}$, *Busy Board*$_{i,t}$, *Directors Equity Holdings*$_{i,t}$, *CEO from Other Company*$_{i,t}$, *Classified Board*$_{i,t}$, *Democracy Firm*$_{i,t}$, *Dictatorship Firm*$_{i,t}$, and *Family Firm*$_{i,t}$, which are as defined in Appendix B. *Year* denotes the year dummies, *Year*$_{1997}$ through *Year*$_{2005}$. *Industry* denotes the industry dummies using the Fama-French (1997) five-industry classification. All t-statistics are calculated using White standard errors adjusted for clustering (by firm).

		Coefficient (t-statistic)	
Variable	Expected sign	*Salary + Bonus* (1)	*Total Compensation* (2)
NOT INDEPENDENT$_{i,t}$	+	0.595	4.079
		(1.71)	(2.69)
Year/industry dummies		Yes/Yes	Yes/Yes
Number of observations		615	615
Adjusted R^2		0.35	0.19

Table 7
Excess compensation and subsequent operating performance

This table presents estimates from the following pooled regression, within the subset of firms with conventionally independent boards:

$$\overline{Performance}_{i,t+1,t+3} = \alpha + PredictedExcessCompensation_{i,t}\beta_{1-2} + X\beta_{3-5} + Year\beta_{6-14} + Industry\beta_{15-18} + \varepsilon_{i,t}.$$

$Performance_{i,t+1,t+3}$, the dependent variable, is the operating performance averaged over the subsequent one-, two-, or three-year period. We use three different measures of operating performance: *Return on Assets (ROA)*, *Return on Sales (ROS)*, and *Return on Equity (ROE)*. *Predicted Excess Compensation*$_{i,t}$ consists of two variables: *Excess(NOT INDEPENDENT*$_{i,t}$*)*, the predicted excess compensation attributed to having a board that is not conventionally and socially independent (despite being conventionally independent); and *Excess(Other Governance Variables*$_{i,t}$*)*, the predicted excess compensation from the remaining governance variables: *CEO Equity Holdings*, *CEO=Chairman*, *ln(Board Size)*, *Old Directors*, *Busy Board*, *Directors' Equity Holdings*, *CEO from Other Company, Classified Board*, *Democracy Firm*, *Dictatorship Firm*, and *Family Firm*, which are as defined in Appendix B. Predicted excess components of total compensation are calculated using the coefficient estimates from Table 6, and are scaled by total compensation. *X* is a set of the following control variables: *ln(Total Assets*$_{i,t}$*)*, *ln(MB*$_{i,t-1}$*)*, and $\sigma^2_{i,t}$, which are also as defined in Appendix B. *Year* denotes the year dummies, *Year*$_{1997}$ through *Year*$_{2005}$. *Industry* denotes the industry dummies using the Fama-French (1997) five-industry classification. All *t*-statistics are calculated using White standard errors adjusted for clustering (by firm).

		Coefficient (*t*-statistic)		
Variable	Expected sign	One-year	Two-year	Three-year
Return on Assets (ROA)				
Excess(NOT INDEPENDENT$_{i,t}$*)*	-	-0.010	-0.011	-0.010
		(-1.89)	(-2.10)	(-2.46)
Return on Sales (ROS)				
Excess(NOT INDEPENDENT$_{i,t}$*)*	-	-0.011	-0.012	-0.012
		(-1.72)	(-1.86)	(-2.24)
Return on Equity (ROE)				
Excess(NOT INDEPENDENT$_{i,t}$*)*	-	-0.019	-0.018	-0.016
		(-2.61)	(-2.54)	(-2.08)
Year/industry dummies		Yes/Yes	Yes/Yes	Yes/Yes
Number of observations		602	533	462

Table 8
Pay-performance differential within subsample of conventionally independent boards

This table presents estimates from the following pooled regression, within the subset of firms with conventionally independent boards:

$$C_{i,t} = \alpha + \beta_1 Ret_{i,t} + \beta_2 Ret_{i,t} * NotIndependent_{i,t} + Interact\,\beta_{3-15} + Year\,\beta_{16-24} + Industry\,\beta_{25-28} + \varepsilon_{i,t}\,.$$

$C_{i,t}$, the dependent variable, is the percentage change in the level of compensation for the CEO of firm *i* in year *t*. We use two different measures of compensation: *Salary + Bonus* (Columns 1 and 2) and *Total Compensation* (Columns 3 and 4). $RET_{i,t}$ is the annual stock return from year *t*. $NOT\ INDEPENDENT_{i,t}$ is a dummy that equals one if the board (despite being conventionally independent) is not conventionally and socially independent, and zero otherwise. *INTERACT* is a set of additional interaction terms in which $RET_{i,t}$ is interacted with each of the following variables: $CEO\ Award_{i,t}$, $CEO{=}Chairman_{i,t}$, $CEO\ Tenure_{i,t}$, $ln(Board\ Size_{i,t})$, $Old\ Directors_{i,t}$, $Busy\ Board_{i,t}$, $Directors\ Equity\ Holdings_{i,t}$, $CEO\ from\ Other\ Company_{i,t}$, $Classified\ Board_{i,t}$, $Democracy\ Firm_{i,t}$, $Dictatorship\ Firm_{i,t}$, $Family\ Firm_{i,t}$, and $\sigma^2_{i,t}$, which are as defined in Appendix B. Columns 1 and 3 report results from excluding these interaction terms, and Columns 2 and 4 report results from including these interaction terms. *Year* denotes the year dummies, $Year_{1997}$ through $Year_{2005}$. *Industry* denotes the industry dummies using the Fama-French (1997) five-industry classification. All *t*-statistics are calculated using White standard errors adjusted for clustering (by firm).

		Coefficient (*t*-statistic)			
		Salary + Bonus		*Total Compensation*	
Variable	Expected sign	(1)	(2)	(3)	(4)
$RET_{i,t}$	+	0.268	-0.534	0.636	5.234
		(4.12)	(-1.01)	(2.27)	(2.83)
$RET_{i,t}$ * $NOT\ INDEPENDENT_{i,t}$	-		-0.058		-0.511
			(-0.53)		(-1.83)
Year/industry dummies		Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes
Number of observations		615	615	615	615
Adjusted R^2		0.08	0.10	0.08	0.16

Table 9
Turnover differential within subsample of conventionally independent boards

This table presents estimates from the following pooled logit model, within the subset of firms with conventionally independent boards:

$$Turnover_{i,t} = \alpha + \beta_1 Ret_{i,t-1} + \beta_2 Ret_{i,t-1} * NotIndependent_{i,t-1} + \beta_3 NotIndependent_{i,t-1} + Interact\,\beta_{4-15} + X\,\beta_{16-28} + Year\,\beta_{29-36} + Industry\,\beta_{37-40} + \varepsilon_{i,t}$$

$Turnover_{i,t}$, the dependent variable, is a dummy that equals one if a CEO turnover occurs at firm i in year t, and zero otherwise. $RET_{i,t-1}$ is the annual stock return from year t-1. $NOT\ INDEPENDENT_{i,t-1}$ is a dummy that equals one if in year $t-1$ the board (despite being conventionally independent) is not conventionally and socially independent, and zero otherwise. X is a set of the following control variables: $CEO\ Award_{i,t-1}$, $CEO{=}Chairman_{i,t-1}$, $CEO\ Tenure_{i,t-1}$, $ln(Board\ Size_{i,t-1})$, $Old\ Directors_{i,t-1}$, $Busy\ Board_{i,t-1}$, $Directors\ Equity\ Holdings_{i,t-1}$, $CEO\ from\ Other\ Company_{i,t-1}$, $Classified\ Board_{i,t-1}$, $Democracy\ Firm_{i,t-1}$, $Dictatorship\ Firm_{i,t-1}$, $Family\ Firm_{i,t-1}$ (which are as defined in Appendix B), and $CEO\ Age_{i,t-1}$. *INTERACT* is a set of additional interaction terms in which $RET_{i,t-1}$ is interacted with each of the variables in X, except for $CEO\ Age_{i,t-1}$. *Year* denotes the year dummies, $Year_{1998}$ through $Year_{2005}$. Because this regression involves lagged board-structure variables, which are unavailable in 1995, we begin our analysis in 1997. *Industry* denotes the industry dummies using the Fama-French (1997) five-industry classification. All *p*-values account for clustering (by firm).

		Coefficient (*p*-value)
Variable	Expected sign	Turnover
$RET_{i,t-1}$	-	-2.202
		(0.67)
$RET_{i,t-1}$ * $NOT\ INDEPENDENT_{i,t-1}$	+	1.691
		(0.18)
$NOT\ INDEPENDENT_{i,t-1}$	-	-0.574
		(0.09)
Year/industry dummies		Yes/Yes
Number of observations		601
Likelihood ratio		76.95

Table 10
Bonus differential within subsample of conventionally independent audit committees

This table presents estimates from the following pooled regression, within the subset of firms whose audit committees are composed entirely of conventionally independent directors:

$$Bonus_{i,t} = \alpha + \beta_1 NotIndependent_{i,t} + \beta_2 OtherComp_{i,t} + X\beta_{3-20} + Year\,\beta_{21-27} + Industry\,\beta_{28-31} + \varepsilon_{i,t}\,.$$

$Bonus_{i,t}$, the dependent variable, is the bonus in millions for the CEO of firm i in year t. $NOT\ INDEPENDENT_{i,t}$ is a dummy that equals one if the audit committee (despite being composed entirely of conventionally independent directors) has one or more directors who are socially dependent to the CEO, and zero otherwise. $OtherComp_{i,t}$ is the CEO's total compensation salary minus bonus. X is a set of the following control variables: $ln(Total\ Assets_{i,t-1})$, $ln(MB_{i,t-1})$, $ROA_{i,t-1}$, $RET_{i,t-1}$, $\sigma^2_{i,t-1}$, $CEO\ Equity\ Holdings_{i,t}$, $CEO\ Award_{i,t}$, $CEO{=}Chairman_{i,t}$, $CEO\ Tenure_{i,t}$, $ln(Board\ Size_{i,t})$, $Old\ Directors_{i,t}$, $Busy\ Board_{i,t}$, $Directors\ Equity\ Holdings_{i,t}$, $CEO\ from\ Other\ Company_{i,t}$, $Classified\ Board_{i,t}$, $Democracy\ Firm_{i,t}$, $Dictatorship\ Firm_{i,t}$, and $Family\ Firm_{i,t}$, which are as defined in Appendix B. *Year* denotes the year dummies, $Year_{1999}$ through $Year_{2005}$. Because this regression involves audit committee data (which are not available until after 1997), we begin our analysis in 1998. *Industry* denotes the industry dummies using the Fama-French (1997) five-industry classification. All *t*-statistics are calculated using White standard errors adjusted for clustering (by firm).

		Coefficient (*t*-statistic)
Variable	Expected sign	Bonus
$NOT\ INDEPENDENT_{i,t}$	+	0.734
		(1.75)
Year/industry dummies		Yes/Yes
Number of observations		507
Adjusted R^2		0.35

Table 11
Sensitivity tests

This table presents the results from a range of sensitivity tests examining different specifications of board-independence cutoffs. As in Table V, we estimate the following pooled regression:

$$C_{i,t} = \alpha + \beta_1 BoardIndependence_{i,t} + X\beta_{2-19} + Year\,\beta_{20-28} + Industry\,\beta_{29-32} + \varepsilon_{i,t}\,.$$

We use two different measures of $C_{i,t}$ (in millions): *Salary + Bonus* (Panel A) and *Total Compensation* (Panel B). In Columns 1 through 3, $BOARD\ INDEPENDENCE_{i,t}$ is a dummy that equals one if the board is classified as independent (under the criteria in question), and zero otherwise. In Column 1, we require that a 50% majority of directors be independent; in Column 2, we require that a 60% majority of directors be independent; and in Column 3, we require that all members of the compensation committee be independent. In regressions using the 60% cutoff, we also include a mixed-board dummy that equals one if the percentage of independent directors is between 40% and 60%, and zero otherwise. For regressions involving compensation committee information, our analyses begin in 1998 in accordance with data availability. In Column 4, we define $BOARD\ INDEPENDENCE_{i,t}$ as the fraction of directors that are independent. In Column 5, we define $BOARD\ INDEPENDENCE_{i,t}$ as the board's average number of ties per director, which is calculated by dividing the total number of director-CEO ties by the number of directors for that firm-year. For each of these measures of board independence, we present the results from using two different specifications of director independence. In the first row, we consider only the conventional ties, and in the second row, we augment the conventional criteria with our social criteria (consisting of restrictions on mutual alma mater, military service, regional origin, discipline, industry, and third-party connections). *X* is a set of control variables as listed in Table 5. *Year* denotes the year dummies, $Year_{1997}$ through $Year_{2005}$. *Industry* denotes the industry dummies using the Fama-French (1997) five-industry classification. All *t*-statistics are calculated using White standard errors adjusted for clustering (by firm).

	Coefficient (*t*-statistic)				
	Independent if ≥ 50% of directors independent	Independent if ≥ 60% of directors independent	Independent if all compensation committee members independent	Fraction of independent directors	Average number of ties
	(1)	(2)	(3)	(4)	(5)
Expected sign	-	-	-	-	+
Panel A. *Salary + Bonus*					
Conventional ties only	-0.755	-1.695	-0.410	-1.291	1.291
	(-1.16)	(-1.65)	(-0.78)	(-0.74)	(0.74)
Conventional and social ties	-0.780	-1.424	-0.917	-2.335	0.808
	(-2.31)	(-2.38)	(-2.24)	(-2.09)	(1.76)
Panel B. *Total Compensation*					
Conventional ties only	0.572	-3.574	-1.559	0.876	-0.876
	(0.24)	(-0.87)	(-0.76)	(0.19)	(-0.19)
Conventional and social ties	-3.347	-5.353	-3.018	-6.983	3.522
	(-2.50)	(-2.35)	(-1.96)	(-1.94)	(2.21)

Figure 1
Evolution of social dependence surrounding the appointment of a new CEO

Using an unbalanced panel of 81 CEO appointments, this figure demonstrates the evolution of the board's social dependence from the year preceding ($t = 0$) to the three years following ($t = 3$) the appointment of a new CEO. In Panel A, we plot the average fraction of socially dependent directors. This average fraction is calculated as the average of the number of directors on the board who are socially dependent to the incumbent CEO divided by the total number of directors on the board. In Panel B, we plot the percentage change in the average fraction of socially dependent directors relative to time $t = 0$.