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RESEARCH ARTICLE

Examining pay–performance links: The role of capital owning and self-interest among board members in the high-tech industry

Fariss-Terry Mousa[1], Aditya Simha[2], Jaideep Chowdhury[3] and Arvin Sahaym[4]

[1]Department of Management, College of Business, James Madison University, Harrisonburg, VA, USA; [2]Department of Management, College of Business and Economics, University of Wisconsin – Whitewater, WI, USA; [3]Finance and Business Law, College of Business, James Madison University, Harrisonburg, VA, USA and [4]Management, Information Systems, and Entrepreneurship, Washington State University, Pullman, WA, USA
Corresponding author: Fariss-Terry Mousa; Email: mousafx@jmu.edu

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Abstract
Board of directors (BOD) bring valuable human and relational capital to firms but may act as self-interested agents by design. The purpose of this study is to investigate how the compensation of BOD members in high-technology sectors affects overall firm performance. We tested our specific hypotheses using panel regression methodology on data gathered from the CRSP, Compustat, BoardEx, and ExecuComp databases. Our final sample consisted of 9,127 firm years, and the companies in our sample were all high-tech publicly traded U.S. firms from 1992 to 2019. Our results showed that there is an association between BOD's pay structure and firm performance (accounting-based return on assets and market-based Tobin's *Q*). Our findings demonstrate originality and contribute to the literature since we empirically demonstrate that the level of variable BOD pay has a diminishing effect on return on assets and Tobin's Q. This study advances our knowledge of executive compensation in the high technology sector.

Keywords: Board Member Compensation; Firm Performance; human and relational capital; executive pay; board capital view; behavioral agency theory; upper echelons; technology sector

Introduction

Boards of directors (BOD) increasingly play an essential role in the growth of high-technology firms through human and relational capital; however, more research needs to examine how BOD compensation can influence firm performance. On the one hand, it reflects the value of human and relational capital; on the other hand, directors are self-interested agents in their own right (Dalton & Dalton, 2005; Deutsch, Keil, & Laamanen, 2011; Hillman & Dalziel, 2003; Nicolson & Newton, 2010).

Executive compensation research has primarily focused on the relationship between CEO and top management team (TMT) pay and firm performance, often ignoring another entity in the dominant coalition, namely the BOD (Dalton & Dalton, 2005; Devers, Cannella, Reilly, & Yoder, 2007; Finkelstein & Hambrick, 1996; Nicolson & Newton, 2010; O'Sullivan & Diacon, 2003). The BOD is a very influential piece of this coalition, and for past research to have ignored it thus is a matter of grave concern. This omission of the BOD in prior research suggests that there is a rather large gap in the extant literature on executive compensation. This has given rise to an essential research gap in our understanding of the issues related to the BOD compensation–performance relationship since today's boards are highly proactive and accountable in steering firm strategies toward performance. The enactment of the 2002 Sarbanes-Oxley Act in the U.S.A. has further pressured U.S. firms' boards to share their counsel with management rather than remaining passive observers (Dalton & Dalton, 2005; Kemp, 2006; Ruigrok, Peck, & Keller, 2006; Tihanyi, Johnson, Hoskisson, & Hitt, 2003). This study examines the relationship between BOD compensation and firm performance, particularly adjusting for firm complexity in the high-technology sector. This approach tackles the rather prominent research gap that currently exists, as our study has included the important BOD compensation component into the overall question of how executive compensation affects firm performance.

During the past two decades, directors of high-technology firms have more frequently been on call to share their expertise as firms proactively seek to leverage their capital in the form of networks, experience, and advice that will help them design and execute firm strategies (Gomulya & Boeker, 2016; Hoskisson, Chirico, Zyung, & Gambeta, 2017; Withers, Hillman, & Cannella, 2012). As human and relational capital has become sought after, examining the relationship between compensation and firm performance is becoming more relevant (Gomulya & Boeker, 2016; Linck, Netter, & Yang, 2008; Tien, Chen, & Chuang, 2013). However, there is a dearth of research on how the human and relational capital of high-tech board members affect firms' performance and their own self-interest (Brown, Anderson, Salas, & Ward, 2017; Desai, 2016). We explore how a high technology firm's *accounting-based and market-based performance measures* are influenced by its board's compensation, reflecting human and relational capital and alignment of interest with stakeholders.

A review of upper echelon literature shows that exploring links between BOD and their influence on firm outcomes mainly relies on the classical agency or dual-agency-based explanations (e.g., Brown et al., 2017; Desai, 2016; Deutsch et al., 2011; Hendry, 2005; Roberts, McNulty, & Stiles, 2005; Salehi, Lari Dashtbayaz, & Mohtashami, 2021; Yoo & Kim, 2012). Classical agency reasoning considers members of the upper echelon to be self-interested agents whose agendas are often opportunistic and may conflict with those of shareholders (Berle & Means, 1991; Devers et al., 2007; Hendry, 2005; Jensen & Meckling, 1976; Yoo & Kim, 2012). Such explanations, however, do not present the complete picture (Devers et al., 2007) because classical agency theory does not consider the potential contribution of executives in terms of human and relational capital (Deutsch et al., 2011; Devers et al., 2007; Hillman & Dalziel, 2003). To present a completer and more updated picture of this phenomenon, we draw on the insights afforded by the board capital view (BCV) (Hillman & Dalziel, 2003) and the behavioral agency theory (BAT) (Martin, Gomez-Mejia, & Wiseman, 2013; Zona, 2012). The BCV considers the board 'a provider of resources (e.g., legitimacy, advice and counsel, links to other organizations, etc.) and firm performance'. Board capital is a combination of board members' human capital in terms of their experience, expertise, and reputation as well as alignment of shareholders' interests with those of their agents (BOD, in our context).

Behaviorally, such an alignment may occur when executives are motivated to perform to the best of their abilities, leverage their resources and capabilities, and take justifiable risks in the interest of firm growth. Integrating the insights of these two views, BOD compensation reflects the demands made on human and relational capital, on the board's discretion and accountability, as well as alignment with stakeholder interests. We build on the premise that a combination of these factors reflected by BOD compensation facilitates contribution toward maximal firm performance while the principal–agent relationship continues to evolve in the post-Sarbanes-Oxley Act era.

We focus our study on firms in the technology sector because they are known for seeking out board members with a high degree of human and relational capital and taking care of members' interests, which makes them well-suited to examine the relationship between BOD pay and performance (Desai, 2016; Kor & Sundaramurthy, 2009; Makri & Scandura, 2010). High-tech firms are under continuous pressure in uncertain, complex, or competitive environments. As such, they require knowledgeable board members with 'tacit knowledge of the opportunities, threats, competitive conditions, technology and regulations specific to their industry' (Kor & Sundaramurthy, 2009: 786).

Board members are sought for their effective governance and expert advice to TMT (Hillman & Dalziel, 2003), as they can have 'a profound effect on a firm's growth as they influence managerial choices through monitoring and advisory functions' (Kor & Sundaramurthy, 2009: 983). In the high technology sector, they must advise on leveraging knowledge, spearheading innovations, and commercializing rents. These directors may bring 'cosmopolitan' insights gained from diverse experiences (Useem, 1984: 48) to a firm (Carpenter & Westphal, 2001; Rindova, 1999). This way they can share their knowledge about best practices in a sector and create a supportive environment within an organization even though the BOD does not involve itself in day-to-day matters (Deutsch et al., 2011; Devers et al., 2007; Kor & Sundaramurthy, 2009; Makri & Scandura, 2010). Directors may also bring social capital and connections developed via multiple board appointments and industry experience, which could help the firm access critical resources and initiate new business relationships (Burt, 1992; Hillman, 2005; Pfeffer & Salancik, 1978). Overall, they bring legitimacy, access to resources, and linkages with suppliers and customers that are essential for success in high-velocity environments (Kor & Sundaramurthy, 2009).

Given the limited amount of empirical research on compensation, particularly when it comes to board compensation, we performed rigorous longitudinal analyses along with robustness checks using a sample that consists of all publicly traded U.S. firms in high technology sectors, in particular, those founded from 1992 to 2019 with a total of 9,127 firm years. We believe this representative sample has enabled us to focus on whether board pay in high-tech firms may influence their firms' performance. By focusing attention on the critical but often overlooked topic of board of director compensation, we hope to contribute to the literature on executive compensation in a unique context where knowledge arguably matters the most. In a way, by focusing on and including BOD compensation, we are heeding Huse's call for more studies that challenge extant ways of doing research, which at present seems to involve ignoring the BOD when conducting research on executive compensation and firm performance.

We also heed the 2007 call of Devers and colleagues better to integrate the fields of strategic management and finance, as most executive compensation research emanates from these areas, and 'that cross-discipline integration holds the potential to significantly advance compensation research and practice.' (p. 1039). To follow this advice, we aim not only to incorporate theoretical insights but also to apply the empirical rigor required by the fields of management and finance.

Theory and hypotheses

BOD pay in high technology sectors and firm performance

Board capital is 'the sum of the human and social capital of the board of directors, and a proxy for the board's ability to provide resources to the firm [which includes] directors' occupational background, functional background, industry insider/outsider status, as well as industry and non-industry ties' (Haynes & Hillman, 2010: 1145). Board capital is a valuable resource for firms with a breadth of knowledge, experience, and social ties that may contribute to firm performance. BAT views directors as hardworking individuals who typically act in good faith, do their best for the organization, and ensure that people around them will share in their success (Martin et al., 2013).

Combining the insights of BCV and BAT,[1] we suggest that BOD members will be motivated to perform to the best of their abilities, leverage their resources and capabilities, and take justifiable risks for firm growth when their interests are aligned and fulfilled through fair compensation (e.g., Conyon, 2014; Demirer & Yuan, 2013). When their interests are aligned, they will go into 'resource provision' mode by providing advice and counsel to the firm on 'substantial matters such as strategy formulation, access to information outside the firm, preferential access to valuable resources

[1]Board capital view (BCV) draws on the premise of resource provisions from resource dependence theory (Hillman & Dalziel, 2003; Pfeffer & Salancik, 1978). Behavioral agency theory (BAT) (Martin et al., 2013; Pepper & Gore, 2015; Sanders & Carpenter, 2003) builds on the prospect theory and agency theory.

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through personal connections, skills and expertise and legitimacy' (Haynes & Hillman, 2010: 1145). They will expend their time, energy, and attention to take a long-term perspective on risk-bearing while deciding on market opportunity (Wiseman & Gomez-Mejia, 1998).

Boards can affect the strategic decisions of firms and their performance through human and social capital and are motivated to do so when their interests are aligned with shareholders via compensation. Conyon (2014) found that executive compensation was positively correlated with firm performance, while Ozkan (2011) found that total compensation was positively related to firm performance. Similarly, Sanchez-Marin and Baixauli-Soler (2015) found that the association between firm performance and executive compensation is a conditional one, and that better performance is seen in owner-controlled firms, when the BOD are more effective monitors. Thus, combined insights from BCV and BAT suggest that BOD pay level will align an agent's interests to motivate them to leverage their capital both intrinsically and extrinsically. That is, when BOD pay level[2] matches stakeholders' interests, superior performance will hopefully be the outcome. A compelling measure of accounting-based firm performance is a return on assets (ROA), which represents firm profitability in terms of the total set of resources or assets. Abdullah, Ismail, & Nachum (2016) have suggested that 'accounting performance, which reflects … actual performance [through] board members, is indicative of the magnitude and quality of the pool [of BOD]'. Hull & Rothenberg (2008: 785) note that 'ROA yields the most direct information about the results of the chosen allocation of resources', and is well suited to measuring tangible asset utilization in terms of a realization of board advice and interest alignment.

Hypothesis 1a: BOD pay level will be positively associated with accounting-based firm performance (ROA).

Similarly, BOD compensation will be associated with the market's assessment of upper echelon contribution to firm value in terms of board capital and its alignment with future performance as reflected in Tobin's *Q*, the present value of future cash flow based on current and future information, assuming that firms with superior decision-making resources and capabilities will create more economic value from a given quantity of assets (David, Yoshikawa, Chari, & Rasheed, 2006). It is considered a forward-looking, stock market-based measure of firm profitability from a shareholder perspective (Lindenberg & Ross, 1981) and is particularly appropriate to our context as it reflects a market assessment of board capital and interest alignment and how these may be realized to produce superior performance. Thus, we propose:

Hypothesis 1b: BOD pay level will be positively associated with market-based firm performance (Tobin's Q).

BOD long-term pay structure in high technology sectors and firm performance

In high technology sectors, compensation as an incentive is often related to firm innovations and new product launches, which unfold over time (Balkin, Markman, & Gomez-Mejia, 2000). Upper echelon decisions, innovation strategies, and compensation are often related in these sectors (Yanadori & Marler, 2006). Since a board's long-term pay structure refers to compensation such as bonuses and stock options, we propose that such a long-term pay structure will show both the effects of board capital and the alignment of interests.

From the lens of BCV and BAT, we argue that a board's human and relational capital needs time and opportunity to show an effect on performance. Often based on performance, long-term compensation provides leeway in unfolding over time. Compensation in the long form (e.g., stock options) shifts decision-makers' focus to a firm's future performance. Given that new product development and its success in high-tech sectors is revealed based on factors such as R&D, patents, consumer tastes and demand, competitors, and life cycle, long-term pay structures motivate the BOD to pay attention to competitive advantages instead of short-term, one-time success strategies.

Building on the prior research of Demirer and Yuan (2013), we propose that compensation that shows up over the long term will be associated with firm performance. This is because board members will be better positioned to exploit their human and relational capital over time and align their interests with those of stakeholders while making advisory decisions for superior performance. Hence, compensation in relatively long-term forms, that is, long-term pay structure, will influence accounting-based firm performance (ROA) and market-based firm performance.

Hypothesis 2a: BOD's long-term pay structure will be positively associated with accounting-based firm performance (ROA).

Hypothesis 2b: BOD long-term pay structure will be positively associated with market-based firm performance (Tobin's Q).

BOD variable pay in the high-technology sectors and firm performance

Next, we explore the impact of BOD variable pay on firm performance in the high-technology sectors. BOD variable pay is the compensation adjusted for firm complexity – such adjustment is made because higher firm complexity demands higher contribution from the BOD members in all the aspects of their governance (Carpenter & Sanders, 2002). A firm's structural complexity and environmental setting are critical in compensation (Carpenter & Sanders, 2002). The literature has shown that pay is not only a function of potential performance but also of the complexity that can arise from structure, including the critical demands of diverse units and the competitive repertoire of managers (Connelly, Haynes, Tihanyi, Gamache, & Devers, 2016; Hoskisson et al., 2017; Pathak, Hoskisson, & Johnson, 2014; Sanders & Carpenter, 2003). BOD pay is adjusted for firm complexity in terms of management and accountability. It represents the degree to which board pay considers the internal characteristics of the firm, including its structure, diversification levels, and R&D investments. In other words, BOD variable pay adjusted for firm complexity reflects the degree to which a firm faces multifaceted issues (Carpenter & Sanders, 2002).

Board members in high technology sectors must possess relevant technical knowledge, capabilities, and human and relational capital. Research has shown that most are highly qualified professionals, such as retired executives from other firms, lawyers, consultants, financial experts, academics, or domain experts (Dalziel, Gentry, & Bowerman, 2011; Gomulya & Boeker, 2016). They are thus intrinsically and extrinsically motivated to produce a superior firm performance on their watch because firm accomplishments can affect their reputation, which in turn has implications for their status in the business world and appointments at other firms (Gomulya & Boeker, 2016; Vehka & Vesa, 2023).

In high-velocity environments, board members must conscientiously and continuously review, improve, veto, or ratify TMT's strategic decisions. Such duties may be onerous when ambiguous strategic decisions or alternate strategies are called for (Beatty & Zajac, 1994; Boeker, 1992; Fama & Jensen, 1983). Thus, board pay should be commensurate with responsibilities since competitive incentives motivate decision-makers to pay attention to the firm's decisions, to advice, help with capital, and align interests with the shareholders, who are primarily interested in firm performance (Alexeyeva, 2023; Deutsch, 2007; Eisenhardt, 1989; Mousavi, Zimon, Salehi, & Stępnicka, 2022; Tihanyi et al., 2003).

In essence, competitive and justified BOD compensation should reflect the strategic value they bring to the firm and the pressures they face in executing their duty on behalf of shareholders (Byrd & Hickman, 1992; Wright, Kroll, & Elenkov, 2002). Such compensation will motivate them to generate thoughtful counsel, cooperation, and support for the TMT and CEO, particularly in uncertain and complex situations, which may lead to superior firm performance (e.g., Alexeyeva, 2023; Mousavi et al., 2022). They also provide legitimacy, environmental information, and access to outside stakeholders in their social network. Boards also monitor and ratify managerial decisions, which have implications for superior decision-making and firm performance. However, beyond a certain point, the value of variable pay in terms of the benefits of board capital and interest alignment will diminish. This is because there is a ceiling on how much a firm can adjust variable pay for complexity, exploit board capital, and align interests. Once these efforts are exhausted, redundancy and fatigue will set in. As a result, marginal benefits in terms of performance will decrease as the level of adjustment and utilization of board capital and alignment increases. Overextending these efforts may be counterproductive (e.g., Kor & Leblebici, 2005). Hence, we propose the following:

Hypothesis 3a: The BOD member variable pay adjusted for firm complexity (that is, total compensation of all the directors other than the CEO in case of duality) will have a positive but diminishing effect on subsequent accounting-based firm performance (ROA).

Hypothesis 3b: The BOD member variable pay adjusted for firm complexity (that is, total compensation for all directors other than the CEO in case of duality) will have a positive but diminishing effect on subsequent market-based firm performance (Tobin's *Q*).

Methods

Sample and data

Our sample of firms consisted of all publicly traded U.S. firms in high technology sectors listed on the NYSE, AMEX, and NASDAQ in the Execucomp and BoardEx databases from 1992 to 2019. Since board capital and interest alignment are arguably the most sought-after and are found in the high-technology sectors, we created a sample of firms from these high-technology sectors. This approach also reduces the potential for industry effects from less relevant sectors. Thus, our sample was limited to firms drawn from the particular industry SIC numbers in the U.S. market. High technology firms were defined as those included in SIC codes 28 (biotechnology and drugs), 35 (computer and related), 36 (electronics and communication), 37 (transportation equipment), 38 (medical equipment), 48 (telephone equipment and communications services), and 73 (software) (e.g., Desyllas & Hughes, 2010; Mousa, Bierly, & Wales, 2014; Mousa & Reed, 2013).

We obtained stock return data from the CRSP database, while other accounting variables were gathered from the Compustat database. We obtained CEO compensation data from the ExecuComp database, which reports compensation data for executives in publicly traded firms. We used the Compustat segment database for the firm segment data, which were needed to calculate product and geographic diversification. Compustat, ExecuComp, and CRSP databases were accessed through Wharton Research Data Service. We combined the CRSP with Compustat using the CUSIP and year as the key. The resultant dataset matched with Execucomp by GVKEY and year.

The combined dataset merged with BoardEx data through a two-step process. First, BoardEx's company ID was combined with the PERMNO from our dataset using the ticker symbol. Second, we matched the company's name in BoardEx with the company name found in our dataset, using a name-recognizing algorithm, the Levenshtein algorithm, for those firms whose ticker symbols were missing. After matching, we arrived at the final sample of 5,588 firm years. We obtained board compensation data from the BoardEx database.

Measures

Independent variables

BOD pay level*, also called BOD total pay, is the log of the average value of total compensation of all the firm's directors other than the CEO.* BOD long-term pay structure *is defined as the proportion of long-term compensation to total compensation, which is averaged for directors other than the CEO.*

Table 1. Construct names and descriptions

Construct/ variable name	Brief description
BOD pay level/ BOD total pay	'Log of the average value of total compensation of all the directors of the firm other than the CEO'
BOD long-term pay structure	'Proportion of long-term compensation in the total compensation, which is averaged over the directors other than the CEO'
BOD variable pay adjusted for firm complexity	"BOD total pay was regressed for CEO total pay, firm size, R&D intensity, product diversification and geographic diversification variables" "Following Harder (1992), residuals were generated for each firm. BOD variable pay represents the generated residuals"
Accounting-based firm performance (ROA)	'Defined as the three-year average return on assets (ROA)'
Market-based firm performance (Tobin's *Q*)	'Defined as the ratio of the market value of assets to the book value of assets'
CEO pay level	'Log of the total compensation of the CEO'
Firm size	'Log of the total sales of a firm'
Product diversification	'Measured as $\sum P_{ia} \ln(\frac{1}{P_{ia}})$ where P_{ia} is the proportion of firm *a*'s sales in business segment *i*.'
Geographic diversification	'Measured as the sum of foreign sales/total sales, foreign assets/total assets and geographic dispersion of foreign sales'

BOD variable pay, contingent on firm complexity, was calculated similarly. BOD total pay was regressed for CEO total pay, firm size, R&D intensity, product diversification, and geographic diversification variables. Following Harder (1992), residuals were generated for each firm.

CEO pay level was defined as the log of the total compensation for a CEO.

CEO pay structure is the ratio of long-term pay to total pay.

Dependent variables

Accounting-based firm performance is the 3-year average return on assets. Market-based firm performance was captured through Tobin's Q as a measure of firm performance. Tobin's Q is defined as the ratio of the market value of assets to the book value of assets (Kaplan & Zingales, 1997). Tobin's Q 'captures the value of a firm as a whole rather than as the sum of its parts and implicitly includes the expected value of a firm's future cash flows, which are capitalized in the market value of a firm's assets (i.e., the combined market value of a firm's debt and equity)' (Dezsö & Ross, 2012: 1078).

According to David et al. (2006), when the market value of capital is higher than the replacement cost of capital ($Q > 1$), as it is in our context, then the market will send positive signals about both the upper echelon's human and relational capital as well as their alignment of interest and hopes that the market's investments will generate greater returns than their costs. This indicates potential future profits, as Q suggests that the value created will exceed the costs. Conversely, when Q is less than 1, each additional dollar invested by the market will likely yield less than a dollar in market value, indicating the potential for future loss.

Table 1 presents a summary of construct names with brief descriptions.

Control variables

We employed several controls for this study. *Firm size* was measured as the log of a firm's total sales. *Product diversification* was calculated similarly to that used by Carpenter and Sanders (2002). *Product diversification* of firm *a* was measured as $\sum P_{ia} \ln(\frac{1}{P_{ia}})$ where P_{ia} is the proportion of firm *a*'s sales in business segment *i*. *Geographic diversification* was measured following Carpenter & Sanders' (2002) method. *Geographic diversification* is the 'sum of foreign sales/total sales, foreign assets/total assets, and geographic dispersion of foreign sales'. We have added prior performance also as an additional control variable.

Analysis

We employed a panel regression methodology to estimate our regression equations. Even though we included a host of control variables, it is possible that our results were affected by unobserved and omitted firm, industry, or year-specific factors, which might be correlated to *BOD pay level* or *pay structure*. We included firm fixed effects to ensure the results were not driven by omitted time-invariant firm-specific factors. Year-fixed effects were also included in regressions to control for contemporaneous macroeconomic conditions. We used Newey–West standard errors in our regressions to account for heteroskedasticity.

Finally, observations of a firm across time could be correlated. A violation of the independence assumption might therefore lead to biased standard errors. We clustered standard errors by the firm to control for residuals being correlated across time. We report the *t* statistics in parenthesis in tables that report regression results.

Results

In Table 2, we report the descriptive statistics of our dependent and independent variables. We report the mean and standard deviation for all variables. Further, we report correlation coefficients for all variables in a correlation matrix. The statistical significance of the correlation coefficients depends on the value of the correlation coefficients and number of observations. We performed *t*-tests based on the value of the correlation coefficients and number of observations. The results of the *t*-tests were as follows: If the reported correlation coefficient was greater than 0.016 (0.023), then the correlation coefficient was significant at a 5% (1%) significance level. None of the correlation coefficients was large enough to indicate multicollinearity.

In Tables 3 and 4, we report the results of the regression analysis, first for the dependent variable return on assets (Table 3) and Tobin's *Q* (Table 4).

The baseline models with the control variables, where *ROA* in Table 3 and *Tobin's Q* in Table 4 were the dependent variables, are not reported. In the first column of Table 3, we report the regression estimates of *BOD pay level* as the independent variable of interest and all the control variables for *ROA* as the dependent variable. The coefficient on *BOD pay level* is positive (0.136) and significant at the 1% level. This result supports Hypothesis 1a, which predicted a positive association of *BOD pay level* with accounting-based performance (*ROA*).

Model 2 in Table 3 includes the *BOD long-term pay structure*; its coefficient is 0.372, which is significant at the 1% level. It supports Hypothesis 2a, which predicted a positive association of BOD long-term pay structure with accounting-based firm performance.

Model 3 adds *BOD variable pay adjusted for firm complexity* and all control variables. The coefficient of *BOD variable pay adjusted for firm complexity* is positive (5.631) and significant. To check for an inverted-U-shaped curve, the following model (4) adds the *square term for BOD variable pay adjusted for firm complexity.* The model also contains all control variables. The squared term coefficient is negative (−7.788) and significant, indicating that the relationship between *BOD variable pay adjusted for firm complexity* and ROA is nonlinear (inverted U-shaped). The results reported in columns 3 and 4 support Hypothesis 3a (See Figure 1).

For the dependent variable, *Tobin's Q*, reflecting market-based performance, the first column of Table 4 shows regression estimates of *BOD pay level* as the independent variable of interest and all the control variables for *Tobin's Q* as the dependent variable. The coefficient of *BOD pay level* is positive (0.034) and significant at the 1% level. This result supports Hypothesis 1b, which predicted a positive association of BOD pay level with market-based firm performance (*Tobin's Q*). In model 2, Table 4 includes the BOD long-term *pay structure*; its coefficient is 0.111, which is significant at the 1% level, supporting Hypothesis 2b, which predicted a positive association of BOD long-term pay structure with market-based firm performance. Model 3 adds *BOD variable pay adjusted for firm*

Table 2. Descriptive statistics and correlation matrix

	Mean	Std. Dev.	1	2	3	4	5	6	7	8	9	10	11
ROA	12.98	10.89	1.00										
Tobin's *Q*	1.73	1.57	0.13	1.00									
BOD pay level	2.66	3.23	0.14	0.11	1.00								
BOD pay adjusted for firm complexity	0.04	0.10	0.11	0.09	0.62	1.00							
BOD long-term pay structure	0.28	0.98	0.07	0.06	0.40	0.26	1.00						
CEO long-term pay structure	0.01	0.05	0.03	(0.04)	0.17	0.14	0.05	1.00					
CEO pay level	8.25	1.10	0.18	0.07	0.43	0.30	0.28	0.11	1.00				
Geographic diversification	0.01	0.07	0.01	(0.02)	0.11	0.06	0.16	0.06	0.11	1.00			
Product diversification	0.54	4.52	0.02	(0.01)	(0.00)	0.01	0.01	0.01	0.00	0.00	1.00		
R&D intensity	0.07	0.15	(0.39)	0.17	(0.04)	(0.02)	(0.03)	(0.05)	(0.07)	(0.04)	(0.01)	1.00	
Size	0.11	0.54	(0.02)	(0.06)	0.29	0.19	0.38	0.10	0.23	0.36	(0.00)	(0.04)	1.00

$p < .05$ for $r > .016$ and $p < .01$ for $r > .023$.

Table 3. Summary of regressions testing Hypothesis 1a, 2a and 3a based on BOD compensation for high-tech firms

	(1)	(2)	[3]	[4]
Variables	ROA	ROA	ROA	ROA
BOD pay level	0.136*** (.004)			
BOD long-term pay structure		0.372*** (.001)		
BOD pay adjusted for firm complexity			5.631*** (.000)	9.734*** (.000)
BOD pay adjusted for firm complexity square				−7.788** (.024)
CEO pay level	0.940*** (.000)			
CEO long-term pay structure		0.116 (.938)	1.005 (.509)	0.934 (.547)
Geographic diversification	−6.865** (.017)	−1.069 (.710)	−3.246 (.200)	−3.525 (.141)
Product diversification	−1.013*** (.000)	−0.525 (.153)	−0.707*** (.000)	−0.730*** (.000)
R&D intensity	−17.213*** (.000)	−23.113*** (.000)	−16.799*** (.000)	−16.736*** (.000)
Size	−1.793*** (.000)	−8.044*** (.000)	−0.635* (.097)	−0.847** (.021)
Lag ROA	0.654*** (.000)	0.379*** (.000)	0.676*** (.000)	0.678*** (.000)
Constant	−1.815 (.322)	10.931*** (.000)	5.329*** (.000)	5.254*** (.000)
Observations	5,588	5,588	4,450	4,450
R^2	0.6743	0.5635	0.6642	0.6646
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes

Robust p value in parentheses.
$^{***}p < .01$, $^{**}p < .05$, $^{*}p < .1$.

complexity and all control variables. The coefficient of *BOD variable pay adjusted for firm complexity* is positive (0.808) and significant. Model 4 adds the *square term for BOD variable pay adjusted for firm complexity* to check for the inverted-U-shaped curve. The model also contains all control variables. The squared term coefficient is negative (−1.815) and significant, indicating evidence of the relationship between *BOD variable pay adjusted for firm complexity* and *Tobin's Q* is nonlinear (inverted U-shaped). The results reported in columns 3 and 4 support hypothesis 3b.

Robustness results: All industries

The regression results presented so far are only for the firms belonging to the high-tech industries. In order to assure the reader about the generality of our results, we re-estimate the regression equations with all firm and not only the high-tech firms.

In Table 5, the dependent variable is ROA and in Table 6, the dependent variable is Tobin's *Q*. Models 1, 2, 3, and 4 in Tables 5 and 6 are like what were reported in Tables 3 and 4, respectively.

Table 4. Summary of regressions testing Hypothesis 1b, 2b and 3b based on BOD compensation for high-tech firms

	(1)	(2)	[3]	[4]
Variables	*Q*	*Q*	*Q*	*Q*
BOD pay level	0.034*** (.003)			
BOD long-term pay structure		0.111*** (.001)		
BOD pay adjusted for firm complexity			0.808*** (.000)	1.887*** (.000)
BOD pay adjusted for firm complexity square				−1.815*** (.000)
CEO pay level	0.078*** (.002)			
CEO long-term pay structure		−0.638*** (.009)	−0.799*** (.000)	−0.828*** (.000)
Geographic diversification	−0.196 (.879)	3.503 (.335)	−1.644* (.068)	−1.656** (.045)
Product diversification	−0.264*** (.000)	−0.169*** (.000)	−0.224*** (.000)	−0.232*** (.000)
R&D intensity	0.326** (.016)	0.129 (.485)	0.364*** (.006)	0.364*** (.006)
Size	−0.669*** (.000)	−2.047*** (.000)	−0.466*** (.000)	−0.520*** (.000)
Lag *Q*	0.392*** (.000)	0.232*** (.000)	0.358*** (.000)	0.358*** (.000)
Constant	0.611*** (.002)	1.668*** (.000)	1.315*** (.000)	1.298*** (.000)
Observations	4,900	4,900	3,935	3,935
R^2	0.5475	0.3454	0.5197	0.5214
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes

Robust *p* value in parentheses.
$^{***}p < .01$, $^{**}p < .05$, $^{*}p < .1$.

In model 1 of Table 5, the coefficient on *BOD pay level* is positive (0.110) and significant at the 1% level. This result supports Hypothesis 1a, which predicted a positive association of *BOD pay level* with accounting-based performance (*ROA*). In model 2, the coefficient on *BOD long term pay structure* is positive (0.196) and statistically significant lending support to Hypothesis 2a. In model 3, the coefficient of *BOD variable pay adjusted for firm complexity* is positive (4.285) and significant. When we include the *square term for BOD variable pay adjusted for firm complexity* in model 4, the coefficient of the *square term for BOD variable pay adjusted for firm complexity* is negative and significant, similar to what we reported in Table 3 and suggesting a nonlinear relationship between *ROA* and *BOD variable pay adjusted for firm complexity* (Hypothesis 3a).

In model 1 of Table 6, the coefficient of BOD *pay level* is positive (0.020) and significant in support of Hypothesis 1b, which predicted a positive association of *BOD pay level* with market-based firm performance (*Tobin's Q)*. We include *BOD long-term pay structure* in model 2, the coefficient of which is positive and significant supporting Hypothesis 2b. In model 3, we include *BOD variable pay adjusted for firm complexity* whose coefficient is positive and significant. We include the *square term for BOD variable pay adjusted for firm complexity* in model 4 and the coefficient of the *square term*

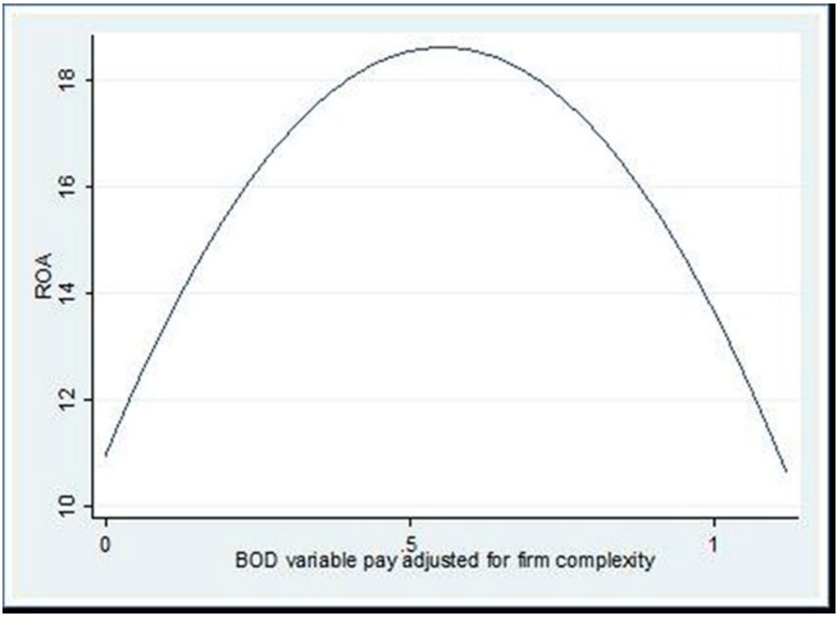

Figure 1. Relationship between ROA and BOD variable pay adjusted for firm capacity.

for BOD variable pay adjusted for firm complexity is negative and significant. The results presented in models 3 and 4 support Hypothesis 3b.

Overall, the results presented in Tables 5 and 6 are in line with the results reported in table 3 and 4 and are in support of the hypothesis 1a, 1b, 2a, 2b, 3a, and 3b. We can infer that the results documented for the firms in the high-tech industries can be generalized and can be applied to all firms regardless of which industry they belong to.

Discussion and conclusion

While prior research has considered chiefly the CEO's and TMT's influence on firm performance (Gomulya & Boeker, 2016; Hoskisson et al., 2017), we set out to study the effects of board capital and interest alignment on high-technology firms' accounting- and market-based performance. We posited and found that board members' pay level, long-term pay structure, and variable pay adjusted for industry complexity may influence both types of firm performance. Specifically, we hypothesized and empirically found that the level of *BOD variable pay adjusted for industry complexity* has negative curvilinear effects on ROA and Tobin's *Q*.

This finding is consistent with our theoretical argument that varying or matching compensation for human capital and board interests from the context of industry complexity are effective up to a point in terms of firm performance; however, past that point, the value of variable pay in eliciting the benefits of board capital and interest alignment will diminish. The incremental benefits of board capital and alignment will thus taper off after reaching a certain utilization level. Once these efforts are exhausted, redundancy and fatigue set in, and they may have a detrimental effect on performance. Our findings suggest that managing the 'right' level of variability or adjustment to complexity in BOD pay is central to generating superior firm performance.

Implications for theory

As far as we know, this is the first study to integrate the insights of BCV and BAT to examine the phenomena of accounting-based and market-based firm performance inthe context of board

Table 5. Summary of regressions testing Hypothesis 1a, 2a and 3a based on BOD compensation for all firms

	(1)	(2)	(3)	(4)
Variables	ROA	ROA	ROA	ROA
BOD pay level	0.110*** (0.002)			
BOD long-term pay structure		0.196** (0.012)		
BOD pay adjusted for firm complexity			4.285*** (0.000)	7.172*** (0.000)
BOD pay adjusted for firm complexity square				−4.891*** (.006)
CEO pay level	0.605*** (.000)			
CEO long term pay structure		0.499 (.631)	0.541 (.615)	0.326 (.766)
Geographic_diversification	0.033 (.955)	0.101 (.690)	0.458 (.767)	0.456 (.769)
Product_diversification	0.012* (.077)	0.007*** (.000)	0.012** (.012)	0.012** (.017)
R&D_intensity	−16.320*** (.000)	−23.249*** (.000)	−16.262*** (.000)	−16.254*** (.000)
Size	−1.014*** (.000)	−1.041* (.070)	−0.840*** (.000)	−0.882*** (.000)
lag ROA	0.658*** (.000)	0.394*** (.000)	0.671*** (.000)	0.670*** (.000)
Constant	0.419 (.753)	9.660*** (.000)	5.187*** (.000)	5.127*** (.000)
Observations	49,127	49,127	47,230	47,230
R^2	0.6715	0.5907	0.6582	0.6585
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes

Robust *p* value in parentheses.
$^{***}p < .01$, $^{**}p < .05$, $^{*}p < .1$.

compensation. Our results elucidate the role of the board's 'resource provisioning' in the form of human and relational capital and empirically measure its impact on firm performance, contributing to the BCV and resource dependence theory (Hillman & Dalziel, 2003; Pfeffer & Salancik, 1978).

Based on a rich sample of firms from the technology sector, we differentiate our measures from others through the breadth of boards covered. This enhances the generalizability of our findings. It also differs from case studies or those using a single sector as a sample (e.g., Goodstein et al., 1994).

This study contributes to the literature on upper echelon compensation by focusing on an entity that has received little attention but has become increasingly influential, post-Sarbanes-Oxley Act, namely the board of directors. We agree with Carpenter and Sanders (2002) contention that compensation studies that focus only on the CEO 'may yield inconclusive results, or worse: results, which mask or ignore the rich underlying team dynamic' (p. 375). More attention should be given to board members to advance knowledge of executive compensation and its impact, as they play an increasingly important role in firm decisions. More attention could also be focused on innovation (e.g., Nimr, Salehi, & Kardan, 2023), as innovation is a significant driverof firm performance. Perhaps,

Table 6. Summary of regressions testing Hypothesis 1b, 2b and 3b based on BOD compensation for all firms

	(1)	(2)	(3)	(4)
Variables	*Q*	*Q*	*Q*	*Q*
BOD pay level	0.020***			
	(.003)			
BOD long-term pay structure		0.052*		
		(.068)		
BOD pay adjusted for firm complexity			0.495***	0.739***
			(.000)	(.004)
BOD pay adjusted for firm complexity square				−0.369*
				(.076)
CEO pay level	0.030*			
	(.050)			
CEO long term pay structure		−0.462**	−0.692***	−0.707***
		(.022)	(.000)	(.000)
Geographic diversification	0.141	0.170	0.234	0.235
	(.158)	(.243)	(.490)	(.491)
Product diversification	−0.000	−0.000	−0.000	−0.000
	(.818)	(.701)	(.704)	(.697)
R&D intensity	0.545***	0.148	0.539***	0.540***
	(.003)	(.417)	(.004)	(.004)
Size	−0.205***	−0.329	−0.222***	−0.228***
	(.001)	(.129)	(.000)	(.000)
lag Q	0.437***	0.240***	0.372***	0.372***
	(.000)	(.000)	(.000)	(.000)
Constant	0.750***	1.358***	1.100***	1.094***
	(.000)	(.000)	(.000)	(.000)
Observations	48,169	48,169	46,503	46,503
R^2	0.5683	0.4919	0.532	0.5322
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes

Robust *p* value in parentheses.
***$p < .01$, **$p < .05$, *$p < .1$.

board compensation has an indirect effect on firm innovation, which in turns has an effect on firm performance. Additionally, future research should also pay more attention toward emerging markets and countries that have faced major societal upheavals, such as Iraq (e.g., Nimr et al., 2023; Salehi, Moradi, & Faysal, 2023). It would be insightful to discover how BOD compensation affects firm performance, when there are drastic societal upheavals affecting the overall macroeconomic ecosystem. Similarly, future research should also consider unraveling and teasing out the role of moderator variables in this overall relationship, similar to Jagirani, Chee Chee, and Binti Kosim (2023). Our current findings help provide a pathway for future scholars to investigate pertinent moderators in the overall relationship. Perhaps, CEO duality or even capital adequacy could act as moderators (e.g., Jagirani et al., 2023) in the relationship between BOD compensation and firm performance.

Implications for practice

Our findings have practical implications for all the stakeholders who appoint and compensate the board members' pay level. Given that (1) BOD members' knowledge and social capital are the underlying mechanisms that influence firm performance and (2) interest alignment with the long-term pay structure and industry-complexity adjusted variable pay significantly influence firm performance in the technology sector, we suggest that firms should proactively search and hire such 'knowledgeable executives whose interests can be aligned' as BOD members. Our findings suggest that such executives, equipped with knowledge of the firm's domain and rich social capital, would serve the stakeholders best. Vehka and Vesa (2023) found that board of director characteristics had a noticeable effect on advocacy performance. Applying the logic of their findings to ours, we feel bolstered enough to assert that if firms have sought out and hired experienced directors and compensated them fairly, then the firms will benefit from that directorial vast experience, which will be harnessed on behalf of the firm.

Our findings also resonate with Alexeyeva's (2023) assertions that directors who hold multiple directorships tend to have better reputational capital, which then results in higher quality decision making ability and audit quality. Further, such executives should be deployed as valuable 'human capital/resource and capability' so that they proactively share their knowledge about best practices in their sector and frequently reach out to their contacts to access helpful knowledge. This ends up benefiting their firms thanks to the improved decision-making ability, and further honing of reputational capital. A prerequisite to this prescription is that firms must prefer those executives who have developed such capital and network via prior board appointments, formal and informal events, and experience. Such board members' interests, compensation, and contributions must be aligned to fully leverage their capabilities and benefit the firm. Another tremendous advantage for firms using directors with high levels of reputational capital could be that those firms will have fewer troubles with malfeasant financial reporting (e.g., Mousavi et al., 2022). Therefore, all things considered, firms who select judicious experts to serve on their boards, and ensure adequate compensation for them, will see and experience elevated levels of firm performance.

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References

Abdullah, S. N., Ismail, K. N., & Nachum, L. (2016). Does having women on boards create value? The impact of societal perceptions and corporate governance in emerging markets. *Strategic Management Journal*, *37*, 466–476.

Alexeyeva, I. (2023). Board members' outside directorships and the demand for audit quality: Large sample evidence from private firms. *Journal of Accounting, Auditing & Finance*.

Balkin, D. B., Markman, G. D., & Gomez-Mejia, L. R. (2000). Is CEO pay in high-technology firms related to innovation? *Academy of Management Journal*, *43*(6), 1118–1129.

Beatty, R. P., & Zajac, E. J. (1994). Managerial incentives, monitoring, and risk bearing: A study of executive compensation, ownership, and board structure in initial public offerings. *Administrative Science Quarterly*, *39*(2), 313–335.

Berle, A. A., & Means, G. C. (1991). *The modern corporation and private property*. New Brunswick, NJ: Transaction Publishers.

Boeker, W. (1992). Power and managerial dismissal: Scapegoating at the top. *Administrative Science Quarterly*, *37*(3), 400–421.

Brown, J. A., Anderson, A., Salas, J. M., & Ward, A. J. (2017). Do investors care about director tenure? Insights from executive cognition and social capital theories. *Organization Science*, *28*, 471–494.

Burt, R. S. (1992). *Structural holes: The social structure of competition*. Cambridge: Harvard University Press.

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.

Carpenter, M. A., & Sanders, W. M. (2002). Top management team compensation: The missing link between CEO pay and firm performance? *Strategic Management Journal*, *23*(4), 367–375.

Carpenter, M. A., & Westphal, J. D. (2001). The strategic context of external network ties: Examining the impact of director appointments on board involvement in strategic decision making. *Academy of Management Journal*, *44*(4), 639–660.

Connelly, B. L., Haynes, K. T., Tihanyi, L., Gamache, D. L., & Devers, C. E. (2016). Minding the gap: Antecedents and consequences of top management-to-worker pay dispersion. *Journal of Management*, *42*(4), 862–885.

Conyon, M. J. (2014). Executive compensation and board governance in US firms. *The Economic Journal*, *124*(574), F60–F89.

Dalton, C. M., & Dalton, D. R. (2005). Boards of directors: Utilizing empirical evidence in developing practical prescriptions. *British Journal of Management*, *16*(s1), S91–S97.

Dalziel, T., Gentry, R. J., & Bowerman, M. (2011). An integrated agency–resource dependence view of the influence of director's human and relational capital on firms R&D spending. *Journal of Management Studies*, *48*(6), 1217–1242.
David, P., Yoshikawa, T., Chari, M. D., & Rasheed, A. A. (2006). Strategic investments in Japanese corporations: Do foreign portfolio owners foster underinvestment or appropriate investment? *Strategic Management Journal*, *27*(6), 591–600.
Demirer, I., & Yuan, J. J. (2013). Executive compensation structure and firm performance in the US restaurant industry: An agency theory approach. *Journal of Foodservice Business Research*, *16*(5), 421–438.
Desai, V. M. (2016). The behavioral theory of the (governed) firm: Corporate board influences on organizations' responses to performance shortfalls. *Academy of Management Journal*, *59*(3), 860–879.
Desyllas, P., & Hughes, A. (2010). Do high technology acquirers become more innovative? *Research Policy*, *39*(8), 1105–1121.
Deutsch, Y. (2007). The influence of outside director's stock-option compensation on firms R&D. *Corporate Governance*, *15*(5), 816–827.
Deutsch, Y., Keil, T., & Laamanen, T. (2011). A dual agency view of board compensation: The joint effects of outside director and CEO stock options on firm risk. *Strategic Management Journal*, *32*(2), 212–227.
Devers, C. E., Cannella, A. A., Reilly, G. P., & Yoder, M. E. (2007). Executive compensation: A multidisciplinary review of recent developments. *Journal of Management*, *33*(6), 1016–1072.
Dezsö, C. L., & Ross, D. G. (2012). Does female representation in top management improve firm performance? A panel data investigation. *Strategic Management Journal*, *33*(9), 1072–1089.
Eisenhardt, K. M. (1989). Agency theory: An assessment and review. *Academy of Management Review*, *14*(1), 57–74.
Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *The Journal of Law and Economics*, *26*(2), 301–325.
Finkelstein, S., & Hambrick, D. C. (1996). *Strategic leadership: Top executives and their effects on organizations*. St. Paul, MN: West Publishing Company.
Gomulya, D., & Boeker, W. (2016). Reassessing board member allegiance: CEO replacement following financial misconduct. *Strategic Management Journal*, *37*(9), 1898–1918.
Goodstein, J., Gautam, K., & Boeker, W. (1994). The effects of board size and diversity on strategic change. *Strategic Management Journal*, *15*, 241–50.
Harder, J. W. (1992). Play for pay: Effects of inequity in a pay–for–performance context. *Administrative Science Quarterly*, *37*(2), 321–335.
Haynes, K. T., & Hillman, A. (2010). The effect of board capital and CEO power on strategic change. *Strategic Management Journal*, *31*(11), 1145–1163.
Hendry, J. (2005). Beyond self-interest: Agency theory and the board in a satisficing world. *British Journal of Management*, *16*(s1), S55–S63.
Hillman, A. J. (2005). Politicians on the board of directors: Do connections affect the bottom line? *Journal of Management*, *31*(3), 464–481.
Hillman, A. J., & Dalziel, T. (2003). Boards of directors and firm performance: Integrating agency and resource dependence perspectives. *Academy of Management Review*, *39*, 383–396.
Hoskisson, R. E., Chirico, F., Zyung, J., & Gambeta, E. (2017). Managerial risk taking: A multitheoretical review and future research agenda. *Journal of Management*, *43*(1), 137–169.
Hull, C. E., & Rothenberg, S. (2008). Firm performance: The interactions of corporate social performance with innovation and industry differentiation. *Strategic Management Journal*, *29*(7), 781–789.
Jagirani, S. T., Chee Chee, L., & Binti Kosim, Z. (2023). Board characteristics and firm value: The moderating role of capital adequacy. In *Investment Management and Financial Innovations* (Vols. 20, Issue 2, pp. 205–214). Ukraine: LLC CPC Business Perspectives.
Jensen, M. C., & Meckling, W. H. (1976). The theory of the firm: Managerial behavior, agency cost, and ownership structure. *Journal of Financial Economics*, *3*(4), 305–360.
Kaplan, S. N., & Zingales, L. (1997). Do investment-cash flow sensitivities provide useful measures of financing constraints? *Quarterly Journal of Economics*, *112*(1), 169–215.
Kemp, S. (2006). In the driver's seat or rubber stamp? The role of the board in providing strategic guidance in Australian boardrooms. *Management Decision*, *44*(1), 56–73.
Kor, Y. Y., & Leblebici, H. (2005). How do interdependencies among human-capital deployment, development, and diversification strategies affect firms financial performance? *Strategic Management Journal*, *26*(10), 967–985.
Kor, Y. Y., & Sundaramurthy, C. (2009). Experience-based human capital and social capital of outside directors. *Journal of Management*, *35*(4), 981–1006.
Linck, J. S., Netter, J. M., & Yang, T. (2008). The effects and unintended consequences of the Sarbanes-Oxley Act on the supply and demand for directors. *The Review of Financial Studies*, *22*(8), 3287–3328.
Lindenberg, E. B., & Ross, S. (1981). Tobin's q ratio and industrial organization. *Journal of Business*, *54*(1), 1–32.
Makri, M., & Scandura, T. A. (2010). Exploring the effects of creative CEO leadership on innovation in high-technology firms. *The Leadership Quarterly*, *21*(1), 75–88.
Martin, G. P., Gomez-Mejia, L. R., & Wiseman, R. M. (2013). Executive stock options as mixed gambles: Revisiting the behavioral agency model. *Academy of Management Journal*, *56*(2), 451–472.

Mousa, F. T., Bierly, P. E., & Wales, W. J. (2014). Different strokes: IPO risk factors, investor valuation, and firm survival. *Journal of Management & Organization*, *20*(3), 348–364.

Mousa, F. T., & Reed, R. (2013). The impact of slack resources on high-tech IPOs. *Entrepreneurship Theory and Practice*, *37*(5), 1123–1147.

Mousavi, M., Zimon, G., Salehi, M., & Stępnicka, N. (2022). The effect of corporate governance structure on fraud and money laundering. *Risks*, *10*(9), 176.

Nicolson, G., & Newton, C. (2010). The role of the board of directors: Perceptions of managerial elites. *Journal of Management & Organization*, *16*(2), 204–218.

Nimr, A.-M., Salehi, M., & Kardan, B. (2023). The relationship between board characteristics and social responsibility with firm innovation. *European Journal of Management and Business Economics*, *32*(1), 113–129.

O'Sullivan, N., & Diacon, S. R. (2003). Board composition and performance in life insurance companies. *British Journal of Management*, *14*(2), 115–129.

Ozkan, N. (2011). CEO compensation and firm performance: An empirical investigation of UK panel data. *European Financial Management*, *17*(2), 260–285.

Pathak, S., Hoskisson, R. E., & Johnson, R. A. (2014). Settling up in CEO compensation: The impact of divestiture intensity and contextual factors in refocusing firms. *Strategic Management Journal*, *35*(8), 1124–1143.

Pepper, A., & Gore, J. (2015). Behavioral agency theory: New foundations for theorizing about executive compensation. *Journal of Management*, *41*(4), 1045–1068.

Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations: A resource dependence perspective*. New York: Harper and Row.

Rindova, V. P. (1999). What corporate boards have to do with strategy: A cognitive perspective. *Journal of Management Studies*, *36*(7), 953–975.

Roberts, J., McNulty, T., & Stiles, P. (2005). Beyond agency conceptions of the work of the non-executive director: Creating accountability in the boardroom. *British Journal of Management*, *16*(s1), S5–S26.

Ruigrok, W., Peck, S. I., & Keller, H. (2006). Board characteristics and involvement in strategic decision making: Evidence from Swiss companies. *Journal of Management Studies*, *43*(5), 1201–1226.

Salehi, M., Lari Dashtbayaz, M., & Mohtashami, M. (2021). The effects of corporate characteristics on managerial entrenchment. *Iranian Journal of Management Studies*, *14*(1), 245–272.

Salehi, M., Moradi, M., & Faysal, S. (2023). The relationship between corporate governance and cost of equity: Evidence from the ISIS era in Iraq. *International Journal of Emerging Markets*.

Sanchez-Marin, G., & Baixauli-Soler, J. S. (2015). TMT pay dispersion and firm performance: The moderating role of organizational governance effectiveness. *Journal of Management & Organization*, *21*(4), 436–459.

Sanders, W. G., & Carpenter, M. A. (2003). Strategic satisfying? A behavioral-agency theory perspective on stock repurchase program announcements. *Academy of Management Journal*, *46*(2), 160–178.

Tien, C., Chen, C. N., & Chuang, C. M. (2013). A study of CEO power, pay structure, and firm performance. *Journal of Management & Organization*, *19*(4), 424–453.

Tihanyi, L., Johnson, R. A., Hoskisson, R. E., & Hitt, M. A. (2003). Institutional ownership differences and international diversification: The effects of boards of directors and technological opportunity. *Academy of Management Journal*, *46*(2), 195–211.

Useem, M. (1984). *The inner circle: Large corporations and business politics in the US and UK*. New York: Oxford University Press.

Vehka, M., & Vesa, J. (2023). Internal governance of interest organizations: The role of boards of directors in advocacy performance. *Nonprofit and Voluntary Sector Quarterly*, *52*(2), 474–492.

Wiseman, R. M., & Gomez-Mejia, L. R. (1998). A behavioral agency model of management risk taking. *Academy of Management Review*, *23*(1), 133–153.

Withers, M. C., Hillman, A. J., & Cannella, A. A. (2012). A multidisciplinary review of the director selection literature. *Journal of Management*, *38*(1), 243–277.

Wright, P., Kroll, M., & Elenkov, D. (2002). Acquisition returns, increase in firm size, and chief executive officer compensation: The moderating role of monitoring. *Academy of Management Journal*, *45*(3), 599–608.

Yanadori, Y., & Marler, J. H. (2006). Compensation strategy: Does business strategy influence compensation in high-technology firms? *Strategic Management Journal*, *27*(6), 559–570.

Yoo, J. W., & Kim, K. (2012). Board competence and the top management team's external ties for performance. *Journal of Management & Organization*, *18*(2), 142–158.

Zona, F. (2012). Corporate investing as a response to economic downturn: Prospect theory, the behavioural agency model and the role of financial slack. *British Journal of Management*, *23*(S1), S42–S57.

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