THE INTERACTION EFFECTS OF CEO POWER, SOCIAL CONNECTIONS AND INCENTIVE COMPENSATION ON FIRM VALUE

Gary L. Caton *, Jeremy Goh **, Jinghao Ke **

* *Corresponding author*, Jake Jabs College of Business and Entrepreneurship, Montana State University, the USA
Contact details: Jake Jabs College of Business and Entrepreneurship, Montana State University, Bozeman, MT, 59717, the USA
** Lee Kong Chian School of Business, Singapore Management University, Singapore

How to cite this paper: Caton, G. L., Goh, J., & Ke, J. (2019). The interaction effects of CEO power, social connections and incentive compensation on firm value. *Corporate Ownership & Control, 16(4),* 19-30. http://doi.org/10.22495/cocv16i4art2

ISSN Online: 1810-3057
ISSN Print: 1727-9232

Received: 19.03.2019
Accepted: 26.06.2019

JEL Classification: G34
DOI: 10.22495/cocv16i4art2

Abstract

Using a regression interaction model and a biographical dataset, with which we can pinpoint periods during which friendships were likely to have developed, we study the relation between company value and the interplay between CEO power, CEO equity incentives and the friendliness of the board of directors. Consistent with our hypotheses developed below, we find that firm value tends to increase when equity incentives are combined with a friendly board of directors, and conclude that the negative effects of CEO power on firm value reported by others are limited to firms with weak CEO equity incentive compensation plans and arms-length boards of directors. We are the first to combine these datasets and show that friendship between powerful CEOs and their boards, when agency problems are mitigated through CEO compensation, leads to higher value.

Keywords: Social Connections, CEO Power, CEO Equity Incentives, Board Friendliness

Authors' individual contribution: Conceptualization – G.C.; Methodology – G.C. and J.K.; Formal Analysis – J.K.; Resources – J.G.; Writing – G.C.; Supervision – G.C. and J.G.

1. INTRODUCTION

We study company value at the intersection of CEO power, board friendliness, and CEO equity incentive compensation. When considered independently of each other, some have argued that these factors can lead to entrenched CEOs intent on benefiting themselves at stockholders' expense. According to this narrative, powerful CEOs misuse their power in part by handpicking friendly board members thereby reversing the oversight relationship between boards of directors and those whose performance the board is supposed to be monitoring. This board stacking then leads to compensation packages, among other perquisites, that enrich executives rather than producing high levels of firm performance. We find, however, that when these factors are considered together they can produce conditions that lead to higher company valuations.

Using the CEO pay slice (CPS) to measure CEO power, Bebchuk, Cremers and Peyer (2011) show that powerful CEOs are associated with lower company value. This finding is consistent with their view that powerful CEOs use their influence over the board of directors to reduce the board's monitoring effectiveness, allowing the CEO to extract rents from shareholders. Conversely, Chintrakarn, Jiraporn and Tong (2015) show that weak CEOs exhibit significant risk aversion as compared to stronger CEOs (identified through the CPS), which implies higher value for firms with stronger CEOs. Westphal (1999) points out that the role of board director is not merely one of a monitor of managerial behavior, but that board members also have the equally important role of using their combined experience and expertise to effectively counsel and advise management regarding business decisions. These two roles, monitoring and advising, can be at odds with each other. Strong monitoring requires an arms-length relationship between the board and the CEO, while effective advice and counsel is more collaborative and social. Adams and Ferreira (2007), model this tension between the board's monitoring and advising roles. In their model, the completeness

of the CEO's information disclosure to the board is the key CEO decision element and is dependent on the board's perceived friendliness to the CEO. CEOs are reluctant to share information with arms-length, adversarial boards, while full information is precisely what boards need to provide effective counsel and advice. In Adams and Ferreira's model, shareholders benefit from a friendly, collaborative relationship between the CEO and the board as long as the value of better advice, derived from more complete information sharing, is greater than the value lost through economic rents extracted by the CEO due to the friendly board's presumably weaker monitoring. Consistent with this model, Kang, Liu, Low and Zhang (2018) study the effect of friendly boards on firm innovation and report that firms whose boards contain at least one director who is socially connected to the CEO create more patents, patent citations, and firm value.

Strong board monitoring, however, is only one of many proposed mechanisms through which companies may be able to control the agency problem associated with the separation of ownership from control (see Jensen and Meckling, 1976). Effective incentive compensation, for example, can align CEO incentives with those of shareholders making strong, arms-length board monitoring redundant. Westphal (1999) argues that well-structured CEO incentive compensation plans can mitigate CEO rent-seeking behavior, such as that reported by Bebchuk et al. (2011). Under this view, equity incentive compensation provides a substitute CEO monitoring mechanism thus allowing boards to focus their efforts on providing effective counsel and advice. Ira Kay of compensation consultant firm Pay Governance believes that compensation mechanisms are effective when the time lag is taken into account between when equity awards are reported and when CEOs actually receive title to the equity (see Francis & Fuhrmans, 2019). Similarly, Bettis, Bizjak, Coles and Kalpathy (2018) report that by 2012 some 70% of executive equity incentive compensation plans contain a performance-vesting provision. When considering these provisions, Bettis et al. (2018) document significant association between usage of those provisions and subsequent stock performance, accounting performance, and firm risk. Consistent with these findings, we posit that friendly, collaborative boards, when coupled with the self-monitoring provided by CEO equity incentive compensation, are associated with higher company value.

We use a regression interaction model to analyze the combination of CEO power, board friendliness and incentive compensation. Our empirical results show that considering the interactions between the three is important in discovering their true impact on firm value. That is, as CEO power increases company value tends to increase in the presence of strong CEO equity incentives and a friendly board of directors. This finding is similar to and consistent with Hambrick, Misangyi and Park (2015)'s finding that only [1]. In this framework, the CEO may be *important to the firm* due to the firm's need for a talented, decisive leader, in which case a high CPS may indicate a value-enhancing, strategic leader. Or the CEO may be *important in the firm* due to his power and influence over the board and the firm's other executives, in which case a high CPS may indicate a value-diminishing, entrenched manager. Consistent with the latter interpretation, Bebchuk et al. (2011) directors with all four qualities of independence, expertise, bandwidth and motivation have the potential for effective monitoring. That is, it is the interplay between the different qualities that produces the desired effect. We conclude that the negative effects of CEO power on firm value, as reported by Bebchuk et al. (2011), are confined mainly to firms with weak CEO equity incentive compensation plans and arms-length boards.

Boards of directors have two important roles to play in corporate governance. The monitoring function of the board of directors has received most of the attention from scholars. The board's advising and consultation function, however, is less well developed in the literature. We are the first to study the combined effects of incentive equity compensation and board friendliness on the interplay between CEO power and company value.

In Section 2, we review the related literature and further develop our hypotheses. We explain the methodology for testing our hypotheses in Section 3. Section 4 contains a discussion of our sample selection and provides a brief description of our sample. We present and discuss the results in Section 5. Section 6 presents a summary of the paper and our conclusions.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1. CEO power and the board's dual roles

CEO power and CEO compensation are closely intertwined as increases in power presumably lead to more control over a CEO's own compensation. This coupling of CEO power and compensation garners increasing attention from academia, the popular press, and government. For example, Howell (2013) writes that when CEO compensation becomes too high, "in some cases reaching 500 times (that) of the average worker" CEOs and business in general lose the respect of the public. The Dodd-Frank Wall Street Reform and Consumer Protection Act includes a political response to perceived "outsized" CEO compensation, requiring shareholder advisory votes on executive pay. These rules were adopted by the SEC in 2011 (SEC, 2011). In advocating for increased shareholder say in the compensation of their firms' executives, Bebchuk and Fried (2006) argue that CEO pay is largely insensitive to performance, and that current corporate governance processes give managers undue power over their own pay levels and structure. Bebchuk et al. (2011) introduce a new measure of this CEO power, the CPS, which they define as the proportion of combined total compensation of the top five executives earned by the CEO alone. Although computed using compensation data, Bebchuk et al. (2011) present the CPS as a measure of the board's perception of the importance or power of the CEO rather than strictly a measure of his compensation

[1] Zagonov and Salganik-Shoshan (2018) argue that CEO payslice is less effective as a measure of CEO dominance than Bebchuk, et al. (2011) imply and propose additional measures to better capture CEO power.

show a significantly negative relation between CPS and industry-adjusted Tobin's q, which they attribute to the agency problem associated with a powerful CEO extracting rents from a captured board to the detriment of shareholders. Using these results, the authors argue for stronger, more independent boards of directors and more direct shareholder control, both of which are intended to more closely monitor management. Chintrakarn et al. (2015) find results that tend to contradict these findings, reporting that weak CEOs exhibit significant risk aversion as compared to stronger CEOs (identified through the CPS), which implies lower (higher) value for firms with weak (strong) CEOs. Our results are more consistent with the latter.

According to the Corporate Director's Guidebook (2011), directors "have a responsibility to act in the best interests of the corporation and its shareholders" and they "fulfill this responsibility through two primary board functions: decision-making and oversight" (see Section 3). In general, the oversight function involves monitoring the company's management behavior and financial performance, while the decision-making function involves the board's familiarity with and approval of corporate policy and strategy. These dual roles can require contradictory behaviors by the board. Unbiased monitoring requires that directors maintain an arms-length, outsider dominated relationship with the company's management including the CEO. In this framework, a board's monitoring effectiveness may be compromised if their relationships with the company are characterized as either too dependent on or too friendly with the CEO (Bebchuk & Fried (2006)), which may lead to a captured board and consequential diminished company value. Providing valuable advice and counsel on policy and strategy, on the other hand, requires that the CEO trust the board of directors for two closely related reasons. First, in order to provide timely, actionable advice the board depends on the CEO to reveal all pertinent information. Full information disclosure, however, could potentially portray the CEO in a negative light. Ultimately, the CEO will only disclose full information when he trusts the board to use this information to benefit the company rather than to attack him personally (see Holmstrom, 2005). Without such trust, an arms-length, outsider-dominated board may not receive full information until it is released publicly or at time of crisis, and possibly after it is too late to implement effective changes. And second, in order for the board to provide effective advice the CEO must reveal the need for and then accept and implement the recommendations of the board. CEO reluctance to disclose pertinent information to the board, or to ask for and then accept the board's recommendations limits the quality and usefulness of board advice. As noted above, Adams and Ferreira (2007) model this tension between the monitoring and advisory roles of the board. In their model, both the value of the board's advice and the intensity of its monitoring increase as the CEO reveals more information. The increase in advice benefits both the firm and the CEO as firm performance increases, but increased monitoring intensity is personally detrimental to the CEO. The conclusion from their model is that shareholders benefit from increasing board friendliness when the marginal loss from reduced monitoring is less than the marginal gain obtained from better advice and counsel from the more CEO-friendly board. In the next section, we further discuss how friendliness and trust between the board and management can lead to increased company values.

2.2. Friendly boards

Many prior studies of friendly boards of directors define board social structure as the proportion of insider versus outsider directors (e.g., Byrd & Hickman (1992), McWilliams & Sen (1997)). Insiders are defined in these studies as directors who are also current or former officers of the company, either or both of whom may be explicitly dependent on the CEO. Outsiders include both directors who are fully independent of the firm, and gray directors whose outsider status is unclear. Gray directors include those with business ties to the company and relatives of company officers. In this context, objectively defining a friendly board capable of providing valuable and timely advice, and in whom the CEO is willing to divulge full information, is difficult. Board insiders who are current employees may already have access to full information, but are obviously subordinate to the CEO, which implies both a lower level of experience and a possible reluctance to "challenge the boss." Board insiders may also include the former CEO, who may have the experience to provide advice, but may be reluctant to interfere with the new CEO or whose interference may be unwelcome. Board outsiders are assumed to be arm's length monitors, which by definition are not friendly.

Using a relatively new database, we redefine board social structure based on whether directors are "friendly" or "not friendly" with the CEO. The Boardex database, developed by Management Diagnostics Ltd., contains biographical information on directors and senior executives throughout the world (see corp.boardex.com). The biographical data contained in the BoardEx database includes educational details such as tertiary school attended, degree earned and graduation date; employment history; current employment details including board memberships in other companies; and other social activities. Using this comprehensive database, we define a friendly director as an individual who has likely crossed paths with the CEO from one of these previous activities. Specifically, either the two individuals went to the same school at the same time; worked together in the past; currently serve together on a third company's board; or currently serve or formerly served together as active officers or board members of the same social club, philanthropic organization, athletic club, or other civic organization. With this history of being active in each other's business and social networks, it is likely that the CEO and the socially connected director know each other. Use of this dataset is becoming increasingly common. Balsam Kwack and Lee (2017) use Boardex data to examine the effect of friendly boards on executive compensation and turnover and find that such connections lead to higher compensation and lower involuntary CEO turnover. Do, Lee and Nguyen (2016) use a

regression discontinuity model and Boardex data to show that the values of U.S. companies with personal connections to elected state governors increase by 3.89% upon a socially connected governor's election. Fracassi (2017) finds that the more social connections between companies the more similar are their capital investments. Westphal and Zhu (2019) develop a model in which firms skirt restrictions on collusion (the Clayton Act) to obtain value by appointing friends of CEOs of rival companies, and they use Boardex data to identify socially connected board members.

As noted above, effective advice and counseling in the Adams and Ferreira (2007) model depends on the CEO's willingness to divulge full information to the board, which requires trust that the board will not misuse the information. The question of trust has been examined in the management and sociology literatures. For example, Uzzi (1996) uses field research of apparel firms in New York's garment district to guide his development of a theory of trust and social embeddedness. As defined by Uzzi, social embeddedness is "the process by which social relations shape economic action." The effect of social relations is largely ignored by the economic logic of market exchange between arms-length, atomistic players. Uzzi defines three features of social embeddedness: trust, fine-grained information transfer, and joint problem-solving. Becoming embedded in the network implies having developed trust with network members through a series of mutual, non-obligatory, nonmarket exchanges. After having developed trust with members of the network through these exchanges, trust becomes the governing mechanism through which members' behavioral expectations are formed and ultimately judged by the group. Fine-grained information shared between network members is, according to Uzzi, detailed and strategic, and increases the effectiveness and responsiveness of network members. Sharing this proprietary information requires absolute trust that the information will not be misused, while using the information requires trust in its accuracy. The sharing of such detailed information facilitates joint problem solving, allowing network members to coordinate actions and work out problems on the fly thus providing quicker and more direct responses than can arms-length, contract-based relationships. Relating these findings to the context of corporate boards, it would be difficult for an outsider dominated, adversarial board to develop enough trust to induce the CEO to provide the fine-grained information the board needs to provide effective advice and consultation on policy and strategy (i.e., on-the-fly problem solving). A friendly director can help facilitate trust-building between the CEO and the board, particularly if the board believes the CEO's incentives are strongly aligned with those of shareholders.

2.3. CEO monitoring through incentive compensation

Reduced formal board monitoring by a friendly board does not necessarily imply an increase in agency problems such as entrenchment, rent-seeking behavior, and ultimately lower company value. Researchers have proposed many solutions to a firm's agency problem including internal control mechanisms such as leverage (Jensen, 1986) and managerial ownership (Stulz, 1988), and external control mechanisms such as the takeover market (Jensen, 1986; Bebchuk, Cohen, & Farrell, 2009). Bebchuk, et al. (2011) examine each of these mechanisms empirically finding that firm leverage and a given manager's protection from the takeover market have negative effects on firm value as measured by industry-adjusted Tobin's q, and no relation between firm value and managerial ownership. After accounting for each of these control mechanisms, Bebchuk et al. (2011) report that a strong negative relation remains between firm value and CEO power. Apparently, these three mechanisms are ineffectual in controlling the value-destroying agency problem associated with powerful CEOs.

As noted above, one often proposed solution to the agency problem, executive equity incentive compensation, is not examined by Bebchuk et al. (2011) [2]. Jensen and Murphy (1990) measure the sensitivity of CEO compensation to changes in share prices and find the average CEO's wealth increases by $3.25 for each $1,000 increase in firm value. Although this finding is statistically significant, the authors conclude that this level of pay-performance sensitivity is not high enough to induce incentive alignment with shareholders. Garen (1994) shows that Jensen and Murphy's conclusion about the level of pay-performance sensitivity holds little meaning due to high between-firm variability in measuring pay-performance sensitivity, and he develops a principle-agent model that predicts significant between-firm variability in optimal pay-performance sensitivity. In his model, the variability in optimal pay-performance sensitivity is due to the underlying variability of the firm's profits. The higher the inherent variability in the firm's business, the lower the optimal level of pay-performance sensitivity in the CEO's compensation contract, and the higher (lower) the salary (equity) component in his contract. Garen's modified model, which includes CEO choice of investment projects, indicates that CEO decision making becomes more risk-averse with a high pay-performance compensation contract. Garen's empirical work is consistent with his predictions: higher company variability tends to reduce pay-performance sensitivity and increase the salary component implying that pay-performance sensitivity may be company - or industry-specific. Using an empirical methodology that explicitly accounts for this heterogeneity in compensation contracts across firms, Hermalin and Wallace (2001) find a significant positive relation between pay and performance. Mehran (1995) provides evidence supporting the role of equity incentives in inducing managerial performance, reporting that firm performance is positively related to the percentage

[2] Bebchuk et al. (2011) control for two variables related to compensation, but which do not capture the level of the CEO's equity incentive compensation. Their variable Abnormal Total Compensation measures the size of the overall executive pay slice relative to the pay slices of each member of the company's industry, which they include to control for aggregate management quality. Their variable Relative Equity Compensation measures the size of the CEO's equity compensation relative to the company's other top executives, which they include to control for the relation between high CEO compensation that is driven by disproportionately high equity compensation relative to other top-5 executives.

of compensation that is equity-based. Bettis et al. (2018) consider the time lag between equity performance awards and when the awards vest and report significant associations between equity compensation and subsequent stock performance, accounting performance, and firm risk.

According to agency theory, shareholders of a company whose CEO has one or more friends on the board of directors would suffer as the fully entrenched manager takes advantage of or even colludes with the friendly directors in order to extract rents from stockholders. In the presence of strong CEO equity incentive compensation, however, which in theory tends to mitigate such agency problems, a socially-connected, friendly board of directors may be better positioned to enhance company value through more effective counsel and advice. Hoi, Wu and Zhang (2019) examine executive compensation and social networks and show that opportunistic CEO behavior is mitigated through what they call social capital. That is, high levels of social capital, captured by the authors through either comparison with secular norms or by using Boardex data, is associated with lower levels of CEO compensation, option backdating, and "lucky" awards of incentive options.

2.4. Hypotheses

Our first hypothesis relates to CEO power and company value. A powerful CEO may use her power to extract economic rents from the company and thereby reduce company value. On the other hand, a talented, well-motivated CEO intent on adding value to the company she leads needs the decision-making authority or power to do so. As noted above, previous empirical findings are mixed Bebchuk et al. (2011) report a negative average relation between CEO power and company value, while Chintrakarn et al. (2015) report that weak CEO's exhibit significant risk aversion as compared to stronger CEOs. The null form of this hypothesis is as follows:

H1: CEO power is not associated with company value.

Our other hypotheses are related to the possible mitigation of this negative effect of CEO power on company value. If the CEO's interests are aligned with those of shareholders through a well-structured equity incentive compensation plan, we expect a mitigation of the negative effect of CEO power on company value. We posit the following, in null form:

H2: The relation between CEO power and company value is unaffected by CEO equity incentive compensation.

If the board of directors is friendly with the CEO, it could imply either an entrenched, value decreasing relationship or a collaborative, value-increasing relationship. We do not posit an expected direction of this relation, but in null form our third hypothesis states the following:

H3: The social connections between the CEO and board of directors do not affect the relation between CEO power and company value.

Our fourth and final hypothesis combines the previous hypotheses. When a friendly board of directors relies on a well-structured equity compensation plan for CEO monitoring, this combination will lead to effective CEO-board collaboration, a self-monitored CEO, and consequentially higher company values. In null form this hypothesis is as follows:

H4: The combination of a friendly, collaborative board of directors and a well-structured CEO equity compensation plan does not affect the relation between CEO power and company value.

3. EMPIRICAL METHODS

We study the moderating effects of and interaction between the friendliness of the board of directors and CEO equity incentive compensation on the relation between firm value and CEO power. Following Bebchuk, et al. (2011), we use *CPS* to measure CEO power and Tobin's q (*Q*) to measure company value. CPS is the ratio of total CEO compensation to the combined total compensation of the top five executives in the firm, including the CEO. Q is the ratio of the firm's market value of assets, defined as total book value of assets less both book value of equity and deferred taxes plus market value of equity, to the firm's total book value of assets. We use the CEO's fraction of equity compensation (*FEC*) to measure CEO equity incentive compensation, defined as the fraction of the CEO's annual incentive equity compensation (grants of stock, restricted stock and the Black-Scholes value of option awards) to total annual compensation. In developing our board friendliness measure, we follow Fracassi and Tate (2012) who identify four basic social ties included in Boardex data, (i) current employment (typically external directorships in other firms), (ii) overlapping past employment in a previous mutual employer, (iii) education (which we define as same school, same graduation year and same degree), and (iv) other activities (active membership in civic organizations) [3]. Our measure of board friendliness, *CONNEX*, is a dummy variable that equals one when the CEO and at least one outside director have at least one of the four connections listed above. Due to potential endogeneity among these variables, we lag all independent variables one period.

For control variables, we follow Bebchuk, et al. (2011). *E Index* is a measure of corporate governance developed by Bebchuk, Cohen and Farrell (2009), which is simply the number of six antitakeover provisions present in a given company's charter [4]. The greater the E Index, the more protected or entrenched is management and the weaker is governance. *SIZE* is the natural logarithm of the firm's total assets. *ROA* is the ratio of a firm's operating income before depreciation to total assets. *LTD* is the ratio of a firm's long-term debt to total assets. *CFL* is a firm's cash flow to assets and equals the ratio of the sum of operating, investing and financing cash flow to total assets. *RnD* is the ratio of a firm's research and development expense to sales. *RnD MISS* is a dummy variable that equals one when Compustat reports research and development as missing and zero otherwise. *CAPEX* equals a firm's capital expenditures to total assets.

[3] See Fracassi and Tate (2012) for a fuller description of this rich database.

[4] These six include the presence of staggered boards, limitations on shareholders' ability to amend bylaws, requirements for supermajority votes for business combinations and charter amendments, golden parachutes, and poison pills. We use the lagged value in order to avoid forward-looking bias.

Our empirical methodology is similar to that of Bebchuk, et al. (2011), who run multiple OLS regressions with pooled time series and cross-sectional data using various combinations of firm and year fixed-effects dummies. As their measure of firm value, Bebchuk et al. (2011) industry-adjust *Tobin's q* in order to control for industry shocks. Gormley and Matsa (2014) criticize industry-adjusting dependent variables to control for unobserved heterogeneity in regression analysis; and show that such methods produce inconsistent estimates and can even reverse estimated relations between variables. Our first regression replicates that of Bebchuk et al. (2011), using industry-adjusted *Q* as the dependent variable, while subsequent regressions follow the suggestion of Gormley and Matsa (2014) and use raw, unadjusted *Q*, instead. All regressions use time and industry fixed-effects dummy variables, as suggested by Gormley and Matsa (2014), to control for unobserved heterogeneity in time and industry. We do not use firm fixed-effects variables since several of our independent variables (e.g., *E index* and *CONNEX*) have little within-firm variability over time.

Our primary tests involve the use of various interaction terms. For example, we interact the dummy variable *CONNEX* with the continuous variable *CPS* in order to determine whether the negative effect of CEO power on firm value is moderated in the presence of a friendly board of directors. Interaction terms are relatively easy to interpret when one of the variables is dichotomous. In this case, the estimated coefficient on the interaction term *CONNEXxCPS*, which we call the second-order effect, will capture the effect of *CPS* on *Q* when the board is friendly, while the coefficient on *CPS* alone will capture the effect of *CPS* on *Q* when the board is armslength. The effect of CPS on Q depends on one of only two conditions: whether *CONNEX* equals one or zero. Interaction terms involving two continuous variables, however, are more difficult to interpret because each of the variables can take on an infinite number of possible values, and their interaction effects are conditional on a potentially infinite number of values. Because of this, it is advantageous to center the variables. In addition to improving the interpretation of the resulting estimates, centering the continuous variables to be interacted can also reduce the collinearity between the interaction variable and the two related independent variables (Afshartous & Preston (2011)). We choose to center our interacted continuous variables at their mean values. Centering the independent variables has no effect on t-statistics or statistical inferences. There is, however, a subtle change in the interpretation of centered variables' their estimated coefficients. The first-order or non-interaction effects of centered variables changes from the effect on *Y* when other independent variables equal zero to the effect on *Y* when other centered independent variables equal their mean values. Similarly, interpretation of the interaction or second-order effect becomes the effect of one centered independent variable when both centered independent variables are at their mean value. Due to this conditionality, we illustrate our results using interaction plots that allow the centered independent variables to vary.

4. SAMPLE SELECTION AND DESCRIPTION

Our initial sample consists of all firm-years for which data is available from various sources over the eleven years from 2000 through 2010. Our first data filter is availability of executive compensation data on Execucomp [5]. Since we study the impact of various CEO-related factors on firm value, we require the CEO to be in office over an entire sample year. Otherwise, our tests may include some data for company performance over which the CEO had little or only partial control that year. Given our definition of CPS as the proportion of the total compensation of the top five executives allocated to the CEO, we also require that Execucomp contain compensation data for a company's top five executives. Merging Execucomp data with Compustat data resulted in a dataset containing 22,056 firm-years [6]. Merging our Boardex database into this preliminary dataset resulted in 11,514 firm-year observations [7]. And finally, merging with the *E index* data computed from data provided by Institutional Shareholder Services (ISS) results in a final sample of 7,143 firm-year observations [8].

Table 1 presents various descriptive statistics for our sample. Sample firms have mean (median) total assets of around $2.7 billion ($2.3 billion) and mean (median) Q of about 1.8 (1.4).

More interesting, CEO's garner a large part of total executive pay with a mean (median) CPS of 39.5% (39.6%). Sample CEOs have strong equity incentives with mean (median) CEO fraction of equity compensation (FEC) of 43.5% (46.5%). CONNEX is about 64%, implying that social connections between the CEO and board of directors are present in that proportion of our sample firms.

[5] Execucomp, produced by Standard & Poors and available starting in 1992, is a dataset which contains over 80 compensation items for more than 12,500 executives in some 1,500 companies.

[6] Compustat is a financial database produced by Standard & Poor's that contains annual balance sheet and income statement data for virtually all United States publicly traded companies from 1950 to the present. Global Vantage, also produced by S&P, is the analogous databased for international companies.

[7] Boardex, produced by Boardex.com, is a database begun in 1999 which contains biographical data on over 1.2 million business professionals, and through these data map over 50 billion individual connections.

[8] ISS is a company that focuses on corporate governance and proxy services. It also produces several governance-related databases covering the S&P 1500 companies beginning in 1990 that includes information on company bylaws and corporate charter provisions.

Table 1. Sample summary statistics

Variable	*Number of observations*	*Mean*	*Standard deviation*	*Minimum*	*Maximum*	*Median*
Q	7142	1.79	1.12	0.71	8.47	1.42
CPS	6871	0.40	0.12	0.08	0.75	0.40
FEC	4475	0.44	0.29	0	0.96	0.467
E Index	7143	2.97	1.34	0	6.00	3
SIZE	7142	7.88	1.62	3.97	12.10	7.73
ROA	7142	0.14	0.11	-0.24	0.54	0.13
LTD	7142	0.18	0.16	0	0.76	0.16
CFL	7142	0.01	0.06	-0.21	0.30	0.00
RnD	7142	0.04	0.09	0	0.78	0
RnD MISS	7143	0.46	0.50	0	1	0
CAPEX	7142	0.05	0.05	0	0.29	0.03
CONNEX	7143	0.64	0.48	0	1	1

Note: This table contains summary statistics for our sample of 7,143 firm-years from 2000 through 2010. Q is Tobin's q, which we measure as the ratio of a firm's market value to its book value. CPS is the CEO pay slice, which is defined as the ratio of the CEO's total compensation to the total compensation of the firm's top five executives, including the CEO, as listed in Execucomp. FEC is the ratio of the CEO's reported equity compensation to the CEO's total compensation. E Index is Bebchuk's entrenchment index, available at (http://www.law.harvard.edu/faculty/bebchuk/data.shtml). SIZE is the natural logarithm of the firm's total assets. ROA is the ratio of a firm's operating income before depreciation to total assets. LTD is the ratio of a firm's long-term debt to total assets. CFL is a firm's cash flow to assets and equals the ratio of operating, investing and financing cash flow to total assets. RnD is the ratio of a firm's research and development expense to sales. RnD MISS is a dummy variable that equals one when reports research and development as missing and zero otherwise. CAPEX equals a firm's capital expenditures to total assets. CONNEX is a dummy variable that equals one if the CEO is socially connected to at least one member of the board of directors and zero otherwise.

Table 2 provides the distribution of social connections through time for our sample. Each row represents a different sample year, and for each year we show the total number of connections between the CEO and the board of directors, and the proportions of firms with no connections, one connection, two connections and greater than two connections. The percentages reported in each row sum to 100%. Focusing on the sample totals in the last row, note that about 36% of the sample firm-years had zero connections between the CEO and the board, implying that about 64% had at least one connection. Furthermore, 22% had one connection, 12% had two connections, and about 28% had more than two connections. It is interesting to note, also, that the proportion of sample companies with no CEO-board social connections has been increasing steadily over the sample period from about 30% in the year 2000 to 43% in the year 2010.

Table 2. Distribution of social connections across time

Year	*Total Connections*	*Proportion with zero*	*Proportion with one*	*Proportion with two*	*Proportion with > two*
2000	371	29.7%	22.1%	12.9%	35.3%
2001	423	30.0%	21.3%	13.0%	35.7%
2002	527	33.6%	22.2%	8.3%	32.4%
2003	622	33.0%	24.8%	11.3%	31.0%
2004	751	35.0%	23.2%	13.7%	28.1%
2005	772	35.9%	23.8%	13.1%	18.3%
2006	847	35.9%	22.6%	14.0%	27.5%
2007	999	40.1%	22.1%	11.7%	25.2%
2008	958	38.4%	22.0%	14.3%	25.3%
2009	401	40.4%	21.5%	12.0%	26.2%
2010	395	43.0%	20.8%	10.9%	25.3%
Totals	7066	35.9%	22.4%	12.3%	28.2%

Note: Distribution of social connections among U.S. firms from 2000-2010. Our sample contains all executives and directors in the Boardex database whose companies are covered by the Compustat and CRSP databases. To be included in the final sample announcing firms must also have E index data available at Lucian Bebchuk's Website (http://www.law.harvard.edu /faculty/bebchuk/data.shtml).

Table 3 contains a matrix of estimated correlation coefficients for our variables. Among the independent variables, in general *SIZE* appears to be the variable with the highest correlations with other independent variables. The largest individual correlation coefficients are between *Q* and *ROA* (59%), *CAPEX* and *ROA* (46%), and *Q* and *RnD* (41%), which all seem intuitive. There is also a significantly positive correlation between *SIZE* and *CONNEX* (32%) indicating that larger firms are more likely to have social connections between the CEO and board of directors.

Table 3. Means, standard deviations of variables and Pearson correlations among variables (Part 1)

NAME	Mean	STD	Q	CPS	FEC	CONN EX	E	SIZE	ROA	LT D	CFL	RnD	RnD MISS	CAPEX
Q	1.89	1.18	1											
CPS	0.4	0.12	0.01	1										
FEC	0.44	0.29	0.21	0.4	1									
CONNEX	0.66	0.47	-0.11	0.07	0.02	1								
E Index	2.66	1.28	-0.14	0.1	-0.06	0.1	1							
SIZE	7.86	1.64	-0.29	0.14	0.09	0.32	0.01	1						
ROA	0.14	0.11	0.59	0.07	0.04	-0.07	-0.02	-0.17	1					
LTD	0.19	0.16	-0.27	0.08	-0.09	0.09	0.14	0.22	-0.03	1				
CFL	0.01	0.06	0.14	0.01	0.03	-0.04	-0.02	-0.05	0.11	-0.06	1			
RnD	0.04	0.1	0.41	-0.01	0.22	-0.17	-0.11	-0.28	0.04	-0.21	0.08	1		

Table 3. Means, standard deviations of variables and Pearson correlations among variables (Part 2)

NAME	Mean	STD	Q	CPS	FEC	CONNEX	E	SIZE	ROA	LT D	CFL	RnD	RnD MISS	CAPEX
RnD MISS	0.45	0.5	-0.41	-0.03	-0.16	0.17	0.03	0.29	-0.16	0.14	-0.08	-0.78	1	
CAPEX	0.05	0.05	0.17	0	0.02	-0.06	0	-0.15	0.46	0.15	-0.01	-0.03	-0.08	1

Note: Q is a proxy for Tobin's Q computed as the ratio of market value to book value; CPS is the CEO pay slice computed as the proportion of CEO total compensation to the total compensation of the top five executives; FEC is the fraction of CEO equity compensation to total compensation; CONNEX is a dummy variable that equals one if there is the CEO is socially connected to at least one outside director according to Boardex data; E_index is the Bebchuk et al. (2011) entrenchment index; Size is the logarithm of total assets; ROA is the ratio os operating income before depreciation to total assets; LTD is the ratio of long term debt to total assets; CFL is the ratio of the sum of operating, investing and financial cash flows to total assets; RnD is the ratio of research and development to total assets; RnD_miss is a dummy variable that equals one when RnD data is missing in Compustat; and Capex is the ratio of capital expenditures to total assets.

5. RESULTS

5.1. Firm value and the CEO pay slice

We begin our analysis by replicating Bebchuk et al. (2011), the results of which we report in the first column of Table 4. Including control and year and industry dummy variables, we find a statistically significant negative relation between *CPS* and lagged, industry-adjusted *Q*. This is consistent with Bebchuk et al.'s (2011) finding that powerful CEOs tend to have a negative impact on company value. Following Gormley and Matsa (2014), we re-estimate our Bebchuk et al. (2011) replication using the raw, unadjusted Q and year and industry fixed-effects dummy variables. The column 2 results for several of the variables, when contrasted with the results reported in column 1, highlight Gormley and Matsa's (2014) critique. For example, the estimated coefficient on R&D_Miss reverses from a statistically significant (t-statistic=8.06) positive value to a statistically significant (t-statistic=-3.20) negative value. The estimated coefficient on SIZE reverses from a statistically significant (t-statistic=5.04) positive value to a statistically insignificant (t-statistic=-0.95) negative value. Most importantly, the estimated coefficient for CPS changes from a statistically significant -0.231 (t-statistic=-3.61) to an insignificant -0.054 (t-statistic=-0.85). This result casts doubt on Bebchuk et al. (2011)'s conclusion relating higher levels of CEO power to lower firm value, but the result is consistent with Hoi et al. (2019) who find that powerful CEOs tend to take more risk.

Table 4. Bebchuk et al. (2012) replication and extension

	1	*2*	*3*	*4*
	SIC Adjusted Q	***Unadjusted Q***	***Unadjusted Q***	***Unadjusted Q***
CPS	-0.231*** (-3.61)	-0.054 (-0.85)		
FEC			0.190*** (6.07)	
CONNEX				0.003 (0.13)
E index	-0.034*** (-5.79)	-0.044*** (-6.98)	-0.051*** (-7.03)	-0.036*** (-4.42)
SIZE	0.025*** (5.04)	-0.006 (-0.95)	-0.012 (-1.59)	-0.010 (-1.32)
ROA	4.770*** (61.18)	5.471*** (64.29)	5.750*** (59.19)	5.668*** (49.44)
LTD	-0.281*** (-5.89)	-0.357*** (-6.05)	-0.334*** (-4.92)	-0.441*** (-5.68)
CFL	0.809*** (6.31)	0.991*** (8.11)	1.022*** (7.16)	0.859*** (5.80)
RnD	2.631*** (28.15)	3.573*** (30.16)	3.747*** (28.2)	3.061*** (20.04)
RnD MISS	0.136*** (8.06)	-0.087*** (-3.20)	-0.090*** (-2.88)	-0.127*** (-3.55)
CAPEX	-1.616*** (-10.03)	-0.506** (-2.46)	-0.873*** (-3.77)	-0.102 (-0.35)
Intercept	-0.396*** (-7.17)	1.074*** (10.50)	0.476 (0.61)	2.393*** (15.26)
F- statistic	9.3***	7.0***	6.45***	5.76***
Adjusted R^2		54.1%	56.6%	55.9%

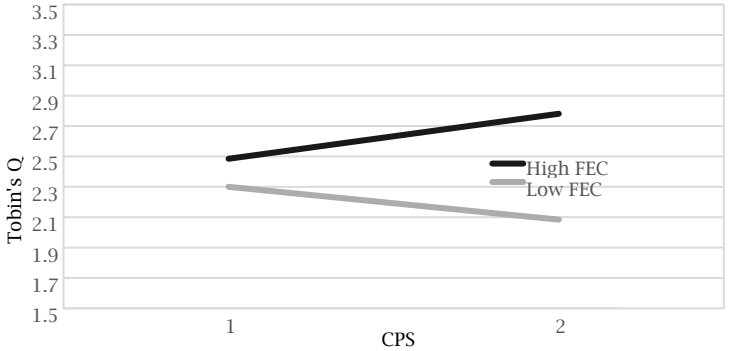
*Note: Pooled cross-sectional and time series regressions of Tobin's Q on CPS, Equity Comp, Connect Dummy, and a set of control variables. Following Bebchuk et al. (2012), we define Tobin's q as the market value of assets divided by their book value. The dependent variable in Column 1 is industry-adjusted Tobin's q, which is computed by subtracting the 4-digit SIC industry median Tobin's q from that of the firm. The other dependent variables are the unadjusted Tobin's q for each firm. All independent variables are lagged one period to help ameliorate endogeneity concerns. CPS is the fraction of the total compensation of a firm's top five executives paid to the CEO only. FEC is the fraction of CEO pay in the form of incentive equity compensation. CONNEX is a dummy variable which equals one if the CEO has at least one social connection with at least one board member (not including current employment connections). E index is the number of antitakeover provisions included in the firm's charter. SIZE is the natural logarithm of the firm's total assets. ROA is the firm's return on assets. LTD is the ratio of the firm's long-term debt to total assets. CFL is the ratio of the firm's cash flow from operations, investing and financing to total assets. RnD is the ratio of the firm's research and development expenses to total assets. RnD MISS is a dummy variable that equals one when a firm's reported research and development expense is set to missing by Compustat. CAPEX is the ratio of a firm's capital expenditures to total assets. All regressions include year and industry fixed effects dummy variables. ***, **, * indicates statistical significance below the one, five and ten percent level.*

Despite the statistical insignificance of the *CPS* estimated coefficient, our model posits that *CPS* can indicate the importance of the CEO to the firm (e.g., talent) and consequential relative value increases in some companies, while in others it may signal the importance of the CEO in the firm (e.g., entrenchment) and consequential value decreases. If CEO power is distributed somewhat equally, and companies with value-increasing CEOs and value-decreasing CEOs are pooled together, we might expect to find insignificant results for the full sample as the value increases for one group tend to offset value decreases for the other. We have proposed hypotheses linked to two variables, which may help us distinguish between managers with high *CPS* due to extraordinary talent from high *CPS* due to entrenchment. We report the relation between each of these and firm value in columns 3 and 4 of Table 4. The estimated coefficient on *FEC* reported in column 3 indicates a positive relation between firm value and incentive alignment (t-statistic=6.07). This is consistent with the notion that the market recognizes the agency cost reductions associated with incentive equity compensation and rewards companies with such incentive structures with higher valuations. The estimated coefficient on *CONNEX* in column 4, while positive, is insignificantly different from zero (t-statistic=0.13). Apparently, either CEO social connections with the board do not have value implications or the effect of social connections is more complex than presently modeled.

5.2. The interaction effects of incentive equity compensation and social connections

Next, we test the interaction effects of equity incentive compensation, social connections, and CEO power on firm value. The alternative to hypothesis 2 posits that strong equity compensation provides incentives for powerful CEOs to use their power and talent to increase firm value relative to powerful CEOs with weak equity incentives. Column 1 of Table 5 reports the results of interacting FEC with CPS. Note first the positive significant (t-statistic=3.57) relation between firm value and FEC indicating positive effects of equity compensation regardless of CEO power. The positive, significant (t-statistic=2.08) estimated coefficient on the interaction term indicates that higher CEO incentive compensation coupled with higher *CPS* tends to be associated with increased firm value. This finding is consistent with our alternative to hypothesis 2, that powerful CEOs with strong equity incentive compensation use their power to increase firm value. Note also that once this interaction is accounted for in the model, the estimate on CPS is significantly negative (t-statistic=-2.35) indicating that the high *CPS* of CEOs with lower levels of incentive compensation tend to be associated with lower firm value, which is consistent with entrenchment of powerful but poorly incentivized CEOs.

Figure 1. Predicted Tobin's Q vs CPS, by FEC



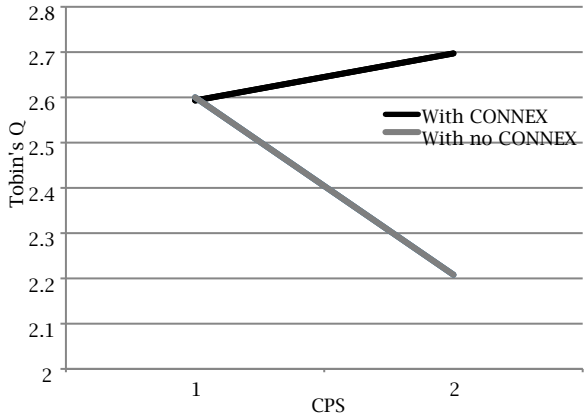
Note: Plot of Tobin's q as CPS varies from its minimum to maximum, and FEC is either two standard deviations above or below its mean (all control variables are set to zero).

We illustrate this interaction effect in Figure 1, which shows two line-plots indicating the change in *Q* (vertical axis) as *CPS* changes from its minimum to its maximum value (on the horizontal axis) at two values of *FEC* (two standard deviations above and below its mean). Note that when the CEO has low incentive equity compensation (downward sloping line), there is a negative relation between *Q* and *CPS*, but when the CEO has strong equity incentives (upwards sloping line) firm value increases with *CPS*.

As noted above, we suggest that a friendly board can indicate either a captured board and an entrenched CEO who is important in the firm, or a collaborative board and a talented CEO who is important to the firm. If the former is true, the estimated coefficient on the interaction of *CONNEX* with *CPS* should be negative indicating a reduction in firm value when social connections are present. If the latter is true, however, the estimate on the interaction term should be positive as collaboration between a friendly board and the CEO leads to higher firm value. Column 2 of Table 5 reports the results of interacting *CONNEX* with *CPS*. Note first the insignificant (t-statistic=-0.32) coefficient on *CONNEX* indicating a lack of an independent relation between firm value and social connections between the CEO and board of directors. The significant (t-statistic=3.82) positive estimated coefficient on the interaction term, however, is consistent with the positive alternative to hypothesis 3: when socially connected to the board, powerful CEOs tend to use their power in ways that lead to increased firm value. Note once again that when the interaction term is accounted for the relation between *CPS* and

company value is reliably negative (t-statistic=-3.95), which is consistent with the deleterious effects on firm value of powerful CEOs combined with arms-length boards of directors. We illustrate this interaction effect in Figure 2, which shows two line plots indicating the change in *Q* (vertical axis) as *CPS* changes from its minimum to its maximum values (along the horizontal axis) when the social connections dummy variable equals either one (with social connections and upward sloping line) or zero (without social connections and downward sloping line). Note the striking difference between the slopes of the two lines. Firm value increases with CEO power in the presence of a friendly board, while CEO power has a negative effect on value with an arms-length board.

Figure 2. Predicted Tobin's Q vs CPS, by CONNEX



Note: Plot of Tobin's q as CPS varies from its minimum to maximum, and the CONNEX dummy variable is either one (With CONNEX) or zero (With no CONNEX) (all control variables are set to zero).

Building on Adams and Ferreira (2007), Uzzi (1996), and Westphal (1999), Hypothesis 4 states that companies that combine a powerful, equity-incentivized CEO with a friendly, collaborative board of directors will experience the benefits of full collaboration between the board and management without the agency costs that might normally be associated with weak board monitoring. In these firms the powerful CEO feels more comfortable sharing full information with and asking for input from the friendly board while potential agency problems are mitigated due to the self-monitoring provided by the compensation contract. Column 3 of Table 5 reports the results of a regression that includes both interactions and shows that the estimated coefficients on both interaction terms maintain their significantly positive relation to firm value (t-statistic=1.99 on *CPS x FEC*; and t-statistic=3.98 on *CPS x CONNEX*). These results are consistent with the alternative to hypothesis 4: Increases in company value tend to be associated with powerful CEOs in combination with a friendly, collaborative board of directors and the self-motivation derived from strong incentive equity compensation. Note also the continued significant (t-statistic=3.78) positive relation between firm value and higher equity compensation. The estimated coefficient on *CPS* continues to be significantly (t-statistic=-4.31) negative indicating that company value tends to be lower when managed by powerful CEOs working without the combination of a friendly board of directors and a strong incentive equity compensation plan.

Table 5. Firm value and interactions among independent variables (Part 1)

	1	***2***	***3***
	Unadjusted Q	***Unadjusted Q***	***Unadjusted Q***
CPS	-0.269** (-2.35)	-0.492*** (-3.95)	-0.755*** (-4.31)
FEC	0.181*** (3.57)		0.192*** (3.78)
CPS x FEC	0.624** (2.08)		0.596** (1.99)
CONNEX		-0.007 (-0.32)	-0.019 (-0.65)
CPS x CONNEX		0.616*** (3.82)	0.795*** (3.98)
E index	-0.045*** (-4.04)	-0.035*** (-4.18)	-0.035*** -4.2
SIZE	-0.015 (-1.37)	-0.006 (-0.76)	-0.006 -0.8
ROA	6.387*** (42.03)	5.595*** (48.09)	5.595*** 48.1
LTD	-0.526*** (-5.16)	-0.428*** (-5.44)	-0.428** -5.4
CFL	0.994*** (5.15)	0.950*** (6.36)	0.950*** 6.4
RnD	3.194***	3.058***	3.058***

Table 5. Firm value and interactions among independent variables (Part 2)

	1	*2*	*3*
	Unadjusted Q	***Unadjusted Q***	***Unadjusted Q***
RnD	3.194*** (17.30)	3.058*** (19.96)	3.058*** 20.0
RnD MISS	-0.153*** (-3.29)	-0.116*** (-3.19)	-0.116*** -3.2
CAPEX	0.505 (1.30)	-0.215 (-0.72)	-0.215 -0.7
Intercept	2.295*** (13.08)	2.559*** (15.82)	2.560*** 15.8
F- statistic	4.99***	5.70***	5.7***
Adjusted R^2	60.4%	56.2%	60.2%

*Note: Pooled cross-sectional and time series regressions of Tobin's Q on CPS, Equity Comp, Connect Dummy, and a set of control variables. Following Bebchuk et al. (2012), we define Tobin's q as the market value of assets divided by their book value. The dependent variable in Column 1 is industry-adjusted Tobin's q, which is computed by subtracting the 4-digit SIC industry median Tobin's q from that of the firm. The other dependent variables are the unadjusted Tobin's q for each firm. All independent variables are lagged one period to help ameliorate endogeneity concerns. CPS is the fraction of the total compensation of a firm's top five executives paid to the CEO only. FEC is the fraction of CEO pay in the form of incentive equity compensation. CONNEX is a dummy variable which equals one if the CEO has at least one social connection with at least one board member (not including current employment connections). E index is the number of antitakeover provisions included in the firm's charter. SIZE is the natural logarithm of the firm's total assets. ROA is the firm's return on assets. LTD is the ratio of the firm's long-term debt to total assets. CFL is the ratio of the firm's cash flow from operations, investing and financing to total assets. RnD is the ratio of the firm's research and development expenses to total assets. RnD MISS is a dummy variable that equals one when a firm's reported research and development expense is set to missing by Compustat. CAPEX is the ratio of a firm's capital expenditures to total assets. All regressions include year and industry fixed effects dummy variables. ***, **, * indicates statistical significance below the one, five and ten percent level.*

6. CONCLUSION

Using pay slice to indicate CEO power, Bebchuk et al. (2011) show that powerful, entrenched, apparently overpaid CEOs are associated with diminished company values. We argue that a high pay slice, however, could also indicate a decisive, talented, fairly-compensated CEO. We develop a model that relies on CEO incentive compensation and board friendliness to separate these two CEO types. Boards of directors are tasked with seemingly contradictory functions of both monitoring and advising management. Effective monitoring implies an arms-length relationship, while effective advising requires full disclosure of pertinent information to the board. Full disclosure of information, however, requires management to trust that directors will use the information to help the company and not to simply criticize management. In our interaction model CEO incentive compensation substitutes strong self-motivation for strong, arms-length board monitoring, while social connections between management and the board produces trust facilitating full information disclosure which results in collaborative problem solving.

Our empirical model tests the effects on company value of incentive compensation and board friendliness, interacted both independently and in combination with CEO power. Independently, incentive compensation is associated with higher company value, while board friendliness is not. When interacted together, powerful CEOs with relatively strong incentive compensation increase value, while powerful CEOs with relatively weak incentive compensation are associated with lower company value. Similarly, companies with powerful CEOs and a friendly board of directors tend to have higher values than companies with powerful CEOs who do not have a social connection with the board. When estimated together, the interaction terms both maintain their significant positive relation with company value indicating that powerful CEOs with both friendly boards and stronger incentive compensation are associated with higher value. These findings are consistent with our model of incentive compensation acting to mitigate the agency costs associated with friendly boards of directors allowing those boards to provide effective advice and consultation, in conjunction with full information disclosure from the CEO to the board resulting from a higher level of trust, and ultimately higher company value.

Although we have designed our empirical fixed-effects model with lagged independent variables to account for both omitted variables and potential endogeneity, respectively, our methods may not be completely effective, and, therefore, our model may suffer from omitted variables bias or endogeneity. Moreover, given our data screens, our company sample is limited to S&P 1500 companies who have complete variable coverage from four different databases. Because of this, our results may not be generalizable to the universe of other companies, both non-S&P 1500 US companies and companies domiciled outside the US.

REFERENCES

1. Adams, R. B., & Ferreira, D. (2007). A theory of friendly boards. *Journal of Finance, 62(1),* 217-250. https://doi.org/10.1111/j.1540-6261.2007.01206.x
2. Afshartous, D., & Preston, R. A. (2011). Key results of interaction models with centering. *Journal of Statistics Education, 19(3),* 1-24. https://doi.org/10.1080/10691898.2011.11889620
3. Balsam, S., Kwack, S. Y., & Lee, J. Y. (2017). Network connections, CEO compensation and involuntary turnover: The impact of a friend of a friend. *Journal of Corporate Finance*, *45*, 220-244. https://doi.org/10.1016/j.jcorpfin.2017.05.001
4. Bebchuk, L. A., & Fried, J. M. (2006). Pay without performance. *Academy of Management Perspectives,* 20(1), 5-24. https://doi.org/10.5465/amp.2006.19873407

5. Bebchuk, L. A., Martijn Cremers, K. J., & Peyer, U. (2011). The CEO pay slice. *Journal of Financial Economics, 102(1),* 199-221. https://doi.org/10.1016/j.jfineco.2011.05.006
6. Bettis, J. C., Bizjak, J., Coles, J. L., & Kalpathy, S. (2018). Performance-vesting provisions in executive compensation. *Journal of Accounting and Economics*, *66(1),* 194-221. https://doi.org/10.1016/j.jacceco.2018.05.001
7. Byrd, J. W., & Hickman, K. A. (1992). Do outside directors monitor managers? Evidence from tender offer bids. *Journal of financial economics*, *32*(2), 195-221. https://doi.org/10.1016/0304-405X(92)90018-S
8. Chintrakarn, P., Jiraporn, P., & Tong, S. (2015). How do powerful CEOs view corporate risk-taking? Evidence from the CEO pay slice (CPS). *Applied Economics Letters*, *22(2),* 104-109. https://doi.org/10.1080/13504851.2014.927565
9. The Corporate Laws Committee, & ABA Section of Business Law. (2011). Corporate director's guidebook -- Sixth edition. *The Business Lawyer*, *66(4),* 975-1064.
10. Do, Q.-A., Lee, Y. T., & Nguyen, B. D. (2016). Directors as connectors: The impact of the external networks of directors on firms. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2753836 or https://doi.org/10.2139/ssrn.2753836
11. Fracassi, C. (2017) Corporate finance policies and social networks. *Management Science, 63(8),* 2397-2771. https://doi.org/10.1287/mnsc.2016.2433
12. Fracassi, C., & Tate, G. (2012). External networking and internal firm governance. *Journal of Finance, 67,* 153-193. https://doi.org/10.1111/j.1540-6261.2011.01706.x
13. Francis, T., & Fuhrmans, V. (2019). Big Companies Pay CEOs for Good performance – and bad. *The Wall Street Journal.* Retrieved from https://www.wsj.com/articles/big-companies-pay-ceos-for-good-performanceand-bad-11558085402?mod=hp_lead_pos5
14. Garen, J. E. (1994). Executive compensation and principal-agent theory. *Journal of Political Economy, 102(6),* 1175-1199. https://doi.org/10.1086/261967
15. Gormley, T. A., & Matsa, D. A. (2014). Common errors: How to (and not to) control for unobserved heterogeneity. *The Review of Financial Studies, 27(2),* 617–661. https://doi.org/10.1093/rfs/hht047
16. Hambrick, D. C., Misangyi, V. F., & Park, C. A. (2015). The quad model for identifying a corporate director's potential for effective monitoring: Toward a new theory of board sufficiency. *Academy of Management Review*, *40(3),* 323-344. https://doi.org/10.5465/amr.2014.0066
17. Hoi, C. K., Wu, Q., & Zhang, H. (2019). Does social capital mitigate agency problems? Evidence from Chief Executive Officer (CEO) compensation. *Journal of Financial Economics, 133(2),* 498-519. https://doi.org/10.1016/j.jfineco.2019.02.009
18. Holmstrom, B. (2005). Pay without performance and the managerial power hypothesis: A Comment. *Journal of Corporation Law*, *30(4),* 703-715.
19. Howell, R. (2013). What could business do to improve the business climate in the U.S.? *Wall Street Journal.* Retrieved from https://www.wsj.com/articles/what-could-business-do-to-improve-the-business-climate-in-the-us-1385580564
20. Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3(4),* 305-360. https://doi.org/10.1016/0304-405X(76)90026-X
21. Jensen, M. C., & Murphy, K. J. (1990). Performance pay and top-management incentives. *Journal of Political Economy, 98(2),* 225-264. https://doi.org/10.1086/261677
22. Kang, J.-K., Liu, W.-L., Low, A., & Zhang, L. (2018) Friendly boards and innovation. *Journal of Empirical Finance, 45,* 1-25. https://doi.org/10.1016/j.jempfin.2017.09.007
23. McWilliams, V. B., & Sen, N. (1997). Board monitoring and antitakeover amendments. *Journal of Financial and Quantitative Analysis*, *32(4),* 491-505. https://doi.org/10.2307/2331234
24. Mehran, H. (1995). Executive compensation structure, ownership, and firm performance. *Journal of Financial Economics,* 38, 163-184. https://doi.org/10.1016/0304-405X(94)00809-F
25. SEC. (2011). *SEC adopts rules for say-on-pay and golden parachute compensation as required under Dodd-Frank act.* Retrieved from https://www.sec.gov/news/press/2011/2011-25.htm
26. Uzzi, B. (1996). The sources and consequences of embeddedness for the economic performance of organizations: The network effect. *American Sociological Review, 61(4),* 674-698. https://doi.org/10.2307/2096399
27. Westphal, J. D. (1999). Collaboration in the boardroom: Behavioral and performance consequences of CEO-board social ties. *Academy of Management Journal, 42(1),* 7-24. https://doi.org/10.2307/256871
28. Westphal, J. D., & Zhu, D. H. (2019). Under the radar: How firms manage competitive uncertainty by appointing friends of other chief executive officers to their boards. *Strategic Management Journal*, *40(1),* 79-107. https://doi.org/10.1002/smj.2966
29. Zagonov, M., & Salganik-Shoshan, G. (2018). CEO Pay Slice as a measure of CEO dominance. *Research in International Business and Finance*, *45*, 571-576. https://doi.org/10.1016/j.ribaf.2017.07.092