STEPPING IN, STEPPING OUT: THE DYNAMIC RELATIONSHIP BETWEEN INTERLOCKING DIRECTORS AND CEO COMPENSATION

By

SU CHEN

A thesis submitted to the

School of Graduate Studies

Rutgers, The State University of New Jersey

In partial fulfillment of the requirements

For the degree of

Master of Science

Graduate Program in Labor Relations and Human Resources

Written under the direction of

Jie (Jasmine) Feng

And approved by

_____

_____

_____

_____

New Brunswick, New Jersey

January, 2021

ABSTRACT OF THE THESIS

Stepping In, Stepping Out: The Dynamic Relationship Between Interlocking Directors and CEO Compensation

By SU CHEN

Thesis Director:

Jie (Jasmine) Feng

Combining literature on CEO pay-setting process, board processes, and group dynamics, this study explores the influence of interlocking director changes on subsequent CEO pay raises. Particularly, I focus on two types of interlocking director changes—the decrease and increase in the number of interlocking directors—and consider their different impact on CEO pay raises. Furthermore, I hypothesize that the relationship between interlocking director changes and subsequent CEO pay raises is contingent on the CEO relative pay (of the changing interlocked firms vs. the focal firm), female board representation, and the interaction between CEO relative pay and female board representation. Based on 4,510 firm-year observations from 702 S&P firms over 10 years (2009-2018), I found that interlocking director decrease is negatively associated with subsequent CEO pay raises, yet there is no significant impact of interlocking director increase on subsequent CEO pay raises. The findings also support the moderating roles of the CEO relative pay and female board representation. This study provides a dynamic view for understanding the link between interlocking directors and CEO compensation as well as supports the value of female board representation.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

Given that CEOs play critical role in implementing firm strategy and influencing firm outcomes (Carpenter et al., 2004; Hambrick & Mason, 1984) and that total compensation is a key motivator exerting systematic impact on CEOs' attitudes and behaviors (Cho & Hambrick, 2006; Sanders & Hambrick, 2007; Seo et al., 2015), understanding determinants of CEO compensation arrangements is of both theoretical and practical importance (Chin & Semadeni, 2017). Although scholars, mainly those from economics and finance, long described CEO pay-setting as a market-based process such that boards of directors depend on labor market analysis to make CEO returns comparable to shareholder returns and maximize shareholder value (e.g., Fulmer, 2009; Jensen & Meckling, 1976; Murphy & Zabojnik, 2004), management scholars have challenged the optimal contracting assumption within agency theory by highlighting the importance of power (Bedchuk & Fried, 2002), social-psychological processes (Kim et al., 2015; Shin, 2016) and institutional factors (Diprete et al., 2010) in the design of CEO pay packages.

Particularly, although boards of directors are expected to monitor and control CEO compensation arrangements for better interest alignment between executives and shareholders (e.g., Core et al., 1999; Fama & Jensen, 1983; Rediker & Seth, 1995), questions about the effectiveness of boards' monitoring persist (e.g., Conyon & Peck, 1998; Cordeiro & Veliyath, 2003). Moreover, recognizing that directors' monitoring effectiveness is shaped not only by individual attributes—such as demographic characteristics (e.g., Brown et al., 2017; Lucas-Pérez et al., 2015), work/education background (e.g., Chizema et al., 2015; Gore et al., 2011), and independence (e.g., Boivie

et al., 2011; Zorn et al., 2017)—but also by the social networks and social groups they are embedded in (Coleman, 1987; Granovertter, 1985; Kim et al., 2015; Sauerwald et al., 2016; Westphal & Khanna, 2003), increasing scholar interest has emerged regarding the impact of interlocking directors—directors affiliated with one firm sit on the board of directors of another firm (Burt, 1980; Mizruchi, 1996; Shropshire, 2010)—on CEO compensation (e.g., Benton, 2016; Kim et al., 2015; Pathan et al., 2019). To be specific, in order to maintain access to the resources, which are collectively owned by all executives and directors—the organizational elite group—in the social networks, directors are expected to adhere to the social norms—"the nonlegal rules of conduct and behavior" (Bedchuck & Fried, 2002, p. 43)—collectively recognized by the organizational elite group. Hence, being exposed to the normative pressures from the organizational elite group, which are featured with reciprocity and deference to executives (Bebchuk et al., 2002; Jensen & William, 1976), interlocking directors are less willing to monitor executives effectively (Ferris et al., 2003; Jiraporn et al., 2009; Méndez et al., 2015; Shivdasani, 2006) and, thus, are more tolerant with surge in CEO compensation (Andres et al., 2013; Barnea & Guedj, 2006; Benton, 2016; Patnam, 2011; Renneboog & Zhao, 2011; Sauerwald et al., 2016). Moreover, given the fact that benchmarking process is critical in the CEO pay-setting and that pay information can be transferred through board interlocks—the interfirm connection/tie created by having common executives/directors (Burt, 1980; Mizruchi, 1996; Shropshire, 2010), CEO compensation arrangements in one firm can be considered as a reference point in CEO pay-setting and be spread to other interlocked firms (DiPrete et al., 2010; Hayes &

Schaefer, 2009; Kim et al., 2015). As the result, interlocking directors play a vital role in diffusing and strengthening the norms of favorable CEO compensation arrangements.

The extant studies, however, tend to consider the impact of interlocking directors on CEO compensation from a static perspective, providing a snapshot view of whether and how interlocking directors matter. Boards of directors, however, oftentimes undergo structural and personnel changes (Kossinets & Watts, 2006), including outflow of existing directors (e.g., voluntary turnover, retirement, and/or resignation) and inflow of newly appointed directors (Bhana, 2016). Such changes in board directorship are common as it is jointly influenced by individual factors such as work experience and reputation (Diestre et al., 2015; Zhu & Westphal, 2014), board factors such as gender diversity and power structure (Gould et al., 2018; Zajac & Westphal, 1996), and institutional factors such as the mandatory director rotation required by the Sarbanes-Oxley Act (SOX) (Dalton & Dalton, 2009; Linck et al., 2009; Withers et al., 2012).[1] Such changes may be even more common for interlocking directors due to the ease of mobility which is enhanced by their higher levels of status (Ferris et al., 2003; Shivdasani, 2006) and larger relevant social networks (Lazarova & Taylor, 2009; Seibert et al., 2001). Indeed, using panel data for publicly traded companies in India from 1998 to 2010, Patnam (2011) suggested that changes in board interlocks were common, such that, each year, about 4.5 interfirm links were deleted/lost and one new link was added per firm on average.

[1] *Note:* SOX was introduced in 2002 and sets higher standard for director expertise, requires greater responsibility of individual directors as well as imposes nontrivial penalties on directors if they fail to fill their duties, thus bringing substantive changes to board composition and memberships in individual firms.

Despite the common changes in directorship (not only during organizational changes such as crisis or mergers and acquisitions, but also during normal, non-crisis business cycles), existing studies tend to consider board changes under unique organizational contexts—e.g., IPO and financial fraud (Atinc et al., 2017; Cowen & Marcel, 2011; Liu et al., 2013; Marcel & Cowen, 2014) or during unpredicted, sudden events—e.g., death or retirement of directors or CEOs (Brown et al., 2017; Combs & Skill, 2003; Nguyen & Nielsen, 2010). As a result, our understanding of changes in interlocking directors that continuously happen under normal and non-crisis setting is rather limited (Boivie et al., 2012), and we know even less about the implications of interlocking director changes on CEO compensation.

To address this research gap, this study explores the impact of interlocking director changes on CEO's subsequent pay raises by integrating literature on CEO pay-setting processes, board decision-making processes and group dynamics. Specifically, this study focuses on two basic forms of change: *interlocking director decrease* and *interlocking director increase*. Interlocking director decrease refers to the loss of interlocking directorship that is likely to be a result of interlocking director departure, whereas interlocking director increase is usually caused by appointments of new directors.

With an attempt to deepen our understanding about the implications of interlocking director changes, this study also explores two important boundary conditions on the relationship between interlocking director changes and CEO pay raises. First, the pay information from interlocked firms shall play a role in the benchmarking process for CEO pay-setting both formally (such as listing interlocked firms as peer firms) and

informally (such as shaping directors' perceptions about the legitimate and acceptable CEO pay packages). Hence, it's natural to expect that the extent to which interlocking director increase/decrease can influence subsequent CEO pay raises shall be contingent on the compensation level of firms which become connected/disconnected with the focal firm due to interlocking director changes. Second, more closely related this study's focus on the implications of normative pressures on CEO compensation, this study focuses on the moderating effects of female board representation due to the possible role female directors can play in changing the social norms of organizational elite group. Studies have long argued for the gender differences in monitoring accountability by suggesting that female directors generally hold more conservative attitudes towards CEO compensation (e.g., Adams & Ferreira, 2009; Barua et al., 2010; Krishnan & Parsons, 2008; Srinidhi et al., 2011), Besides, women have been historically underrepresented in high profile jobs such as directorship (Lara et al., 2017; Westphal & Stern, 2006, 2007) and are less likely to sit on multiple boards (Sheridan, 2001). Taken together, I expect that female directors are less likely to adhere to the normative pressures of the organizational elite group and may influence the extent to which interlocking director changes influence CEO pay raises. Moreover, as aforementioned, the pay information sharing among interlocked firms can diffuse and strengthen the norms of organizational elite group, and this may influence female directors' submission to such norms. Hence, this study also considers the three-way interaction among interlocking director changes, the pay level of changing interlocked firms and female board representation to further explore the implications of normative pressures faced by interlocking directors on CEO compensation.

This study makes two main theoretical contributions. First, this study contributes to our understanding of the impact of board dynamics on CEO compensation, especially the changes in CEO compensation. CEO compensation is generally argued to be elastic and subjective to continuously changes (e.g., pay raises) over time (Baixauli-Soler & Sanchez-Marin, 2011; Hambrick & Finkelstein, 1995). Past studies have suggested that CEO pay changes can be influenced by prior firm performance (Pathak et al., 2014; Wowak et al., 2011), CEOs' prior compensation level (Krause et al., 2014; Seo et al., 2015), compensation level on the labor market (Hambrick & Finkelstein, 1995) and external environmental changes (Cho & Shen, 2007; Yeung et al., 2011). These studies tend to view the CEO compensation changes as the outcome of a rational calculation as well as a passive reaction to the market change such that CEO compensation is adjusted to achieve a more precise valuation of CEO based on firm performance history and market-level CEO compensation, but this study goes beyond such completely rational perspective and contributes to the extant research by illustrating how CEO pay raises is subject to interlocking director changes. Particularly, different from existing studies considering board dynamism under special contexts such as IPO and financial fraud (Atinc et al., 2017; Marcel & Cowen, 2014), this study contributes to our understanding about the implications of noncrisis-related changes in board compositions.

Second, this study contributes to our knowledge about the impact of female board representation and responds to the call for understanding the implications of female representation on boards (Gould et al., 2018; Hoobler et al., 2018). Recently, the inclusion of women on boards and its implications on firm outcomes, including CEO compensation, have attracted extensive scholarly attention (e.g., Bugeja et al., 2016;

Kirsch, 2018; Usman et al., 2018). Situating the role of female directors in a specific context—interlocking director changes, this study further advances our knowledge about the value of female board representation.

THEORY AND HYPOTHESES

The decision-making for CEO compensation of publicly traded firms follows a series of standards required by corporate law. CEO compensation is set by the compensation committee, which generally consists of three or four independent directors (Bebchuk et al., 2002; Kim et al., 2015)—directors who have no material relationship with the firm, either directly or as a partner, shareholder or officer of an organization that has a relationship with the firm. Often, compensation committee also includes outside pay consultant who help with the decision-making process for CEO by providing market data and analyses. Compensation committee will assess current pay packages, review the pay package proposed by CEOs, and make recommendations to the full boards of directors for the final approval. A key step in the decision-making process is the benchmarking process in which the compensation committee conducts labor market analysis to compare their CEO's pay level to that of other CEOs on the labor market, namely, the peer groups (Bannister & Newman, 2003; Bizjak et al., 2008; Miller, 1995). Such comparison can help firms to determine competitive CEO compensation so that they can retain and motivate their CEOs (Crystal, 1991; Hayes & Schaefer, 2009).

Despite the standard procedures for CEO pay setting and the nominal independence of compensation committee, the effectiveness of CEO pay setting is still heavily questioned and multiple factors are argued to be involved in the standard pay-setting procedures. Particularly, the extent to which boards of directors are willing and able to monitor the CEO pay-setting process matters (e.g., Bebchuk et al., 2002; Bebchuk & Fried, 2006; Morse et al., 2011), which signifies the need to consider the impact of interlocking directors, who, as discussed above, are heavily embedded in the social

networks of organizational elite group, subjective to corresponding normative pressures and less effective in monitoring CEOs (Coleman, 1987; Granovertter, 1985; Kim et al., 2015; Sauerwald et al., 2016; Westphal & Khanna, 2003).

Directors and executives are connected with each other either by working together or by interacting with each other in professional, educational or social opportunities (i.e., graduating from the same university and meeting with each other on industrial meetings or conferences; Barnea, & Guedj, 2006; Kim et al., 2015; Westphal & Stern, 2006). Taken together with the fact that many directors are usually executives from other firms or even former executives of the same firm (Andres, 2010), connected directors and executives tend to care about each other naturally (Barnea, & Guedj, 2006) since the norm of reciprocity suggests that kindness will be returned with kindness (Gouldner, 1960; Boivie et al., 2015), so the social norms within boards are often characterized with reciprocity and deference to executives (Bebchuk et al., 2002; Jensen & William, 1976). For instance, studies have found that the increase in CEO compensation is significantly related with pay increase for directors (Boivie et al., 2015; Main et al., 1995). Moreover, by collaborating with each other, organizational elites can better fend off external threats for managerial power such as shareholders' attempt to refine the control structures of firms for more efficient monitoring (Davis & Thompson, 1994; Sauerwakl et al., 2014; Westphal & Stern, 2006). Hence, connections among organizational elites can lead to their commitment to each other and create a cohesive inner circle, which is accountable only to themselves and may even lead to their collusion on certain issues to protect self-interests (Barnea & Guedj, 2006; Ferris et al., 2003; Laux & Laux, 2009; Mills, 1956; Useem, 1984).

Following this perspective, by sitting on multiple boards, interlocking directors further facilitate networking among executives and directors, promote a sense of shared identity among organizational elites and contribute to the reinforcement of corresponding normative pressures (Benton, 2016; McDonald & Westphal, 2011). For instance, CEOs may help with a director' board appointments in other firms—it's highly possible because CEOs often have great impact over the director nomination process (Bedchuck & Fried, 2002), and, as a payback, directors may vote for CEO pay raises. Indeed, studies further suggest that directors who adhere to the social norms of the elites can maintain access to social capital such as resources and social support from other directors and executives (Davis et al., 2003), while directors who violate these norms may get punished such that directors who participate in shareholder-oriented reforms can be target of social sanctions from other directors and are less likely to receive board appointments in other firms (Westphal & Khanna, 2003; Westphal & Zajac, 2013). Such findings also imply that interlocking directors are more likely to be those who identify with other elites and defend group interests. Interlocking directors are argued to be formal instruments that people from the "upper class" use to enhance the cohesion among members of their class and strengthen their group social norms (Wong et al., 2015). Correspondingly, researchers found that the existence of interlocking directors is related with higher and less performance-sensitive CEO pay packages (Hallock, 1997; Liao & Hsu, 2013; Sauerwald et al., 2016).

Moreover, given the fact that interlocking directors facilitate the information transmission among interlocked firms and that compensation committee depends on the labor market analysis to determine what is the acceptable compensation design, the level

of CEO pay in of interlocked firms is likely to serve as salient reference points for CEO compensation in the focal firm (Boivie et al., 2015; DiPrete et al., 2010; Kim et al., 2015; Reda et al., 2014). Such impact can be formal such that interlocked firms can be listed as peer firms or interlocking directors sitting on compensation committee can cite the information from interlocking firms to help with the benchmarking process. Alternatively, even though interlocked director might not serve on the compensation committee and interlocked firms might not be included as peer firms, pay information of interlocked firms can be shared among directors through daily communication and board meetings (Malenko, 2014; Turley & Zaman, 2011) and, thus, shape directors' perceptions of appropriate compensation level and influence the CEO pay-setting informally (Kim et al., 2015). Put together, the increase in CEO compensation of one firm can be spread to other interlocked firms, and such self-reinforcing loop diffuses and strengthens the norms of the organizational elite groups (Hayes & Schaefer, 2009; Kim et al., 2010; Wong et al., 2015).

Extensive attempts have been made to explore the impact of interlocking directors on CEO compensation, but the interlocking director changes have not received much scholarly attention. Hence, following above discussion, this research considers the implications on CEO pay raises of two types of interlocking director changes: 1) interlocking director decrease and 2) interlocking director increase.

Interlocking Director Changes, CEO Relative Pay and CEO Pay Raises

Interlocking Director Decrease. Interlocking director decrease occurs when firms experience loss of interlocking directors. For a firm, interlocking director decrease can occur due to multiple reasons. Firms can lose interlocking directors due to the exit of

interlocking directors (e.g., turnover, retirement, resignation, and death), or one director can remain in the focal firm but exits from the other firms and is not an interlocking director anymore. Here, I expect that interlocking director decrease will negatively influence CEO pay raises by weakening the social norms within boards which favor higher CEO compensation.

As discussed earlier, interlocking directors are exposed to the normative pressures of the organizational elites, so their presence in the boards transfers the group norms of the organizational elites into boards and further strengthen boards norms characterized with reciprocity and deference to executives (Bebchuk et al., 2002; Benton, 2016; Jensen & William, 1976; McDonald & Westphal, 2011). Given that group norms can strongly impact group member behaviors (Ehrhart & Naumann, 2004; Feldman, 1984; Terry & Hogg, 1996), these norms will lead to more favorable compensation outcomes for CEOs even though interlocking directors might not serve directly in the compensation committee. Moreover, boards of directors, as highly interdependent groups (Forbes & Milliken, 1999), develop such collective norms not in a day but during long-term interactions and coordination (Atinc et al., 2017; Kor, 2003; Kozlowski & Ilgen, 2006; Marks et al., 2001). Particularly, the development and enforcement of group norms are greatly influenced by the explicit statements and role expectations from supervisors or key group members who advocate for such norms through daily discussion (Feldman, 1984; Smith & Postmes, 2011).When interlocking directors leave, the relationships and social capital that are needed for coordination and interactions among directors can be eroded (Boudreau & Berger, 1985; Huckman & Pisano, 2006) and boards of directors lose group members who advocate and work for the enforcement of group norms, both

reducing the salience of preexisting norms in boards which favor organizational elites (Atinc et al., 2017; Reilly et al., 2014; Zellmer-Bruhn, 2003). Moreover, since the norms of organizational elite group are strengthened through information diffusion among interlocked firms, losing interlocking directors can cut off the self-reinforcing loop of organizational elite group norms and further decrease its salience. Even though there is no leaving of directors and interlocking director decrease occurs because former interlocking directors exit from boards of other firms and isn't an interlocking director anymore, these directors are not embedded in the social network of organizational elites and, thus, are less submitted to the normative pressures of the organizational elites. These directors also lose access to pay information from previously interlocked firms and hinder the self-reinforcing loop of organizational elite group norms. Hence, this circumstance may also reduce the salience of organizational elite group norms within boards. Taken together, interlocking director decrease is likely to disrupt collective social norms within boards and, thus, cut off boards' tendency towards excessive CEO pay raises. Hence, I expect that, all else being equal, interlocking director decrease will negatively impact CEO pay raises:

Hypothesis 1a: Interlocking director decrease will be negatively related with subsequent

CEO pay raises.

Taking a step further, given the fact that pay information transferred among interlocked firms strengthens the organizational elite group norms by shaping the benchmarking process both formally and informally and the fact that pay comparison is the core of the benchmarking process such that upward movement for CEO pay is more

possible when other firms pay their CEOs higher (DiPrete et al., 2010; Kim et al., 2015), this study naturally considers the relative pay of CEOs from formerly interlocked firms—firms that become disconnected with the focal firm due to interlocking director decrease[2]—to that of the CEO in the focal firm as a key moderator. When the formerly interlocked firms pay their CEOs higher than the focal firm, pay information from these firms is more valuable in reinforcing the organizational elite group norms which favor higher CEO compensation by levelling up directors' expectation about the legitimate and acceptable CEO pay level in the benchmarking process (Kim et al., 2015). Indirect support can be found from Zhu's (2014) study, which found that directors' prior experience with CEO compensation will shape their attitudes towards CEO compensation such that directors who experienced higher CEO compensation are more tolerant with higher CEO compensation. Hence, losing these firms will cause more disruptions to the norms supporting more favorable CEO pay packages. On the contrary, when the formerly interlocked firms pay their CEOs lower than the focal firm, the impact of interlocking director decrease on CEO pay raises is much limited. Instead, getting rid of pay information from these firms may even benefit the subsequent CEO pay raises since pay information from these firms may indicate the overpayment for CEO in the focal firm.

Hence, I hypothesize as follows:

Hypothesis 2a: The CEO relative pay (the formerly interlocked firms vs. the focal firm) will moderate the relationship between interlocking director decrease and subsequent CEO pay raises, such that the negative relationship will be stronger when CEOs in the formerly interlocked firms receive higher pay than CEO in the focal firm.

[2] *Note:* Interlocking director decrease/increase might not always lead to disappearing or establishments of interfirm connections, but here I talk about the general conditions.

Interlocking Director Increase. Interlocking director increase can occur when firms appoint new interlocking directors or existing directors join boards of other firms. On one side, opposite to interlocking director decrease, interlocking director increase can increase interconnections among organizational elites and strengthen the organizational elite group norms, thus enhancing managerial power and contributing to CEO pay raises. Such positive impact becomes more possible if we consider the fact that organizational elites especially the CEO generally have great influence over the appointment of new directors (Bebchuk et al., 2002; Main et al., 1995; Westphal & Zajac, 1995; Zhu & Westphal, 2014).[3] Indeed, the CEO often formally serves as a member of the nominating committee for director appointment (Bebchuk et al., 2002; Carcello et al., 2011; Shivdasani & Yermack, 1999), and studies suggest that recommendations from CEO and other board members play a critical role in director appointment (Sheridan, 2001; Westphal & Stern, 2007). As a result, through director appointments, organizational elites can recruit directors from personal social network to further strengthen group cohesion and group norms of the organizational elites. As mentioned above, past studies found that directors who once participated in shareholder-oriented reforms can be target of social sanctions from other directors and are less likely to receive board appointments in other firms (Westphal & Khanna, 2003; Westphal & Zajac, 2013). Besides, organizational elites can modify the interlocked firm composition by bringing in directors from larger

[3] *Note:* It's possible that shareholders can take advantage of interlocking director decrease to restrict the power of executives, but I argue that this is less possible for two reasons. First, shareholders' ability to intervene in director appointment is limited due to information asymmetry, which can be further strengthened when executives coopt with directors. Indeed, it has been found that individuals nominated are almost always appointed to the board (Withers, et al., 2018). Second, I expect that, compared with executives, shareholders can be less motivated to intervene in the director appointments in non-crisis settings. For instance, Krause et al. (2014) found that shareholders responded proactively to CEO pay adjustments when firm performance is poor, but they are relatively indifferent to CEO compensation level when firm performance is good.

and higher-paying firms to further strengthen the social norms favoring higher CEO compensation (Bizjak et al., 2008; Shin, 2016). Indirect support can be found from relevant research topics. For instance, Skovoroda and Bruce (2017) found that executives keep their performance peer groups weak by excluding peers with relatively better performance.

On the other side, the impact of interlocking director increase on strengthening the organizational elite norms might not be realized immediately because group norms within boards are established during long-term interactions. Instead, at the beginning, similar to interlocking director decrease, interlocking director increase can bring in disruptions to the existing collective norms of boards. Interlocking director increase takes resources and time from both newly joined directors and other board members to get familiar with each other, adapt to each other and establish new norms, or at least modify preexisting norms, for coordination and interactions (Hale Jr et al., 2016; Messersmith et al., 2014; Nyberg & Ployhart, 2013). Even there is no entering of new directors, and interlocking director increase occurs due to directors' obtaining of new directorship in other firms, these directors need time to adapt to their new role of being an interlocking director as well as the social norms of the organizational elites, thus their ability to help strengthen such social norms is rather limited at the beginning.

To sum up, although interlocking director increase can be an opportunity for executives and directors to strengthen group norms, such process can't be accomplished shortly. Instead, at the beginning, interlocking director increase will bring in disruptions to these group norms. Since this study focuses on the impact of interlocking director increase on the subsequent CEO pay raises, I hypothesize as follows:

Hypothesis 2a: Interlocking director increase will be negatively related with subsequent CEO pay raises.

As mentioned in the hypothesis development for interlocking director decrease, the impact of interlocking director increase depends on the compensation level of the newly interlocked firms, and such consideration matters more for interlocking director increase given the fact that organizational elites attempt to modify the composition of board and interlocked firms through director appointment. Similarly, when the newly interlocked firms pay their CEOs higher than the focal firm, their entry further diffuses and strengthens the norms favoring CEOs and, thus, aids with the upward movement of CEO compensation during the benchmarking process. On the contrary, the entry of firms with lower-paying CEOs does harm to the salience of the organizational elite group norms and can lead to negative impact of CEO pay raises.

Hypothesis 2b: The CEO relative pay (the newly interlocked firms vs. the focal firm) will moderate the relationship between interlocking director increase and subsequent CEO pay raises, such that the negative relationship will be weaker when CEOs in the newly interlocked firms receive higher pay than CEO in the focal firm.

The Moderating Effects of Female Board Representation

Interlocking director changes will cause disruptions in group cohesion and norms within boards, thus lowering the stability and salience of former decision-making norms towards favorable CEO pay packages. Such impact, however, can be limited when all directors hold similar attitudes and are highly homogeneous since they are better at wielding against disruptions and can restore former norms (which favor CEO pay raises) in short time. On the contrary, as earlier discussed, female directors are less likely to be

submissive to corresponding normative pressures, so, here, I argue that the inclusion of female directors may strengthen the disruptions to the organizational elite norms caused by interlocking director changes.

Studies argue that, compared to their male counterparts, women are more likely to show sympathy and care for others and are more ethically sensitive (e.g., fairness, inclusion, and equity) (Eagly & Johnson, 1990; Eagly et al., 1995; Powell & Ansic, 1997; Sunden & Surette, 1998). Hence, they are more vigilant to inappropriate/unethical behaviors (Adams & Ferreira, 2009; Nielsen & Huse, 2010) and tend to take personal and collective responsibilities seriously (Adams & Ferreira, 2009; Fondas & Sassalos, 2000). Following such arguments, studies on female board representation argues that women are generally more involved in the monitoring tasks of boards (Lucas-Pérez et al., 2015). Moreover, given the fact that women have been historically underrepresented in high profile jobs such as directorship (Gregorič et al., 2017; Lara et al., 2017; Westphal & Stern, 2006, 2007), female directors are less likely to be embedded in the social network of organizational elites (Sheridan, 2001). Taken together, I expect that female directors are less likely to adhere to the group norms of the organizational elite which favor less effective monitoring and control over the CEO pay-setting process. Indeed, studies do suggest that female directors are generally more conservative about CEO pay (Adams & Funk, 2012; Eagly & Johnson, 1990; Lucas-Pérez et al., 2015), and female board representation is found to lower CEO compensation level and enhance the pay-performance sensitivity of CEO compensation (Bugeja et al., 2016; Usman et al., 2018). Under normal circumstances, however, female directors' influence over boards' decision-making is often restricted by intergroup bias (Kooij-de Bode et al., 2008; Van

Knippenberg et al., 2004), and they are pressured to conform to the majority norms within boards (Bebchuck et al., 2002; Forbes & Milliken, 1999; Ehrhart & Naumann, 2004; Greenberger et al., 1987). Disruptions in group norms, however, provide female directors with the opportunity to challenge current norms, or, at least, express their more conservative attitudes about CEO pay-setting. The presence of different opinions and disagreement among directors will not only boost interaction and active information exchange within teams (Isenberg, 1986; Van Knippenberg et al., 2004) but also push directors to think more and explain more to justify their CEO pay compensation decision rather than adhere to the group norms too easily (Forbes & Milliken, 1999; Joshi et al., 2011; Van Knippenberg et al., 2004). To sum up, the greater involvement of female directors in boards can strengthen disruptions in board norms caused by interlocking director changes and help change board decision-making from a spontaneous process to a process with more active and deeper information processing, thus cutting against the tendency towards excessive CEO pay raises (Jeong & Harrison, 2017).

Hence, I hypothesize as follows:

Hypothesis 3: Female board representation on boards will moderate the relationship between a) interlocking director decrease b) interlocking director increase and subsequent CEO pay raises, such that the negative relationship will be stronger when the percentage of female directors on boards is higher.

The Three-way Interaction among Interlocking Director Changes, CEO Relative Pay and Female Board Representation

As mentioned above, interlocking directors positively impacts CEO compensation by enhancing board norms favoring higher CEO compensation, and that pay information

from firms with higher-paying CEOs will further diffuse and justify such board norms. Hence, the moderating effects of female board representation on the relationship between interlocking director changes and CEO pay raises—which is achieved by strengthening the disruptions to the organizational elite group norms—will be further moderated by the CEO relative pay (the formerly/newly interlocked firms vs. the focal firm).

I expect that the moderating effects of female board representation on the relationship between interlocking director decrease and CEO pay raises will be stronger when the CEO relative pay (the formerly interlocked firms vs. the focal firm) is higher. Female directors strengthen the negative impact of interlocking director decrease on subsequent CEO pay raises by challenging board norms towards excessive CEO compensation, so losing access to pay information of firms with higher-paying CEOs, which reduces the salience of norms favoring higher CEO pay level, may allow more room for female directors to challenge and cut off former norms towards excessive CEO pay. On the contrary, if the average CEO pay in the formerly interlocked firms is much lower than that in the focal firm, the loss of these pay information matters less and the disruptions in the organizational elite group norms are much lessened. Hence, female directors' efforts to change status quo in decision-making and express different opinions can be suppressed.

Similarly, the moderating effects of female board representation on the relationship between interlocking director increase and CEO pay raises will be stronger when the CEO relative pay (the newly interlocked firms vs. the focal firm) is lower. The obtaining of pay information from firms with lower-paying CEOs will challenge existing board norms favoring higher CEO compensation or, at least, contribute much less to the

strengthening of such norms, thus conducing to female directors' attempt to direct board norms toward the more conservative, elaborated and appropriate considerations for CEO pay level. On the contrary, the entering of firms with much higher CEO pay may signal boards of directors that the norms favoring higher CEO compensation level is acceptable, thus hindering female directors' attempt to challenge such norms.

Hence, I hypothesize as follows:

Hypothesis 4a: The moderating effects of female board representation on the relationship between interlocking director decrease and subsequent CEO pay raises will be positively moderated by the CEO relative pay (the formerly interlocked firms vs. the focal firm), such that the moderating effects of female board representation will be stronger with the increase in the CEO relative pay (the formerly interlocked firms vs. the focal firm).

Hypothesis 4b: The moderating effects of female board representation on the relationship between interlocking director increase and subsequent CEO pay raises will be negatively moderated by the CEO relative pay (the newly interlocked firms vs. the focal firm), such that the moderating effects of female board representation will be weaker with the increase in the CEO relative pay (the newly interlocked firms vs. the focal firm).

METHODOLOGY

Sample and Data Source

My hypotheses were tested using longitudinal panel data with a sample of firms listed in the S&P 1,500 from 2009 to 2018.[4] S&P firms are most prominent in economy and have the most complete information on executive compensation and boards of directors. Data about executive compensation and firm-level control variables (e.g., firm size, firm performance) were collected from S&P's ExecuComp database, and director information was collected from MSCI (formerly KLD and GMI) GMI Ratings database.[5] I matched firms listed in ExecuComp and MSCI GMI Ratings database and only kept firms included in both databases. Furthermore, I only kept firms whose director information was available across the whole range of 2009-2017. In addition, I lagged the independent and moderating variables by one year unless otherwise noted. The original sample size is 5,896 firm-year observations from 737 firms. Besides missing data, there were 9 observations in which CEOs receive one dollar per year. Prior studies suggest that some CEOs will give up their salary as some sort of gesture to shareholders or the society (Barnea & Guedj, 2006). For instance, Apple's former CEO, Steve Jobs, is known for the fact that he gave up his salary in his last 8 years in Apple. Hence, such extreme and abnormal data will distort my analysis and were deleted from my sample. My final sample size is 4,510 firm-year observations from 702 firms. Full sample was used to test Hypothesis 1a, 1b, 3a and 3b. To test hypothesis 2a 2b, 4a and 4b, I used a reduced sample consisting of firm-year observations where board interlock changes happened and

[4] *Note:* Year was determined by the proxy date provided by ExeComp and MSCI GMI rating database.
[5] *Note:* MSCI GMI Ratings is an independent investment research firm providing corporate governance data and relevant analysis. Its datasets provide proxy data captured through June 30th of each year on over 3,000 US companies. For this study, I used its data about directorships.

the compensation information for formerly/newly interlocked firms is available. 1,677 firm-year observations from 628 firms were used for testing Hypothesis 2a and 4a, and 1,574 firm-year observations from 591 firms were used for testing Hypothesis 2b and 4b.

Measurers

Interlocking Director Decrease/Increase. Interlocking director changes were captured by calculating the increase and decrease in the number of interlocking directors in the focal firm. These two variables were operationalized by following steps. First, I calculated the frequency of each director in firms listed in MSCI GMI rating dataset by year and kept directors who sit on boards of at least two firms, namely the interlocking directors. Second, for each interlocking director who was present on the board of firm *a* in year *t*, I checked whether this director was present in firm *a* in year $t - 1$. If not, this interlocking director would be marked as entering firm *a* in year *t*. Similarly, I checked whether this director was still present in year $t + 1$. If not, this director would be marked as exiting in year $t + 1$.[6] Third, I summed each firm's yearly count of decrease and increase in the number of interlocking directors and used these data as the measurements of interlocking director decrease and interlocking director increase respectively.

CEO pay raises. The choice of appropriate lag can be challenging since it's uncertain how long it takes interlocking director changes (especially the interlocking director increase) to affect CEO compensation, but, given the fact that CEO compensation is determined annually and my hypotheses focus on the subsequent

[6] *Note:* MSCI GMI rating dataset provides information about the status of directors, which includes retired, emeritus, retiring, former, nominee, advisory and active., I checked the director status and leaving date of directors (the leaving date information is only available missing for fewer than 50% cases) and found that if directors left in year *t*, their statuses in year *t* will be marked as retired/retiring/former/emeritus. Hence, by only keeping directors whose status is nominee, advisory or active. directors kept in my final sample were those who were active through the whole given year. This justifies the way I calculated the interlocking director decrease and increase.

disruptions to the organizational elite group norms caused by interlocking director changes, I think 1-year lag is an appropriate choice. To be specific, I measured CEO pay raises in year $t + 1$ by logging the ratio of CEO compensation in year $t + 1$ divided by CEO compensation in year t. Such calculation is widely used in economics to account for relative magnitudes of changes, and it tends to yield approximately normal distributions (e.g., Evans, 1987; Ijiri & Simon, 1967). Recently, this approach is also used by management researchers to calculate pay changes (e.g., Shin, 2016; Wowak et al., 2011). Total compensation includes salary, bonus, and the value of long-term incentive grants. Particularly, following prior studies (e.g., Bednar, 2012; Conyon et al., 2001; Coombs & Gilley, 2005), stock options included in the long-term incentive grants were valued using the Black-Scholes method (Black & Scholes, 1973), which was provided by the ExecuCom dataset.

Both moderating variables were measured in the same year when board interlock changes happened.

Female board representation. Female board representation was represented by the percentage of female directors on boards. It was calculated by dividing the number of female directors on board by the total number of directors on board. Particularly, this variable was measured after considering the decrease and increase in the number of interlocking directors.

CEO relative pay. CEO relative pay was operationalized by calculating the ratio of the average compensation level of CEOs from the formerly/newly interlocked firms to the CEO compensation in the focal firm. Particularly, since not all formerly/newly firms' CEO compensation information was available in ExecuComp database, I only calculated

the average CEO compensation level based on available information. For expression convenience, I will label this measurer as CEO relative pay-formerly/newly in following sections.

Control Variables. A number of control variables were included in my analysis. Firm performance should influence the CEO compensation and was measured both as return on assets (ROA), which reflects the internal operation efficiency of firms (Bednar, 2012), and Tobin's Q value, which is a market-based indicator (Wolfe & Sauaia, 2005). To further capture the financial position of firms, I controlled debt ratio, measured by dividing a firm's total debt by its total assets (e.g., Chin & Semadeni, 2017; Zorn et al., 2017). I controlled firm size since prior studies have shown that firm size is generally significantly related with CEO compensation (Tosi et al., 2000; Wright et al., 2002), and firm size was measured as the logarithm of total assets (e.g., Chizema et al., 2015; Seo et al., 2015). Firm age can reflect firm stability and its ability to pay the executives (Brandes et al., 2016; Chizema et al., 2015), and it was measured as the number of years since firm establishment. As a corporate governance variable, board size was used to control for the overall impact of boards on CEO compensation and was calculated as the total number of directors on boards (Bednar et al., 2016; Chizema et al., 2015). CEO characteristics can significantly influence their compensation level. I controlled CEO gender (1 for man and 0 for woman) given the executive gender pay gap (Kulich et al., 2011). Considering the significant impact of CEO power on the pay-setting process, I controlled CEO duality (CEO duality was coded as 1 if CEO is also the chair of the board and 0 if not) (e.g., Cordeiro & Veliyath, 2003; Van Essen et al., 2015) and CEO equity ownership (ratio of shares owned to total shares) (e.g., Shi et al., 2017). CEO tenure, measured as the number

of years since being appointed as the CEO, was controlled since CEOs with different tenures are likely receive different levels and types of compensation (Hambrick & Finkelstein, 1995). I also controlled CEO change, which was coded as 1 if there was a change in CEO and 0 if there was no change, since CEO change can trigger reconsideration for CEO compensation design. Finally, considering the impact of interlocking directors on CEO compensation, I also controlled the number of interlocking directors and the average level of CEO compensation (logarithm) in interlocked firms.

RESULTS

Means, standard deviations and correlations among key variables are presented in Table 1. Correlations are generally low to modest. Both interlocking director decrease (M = 0.508) and interlocking director increase (M = 0.404) are uncommon. In fact, out of 4,510 year-firm observations, interlocking director decrease is 0 for 2,918 observations, and interlocking director increase is 0 for 3,037 observations.

I have unbalanced yearly panel data, so I used fixed effects linear regression analysis to test my hypotheses. Table 2 presents the testing results for the relationship between interlocking director change and CEO pay raises. Model 1a is the baseline model for CEO pay raises and only included control variables. Model 1b in Table 2 shows that interlocking director decrease is negatively and significantly related with CEO pay raises (b = –0.011, p < .050), and it brought a significant improvement in R^2 compared to Model 1a. Combined with the fact that, on average, CEO compensation in my sample increases by 474,280 dollars annually, the loss of one interlocking director could lead to at most 5,217 dollars decrease in CEO annual pay raises. Hence, Hypothesis 1a was supported. For Hypothesis 1b, Model 1c in Table 2 shows that interlocking director increase is negatively but not significantly related with CEO pay raises (b = –0.004, p = .454). Furthermore, I entered both interlocking director decrease and interlocking director increase into Model 1d. Again, the results show that interlocking director decrease is negatively and significantly related with CEO pay raises (b = –0.011, p < .050) while interlocking director increase is negatively but not significantly related with CEO pay raises (b = –0.004, p = .474). Hence, Hypothesis 1b was not supported.

Hypothesis 2a and 2b focus on the moderating effects of CEO relative pay on the relationship between interlocking director changes and subsequent CEO pay raises. Hypothesis 2a argued that the CEO relative pay-formerly will strengthen the negative impact of interlocking director decrease on subsequent CEO pay raises. To test this hypothesis, I entered interlocking director decrease, CEO relative pay-formerly and their interaction (all centered) into Model 3c in Table 4. Although the changes in R^2 from Model 3b to Model 3c is not significant, the interaction between interlocking director decrease and CEO relative pay-formerly is positively and significantly related with CEO pay raises ($b = 0.011$, $p < .010$). It suggests that with increase in the CEO relative pay-formerly (the average compensation level of CEOs in the formerly interlocked firms to that in the focal firm becomes higher), the negative impact of interlocking director on CEO pay raises becomes weaker. To better interpret the moderating effects, I plotted the moderating effect of the CEO relative pay-formerly in Figure 1. When the CEO relative pay-formerly is high (i.e., one standard deviation above the mean), interlocking director decrease is not significantly related with CEO pay raises ($b = 0.000$, $p = .980$). On the contrary, when CEO relative pay-formerly is low (i.e., one standard deviation below the mean), interlocking director decrease is negatively and significantly related with CEO pay raises ($b = –0.040$, $p < .001$), indicating that, under such condition, the loss of one interlocking director could lead to at most 18,971 dollars decrease in CEO annual pay raises. These findings failed to support hypothesis 2a. Similarly, for Hypothesis 2b, I entered interlocking director increase, CEO relative pay-newly and their interaction into Model 4c, and result in Table 5 shows that the interaction between interlocking director increase and CEO relative pay-newly is positively and significantly related with CEO pay

raises (b = 0.030, p < .001), and the R^2 improvement is significant. Furthermore, I plotted the moderating effects of CEO relative pay-newly in Figure 2. When CEO relative pay-newly is low (one standard deviation below the mean), interlocking director increase is negatively and significantly related with CEO pay raises (b = –0.070, p < .001), indicating that the inclusion of one interlocking director could lead to at most 33,199 dollars decrease in CEO annual pay raises. On the contrary, when CEO relative pay-newly is high (one standard deviation above the mean), interlocking director increase is positively and significantly related with CEO pay raises (b = 0.040, p < .01), indicating that, under such condition, the inclusion of one interlocking director could lead to at most 18,971 dollars increase in CEO annual pay raises. These results suggest that the impact of interlocking director increase on subsequent CEO pay raises depends on the compensation level of newly interlocked firms such that the entering of higher-paying firms tend to have positive impact on subsequent CEO pay raises, while the entering of lower-paying firms tend to have negative impact. Hence, Hypothesis 2b was supported.

Hypothesis 3a and 3b predicted that female board representation will strengthen the negative impact of interlocking director changes on CEO pay raises. Model 2b in Table 3 shows that the interaction between interlocking director decrease and female board representation is negatively and significantly related with CEO pay raises (b = –0.153, p < .010), and it brought a significant improvement in R^2 compared to Model 2a. It suggests that with increase in the percentage of female directors, the negative impact of interlocking director decrease on CEO pay raises becomes stronger. To better interpret the interaction effects, I plotted the moderating effects of female board representation in Figure 3. When the percentage of female directors is high (i.e., one standard deviation

above the mean), interlocking director decrease is negatively and significantly related with CEO pay raises (b = –0.020, p < .001), indicating that the loss of one interlocking director could lead to at most 9,485 dollars decrease in CEO annual pay raises. On the contrary, when the percentage of female directors is low (i.e., one standard deviation below the mean), the relationship between interlocking director decrease and CEO pay raises is not significant (b = 0.005, p = .520). Hence, Hypothesis 3a was supported. Yet, Model 2d in Table 3 shows that the interaction between interlocking director increase and female board representation is not significantly related with CEO pay raises (b = –0.084, p = .184). Hence, Hypothesis 3b was not supported. To permit more conservative tests for the moderating effects of female board representation, I also tested a full model of both interactions, and, again, the interaction between interlocking director decrease and female board representation is negatively and significantly related with CEO pay raises (b = –0.147, p < .010), while the interaction between interlocking director increase and female board representation is not significantly related with CEO pay raises (b = –0.063, p = .323).

Hypothesis 4a argued that the moderating effects of female board representation on the relationship between interlocking director decrease and subsequent CEO pay raises will be further moderated by the CEO relative pay-formerly, so I entered interlocking director decrease, CEO relative pay-formerly, female board representation and their interactions into Model 3e. The three-way interaction among interlocking director decrease, CEO relative pay-formerly and female board representation is positively and significantly related with CEO pay raises (b = 0.119, p < .050), and it brought significant R^2 changes in Model 3e. To further interpret this result, I plotted the

three-way interaction effects in Figure 4. When the percentage of female directors on boards is low (i.e., one standard deviation below the mean), with the increase in the CEO relative pay-formerly (from one standard deviation below the mean to one standard deviation above the mean), the negative impact of interlocking director decrease on subsequent CEO pay raises becomes stronger but both are nonsignificant (from b = –0.005, p = .870 to b = –0.010, p = .720). When the percentage of female directors on boards is high (i.e., one standard deviation above the mean), interlocking director decrease is positively but not significantly related with subsequent CEO pay raises (b = 0.020, p = .380) when the CEO relative pay-formerly is high (one standard deviation above the mean) but is negatively and significantly related with subsequent CEO pay raises (b = –0.070, p < .001) when the CEO relative pay-formerly is low (one standard deviation below the mean). Hence, the negative impact of interlocking director decrease on subsequent CEO pay raises becomes stronger with the decrease in the CEO relative pay-formerly, and this is in contrast to my Hypothesis 4a.

Hypothesis 4b argued that the moderating effects of female board representation on the relationship between interlocking director increase and subsequent CEO pay raises will be further moderated by the CEO relative pay-newly, and result of Model 4e in the Table 5 shows that the three-way interaction among interlocking director increase, CEO relative pay-newly and female board representation is negatively and significantly related with CEO pay raises (b = 0.169, p < .050), and it brought significant R^2 changes in Model 4e. Furthermore, I plotted the three-way interaction effects in Figure 5. When the percentage of female directors on boards is low (one standard deviation below the mean), interlocking director increase is positively and significantly related with subsequent CEO

pay raises (b = 0.120, p < .001) when the CEO relative pay-newly is high (one standard deviation above the mean) but is negatively and significantly related with subsequent CEO pay raises (b = –0.120, p < .001) when the CEO relative pay-newly is low (one standard deviation below the mean). Hence, with the increase in the CEO relative pay-newly, the negative impact of interlocking director decrease on subsequent CEO pay raises becomes weaker and even turns into positive impact. When the percentage of female directors on boards is high (one standard deviation above the mean), with the increase in the CEO relative pay-newly (from one standard deviation below the mean to one standard deviation above the mean), the negative impact of interlocking director decrease on subsequent CEO pay raises becomes weaker (from b = –0.060, p < .001 to b = 0.030, p = .130). Meanwhile, the positive impact of interlocking director increase is strongest when the female board representation is low while the CEO relative pay-newly is high (b = 0.120, p < .001). These results provided support for Hypothesis 4b, but results also showed that the negative impact of interlocking director increase is strongest when the female board representation and the CEO relative pay-newly are both low (b = –0.060, p < .001). To sum up, Hypothesis 5b was partially supported.

ROBUSTNESS CHECK

I conducted additional analyses to test the robustness of my results. The first robustness test pertains to the measurement of CEO pay raises. In the robustness check, I tested the impact of interlocking director changes on CEO pay raises by using CEO pay in year $t + 1$ as the dependent variable while controlling the pay level in the year t. While all other findings remained unchanged, the moderating effects of CEO relative pay-formerly (both the two-way and three-way interaction effects) were not significant anymore.

Second, I checked different time lags for my dynamic measures. In the main analysis, I used one-year time lag. As aforementioned, it takes time for new interlocking to fit into firm environment and exert impact on CEO pay raises, thus changing the impact of interlocking director on CEO pay raises. Hence, I experimented with two-year time lag. Particularly, I controlled the one-year lagged interlocking director changes when I ran analysis for two-year time lag. I still failed to find significant impact of interlocking director increase on CEO pay raises, but I found similar moderating effects of CEO relative pay-newly on the relationship between interlocking director increase and CEO pay raises ($b = 0.029$, $p < .001$). This seems to suggest that it's not the time but the nature of new interlocking directors and the newly interlocked firms that matter for CEO pay raises.

Third, I tried different measures for the CEO relative pay-formerly/newly. In the main analysis, I calculated the CEO relative pay-formerly/newly as the ratio of average pay in formerly/newly interlocked firms to the CEO pay in the focal firm. It's also possible that it's not the average pay but the maximum pay of changing firms that matters

most. Hence, in the robustness check, I calculated the CEO relative pay-formerly/newly as the ratio of the highest CEO pay in formerly/newly interlocked firms to CEO pay in the focal firm. The results show that both the two-way and three-way moderating effects of CEO relative pay-formerly become nonsignificant, but the results for the moderating effects of CEO relative pay-newly remained unchanged.

Forth, considering the possible time effects on my hypothesized relationships, I conducted two-way fixed effects models to include both individual- and time-fixed effects. Although the negative impact of interlocking director decrease (b = –0.009, p = .064) become marginally significant, all the other results remained unchanged.

Last, above discussion mentioned that the moderating effects of CEO relative pay make a difference by shaping impacting the benchmarking process both formally and informally. To gain more nuanced understanding about the interplay between formal and informal pay-setting process, I did several robustness checks to explore to what extent CEO relative pay makes a difference through the formal pay-setting procedures. First, I checked the impact of interlocking director changes on the CEO base salary changes, which is more labor market driven. I failed to find any significant results, although the negative impact of interlocking director decrease on CEO salary raises is marginally significant (b = 0.010, p = .063). Second, given the fact that pay comparison or benchmarking among firms makes more sense when these firms are from the same industry, I checked whether the moderating effects of CEO relative pay (*the formerly/newly firms vs. the focal firm*) will be stronger when the formerly/newly interlocked firms are in the same industry with the focal firm. I created a dummy variable—*Industry Consistency*, which is coded as 1 if the formerly/newly interlocked

firms are from the same industry with the focal firm and 0 if they are not. I checked the three-way interaction effects among interlocking director changes, CEO relative pay and industry consistency on CEO pay raises and failed to find significant results. I also checked whether the impact of interlocking director changes on CEO pay raises will be different after controlling the industry consistency and found that the main effects remained unchanged. Third, considering the importance of peer firms in the pay-setting process for CEOs, I tested whether it's possible that interlocking director changes influence CEO pay raises by shaping peer firm compositions. I manually collected peer firm information form public firms' proxy statements, and, for a subsample consisting of 422 observations from 50 firms from 2010 to 2018, I found that the possibility that an interlocked firm is listed as the peer firm in the proxy statement is only 2.794% (70 out of 2,505 interlocked firm pairs). These results suggest that the overlap between interlocked firms and peer firms is rather low. Furthermore, I checked the correlation between interlocking director changes and peer firm changes (the sample size is reduced to 328 observations from 50 firms since I need to check the changes), and it turned out that the correlation between interlocking director decrease(increase) and peer firm exit(entry) is nonsignificant (b = –.09, p = .100; b = –.06, p = .290). These results are consistent with past studies which showed that director network and peer firm network impact CEO compensation independently (Kim et al., 2015). Taken together, these findings, to some extent, suggest that interlocking directors influence CEO compensation more in an informal way.

DISCUSSION

By exploring the relationship between interlocking director changes and CEO pay raises as well as the boundary conditions, this study has several key findings. First, this study found that interlocking director decrease negatively impacts CEO pay raises, while there is no significant impact of interlocking director increase. These results revealed the value of considering the implications of board dynamics on CEO compensation as well as the necessity to differentiate different types of board changes. Particularly, the nonsignificant impact of interlocking director on CEO pay raises may be related with its double-edged effects such that although interlocking director increase can strengthen group cohesion and group norms of the organizational elite group, it also brings in disruptions to preexisting board norms. Moreover, the robustness check showed that interlocking director increase isn't significantly related with CEO pay raises within a longer time lag. Taken together, these results suggest that interlocking director changes overall do no good to CEO pay raises, although interlocking director increase is less deleterious than the interlocking director decrease.

Then, my study reveals that more precise insights about the relationship between interlocking director changes and CEO pay raises could be gained by considering contextual factors. First, although there is no significant relationship between interlocking director increase and subsequent CEO pay raises, such relationship becomes significantly negative when the average CEO pay of the newly interlocked firms is lower than that of the focal firm, while it is significantly positive when the average CEO pay of the newly interlocked firms is higher than that of the focal firm. Moreover, although female board representation has no significant moderating effects on the relationship between

interlocking director increase and CEO pay raises, I found significant three-way interaction effects among interlocking director increase, CEO relative pay-newly and female board representation. Specifically, the entering of lower-paying firms will strengthen the positive moderating effects of female board representation, while the entering of higher-paying firms will weaken such moderating effects and even lead to upward adjustments in CEO compensation. These findings further reveal that the nature of the implications of interlocking director increase on CEO pay raises is complex and, to a great extent, is determined by the nature of formerly interlocked or newly interlocked firms such that the entering of higher-paying firms can counteract disruptions caused by interlocking director increase and lead to favorable changes in board compositions as well as following CEO pay raises.

Second, consistent with my hypothesis, I found that the negative impact of interlocking director decrease on CEO pay raises is stronger when boards include more female directors, but the testing results for the moderating effects of CEO relative pay-formerly are rather surprising. When CEOs in the formerly interlocked firm have lower pay relative to CEO in the focal firm, interlocking director decrease has negative impact on CEO pay raises, while such impact is not significant when CEOs in the formerly interlocked firm have higher pay relative to CEO in the focal firm. I also found similarly contradictory results for the three-way interaction among interlocking director decrease, CEO relative pay-formerly and female board representation. Viewing from another perspective, CEOs in the formerly interlocked firms having lower relative pay also indicates that CEO in the focal firm has higher pay. Is it possible that what really matters is not the CEO relative pay but the prior compensation level of CEO in the focal firm? To

test this guessing, I included prior CEO compensation as a moderator and found that prior CEO compensation has negative moderating effects ($b = –0.023$, $p < .050$), suggesting that the negative impact of interlocking director decrease on pay raises is stronger for higher-paying CEOs. Hence, one explanation can be that firms with higher-paying CEOs may be more motivated to limit CEO excessive pay by reducing interlocking directors on boards. Indeed, I compared the CEO compensation level in firms with interlocking director decrease to those without, and the T-test result shows that CEO compensation in firms with interlocking director decrease is significantly higher than that in firms without ($t = –10.031$, $p < .001$). The average CEO compensation level for firms with interlocking director decrease is 9,974,000, while, for the latter, it is 7,465,000. Moreover, researchers do suggest that changes in boards can be an important mechanism for firms to respond to and manage both internal and external threats and uncertainties (Chang & Wei, 2011; Hoppmann et al., 2019). For instance, Marcel and Cowen (2014) found that firms tend to prompt director departures as one way to mitigate the negative impact of financial fraud. Hence, above discussion seems to suggest that firms may prompt director turnover for certain purposes under non-crisis settings as well, and future explorations on this topic may help explain the bewildering moderating effects of CEO relative pay-formerly. Despite above discussion, we need to be cautious about the significant moderating effects of CEO relative pay-formerly because these effects become nonsignificant in my robustness checks.

To sum up, this study represents an important first step in understanding the dynamic relationship between boards of directors and CEO compensation and extends our understanding of both the determinants of CEO compensation and the implications of

board dynamics. Increasing our understanding of this process is especially important given the fact that both boards of directors and CEO compensation undergo continuous changes. Particularly, current research on CEO pay changes are generally anchored in Fama's (1980) concept of "settling up", which argues that "executive compensation is best viewed as a multiperiod phenomenon in which boards of directors have ongoing opportunities to adjust the pay of their CEOs to reflect their entire records of performance and pay" (Wowak et al., 2015, p. 719). Hence, existing studies tend to focus on the impact of prior firm performance (Pathak, et al., 2014; Wowak et al., 2015) and CEOs' prior compensation level (Krause et al., 2014; Seo et al., 2015) on CEO pay changes. This study, however, considers the impact of interlocking director changes and extends current exploration to more informal and more board-related factors. Such extension is important given the fact that decision on CEO pay is a codetermination made by boards and executives and extensive studies explored how board characteristics (e.g., Brown et al., 2017; Gore et al., 2011; Lucas-Pérez et al., 2015) and executive-board relationship (e.g., Fiss, 2006; Kalyta, 2009; Van Essen et al., 2015) impact CEO pay design. Thus, this study enlightens CEO pay changes research by diverting attention from the market-driven and rational perspective to a more informal and socio-psychological perspective.

Moreover, by revealing the different impact of interlocking director increase and decrease on subsequent CEO pay raises, this study shows that current research which holds a static perspective towards interlocking director-CEO compensation link runs the risk of overlooking continuous changes in boards compositions as well as its implications. Hence, this study contributes to our understanding of board dynamics,

especially the implications of common changes in boards of directors that continuously happen under normal and non-crisis setting (Boivie et al., 2012).

Last, focusing on the moderating effects of female board representation on the relationship between interlocking director changes and CEO pay raises, this study provides support for existing arguments that the inclusion of female directors can strengthen monitoring effectiveness of boards and limit excessive CEO compensation (Adams & Ferreira, 2009; Lucas-Pérez et al., 2015). Moreover, by situating the impact of female directors in the context of board dynamics, this study shows that female directors may be able to gain greater influence when existing norms and routines in boards go through changes or disruptions. Hence, this study extends our understanding about what effects can be expected from a more gender-balanced board composition and how women's influence on boards can be enhanced, thus contributing to board gender diversity research.

My study also has important practical implications. First, this study shows that interlocking director changes can significantly and mainly negatively impact CEO pay raises. Continuous surge in CEO compensation has attracted both scholarly and practical attention during past decades, and this study indicates that reshaping board compositions can be one way to loosen collusion among organizational elites and limit excessive CEO pay, and firms shall try to maintain an appropriate number of interlocking directors on boards through interlocking director mobility. Such finding also provides support for regulatory attempt of cutting down organizational elites' power such as the SOX Act.

Second, considering the moderating effects of CEO relative pay-formerly/newly, firms shall pay more attention to the characteristics of changing directors/firms to reduce

executives' opportunistic behaviors. As mentioned earlier, executives may manipulate the director appointment to strengthen internal group cohesion and increase personal power. Such manipulation may make firms' attempt to limit CEO compensation as well as improve firm governance effectiveness less likely to succeed. To reduce such opportunistic behaviors, firms need to pay more attention to the socioeconomic and professional backgrounds of directors to include directors who have not been socialized into the norms of the organizational elite. Including female directors can be a god choice. Female directors, who are generally underrepresented in leadership roles and (Bobbitt-Zeher, 2011; Joshi et al., 2011) and experience intergroup bias (Kooij-de Bode et al., 2008; Van Knippenberg et al., 2004), are less likely to be incorporated into the organizational elite group. This study also shows that the inclusions of female directors can help strengthen monitoring efficiency of boards and constrain managerial power in the pay-setting process.

LIMITATIONS AND FUTURE RESEARCH

Limitations of my study provide opportunities for future research. The first limitation of my research is that I only considered the impact of interlocking director decrease and increase on CEO pay raises. Although this made a step forward from current research which holds a static perspective, a more refined way of considering interlocking director changes is worthwhile. Interlocking directors are embedded in the social networks of organizational elites, and future research can view interlocking director changes from a social network perspective. For instance, future research can consider how interlocking director changes may influence firms' position in the whole social network (e.g., centrality, closeness) as well as the overall connections among organizational elites, thus impacting subsequent CEO pay raises. Or, this study didn't distinguish different types of interlocking director decrease, actually, there can be multiple reasons for such changes. For instance, the impact of retirement, voluntary turnover and involuntary turnover of interlocking directors can be different such that involuntary turnover of interlocking directors may be less deleterious because such turnover is forced and planned by the boards.

Second, although my testing results provide support to my arguments, the process and consequences of interlocking director changes may be more complicated than this study assumed. I assumed that interlocking director decrease would lead to disruptions in board decision-making and reduce group cohesion of organizational elites. It's also possible, however, that executives and directors can influence interlocking director decrease to exclude directors who don't stick to their social norms. If so, similar to interlocking director increase, interlocking director decrease may lead to favorable

modifications in the board/interlocked firm composition and strengthen the normative pressures from organizational elites. Besides, this study assumed that firms/shareholders are less likely to influence interlocking director changes due to information asymmetry, but such assumption might not always hold. Indeed, analysis of the moderating effects of CEO prior compensation level indicates the possibility that firms/stakeholders may take advantage of board changes to make shareholder-benefiting adjustments to limit managerial power and excessive CEO compensation. Thus, interlocking director changes can be a process through which shareholders and executives struggle for larger power over each other and pursue outcomes which maximize personal interests. I expect that exploration of antecedents of interlocking director changes can help develop a fuller understanding. For instance, are firms with more powerful CEOs and less independent directors less likely to experience interlocking director changes? If so, we may expect that it's executives rather than shareholders that are actively involved in the process of interlocking director changes. Or, we may consider the characteristics and backgrounds of interlocking directors who newly joined in or left firms, such as their personal social ties with executives or other directors on boards. Answers to these questions may help figure out the motivation of interlocking director changes and help predict the following impact on CEO pay raises.

Third, while this study tested the moderating effects of CEO relative pay and female board representation, future research may consider the moderating effects of other relevant variables. For instance, this study didn't consider the impact of director/executive characteristics such as prestige, status and tenure. More prestigious CEOs can be more powerful over the pay-setting process and better wield against

disruptions caused by interlocking director changes. Similarly, losing a prestigious interlocking director can be more detrimental because his/her leaving would be more shocking to the group cohesion and norms among organizational elites.

Forth, although extensive attempts have been made to explore the causes and outcomes of board dynamics, most of these studies focused on firms experiencing significant negative events or unique organizational stages (e.g., Arthaud-Day et al., 2006; Atinc et al., 2017; Marcel & Cowen, 2014). Findings from this study present the value of considering board dynamics under non-crisis settings to explore possible causes and consequences, so it'll be interesting to explore the possible impact of board dynamics on multiple firm outcomes besides CEO pay raises such as firm performance, innovation and acquisitions.

CONCLUSION

What are the outcomes of interlocking director dynamics on CEO pay raises? This study has taken the first step to view the relationship between interlocking directors and CEO compensation from a dynamic perspective. I found that interlocking director changes (interlocking director decrease and interlocking director increase) have complex effects on CEO pay raises. Moreover, I found significant moderating effects of the pay characteristics of formerly/newly interlocked firms and female board representation. This study not only extends existing CEO compensation research with a new perspective but also reveals the implications of board dynamics. I hope this study will stimulate additional research and further advance our understanding of both board dynamics and how CEO compensation adjusts due to changes in firm corporate governance structure and practices.

REFERENCES

Adams, R. B., & Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics*, *94*(2), 291-309. https://doi.org/10.1016/j.jfineco.2008.10.007

Adams, R. B., & Funk, P. (2012). Beyond the glass ceiling: Does gender matter?. *Management Science*, *58*(2), 219-235. https://doi.org/10.1287/mnsc.1110.1452

Andres, C., Van Den Bongard, I., & Lehmann, M. (2013). Is busy really busy? Board governance revisited. *Journal of Business Finance & Accounting*, *40*(9-10), 1221-1246. https://doi.org/10.1111/jbfa.12051

Arthaud-Day, M. L., Certo, S. T., Dalton, C. M., & Dalton, D. R. (2006). A changing of the guard: Executive and director turnover following corporate financial restatements. *Academy of Management Journal*, *49*(6), 1119-1136. https://doi.org/10.5465/amj.2006.23478165

Atinc, G., Kroll, M., & Walters, B. (2017). Detrimental effects of post-IPO corporate governance changes. *Management Decision*, *55*(2), 234-247. https://doi.org/10.1108/MD-02-2016-0084

Baixauli-Soler, J. S., & Sanchez-Marin, G. (2011). Organizational governance and TMT pay level adjustment. *Journal of Business Research*, *64*(8), 862-870. https://doi.org/10.1016/j.jbusres.2010.09.011

Bannister, J. W., & Newman, H. A. (2003). Analysis of corporate disclosures on relative performance evaluation. *Accounting Horizons*, *17*(3), 235-246. https://doi.org/10.2308/acch.2003.17.3.235

Barnea, A., & Guedj, I. (2006, June). 'But, Mom, all the other kids have one!' - CEO compensation and director networks. *McCombs Business Research Paper No. FIN-04-06, 1st Annual Conference on Empirical Legal Studies Paper*. http://dx.doi.org/10.2139/ssrn.908673

Barua, A., Davidson, L. F., Rama, D. V., & Thiruvadi, S. (2010). CFO gender and accruals quality. *Accounting Horizons*, *24*(1), 25-39. https://doi.org/10.2308/acch.2010.24.1.25

Bebchuk, L. A., & Fried, J. M. (2006). Pay without performance: Overview of the issues. *Academy of Management Perspectives*, *20*(1), 5-24. https://doi.org/10.5465/amp.2006.19873407

Bebchuk, L. A., Fried, J. M., & Walker, D. I. (2002). Managerial power and rent extraction in the design of executive compensation. *University of Chicago Law Review*, *69*, 751-846. http://dx.doi.org/10.3386/w9068

Bednar, M. K. (2012). Watchdog or lapdog? A behavioral view of the media as a corporate governance mechanism. *Academy of Management Journal*, *55*(1), 131-150. https://doi.org/10.5465/amj.2009.0862

Benton, R. A. (2016). Corporate governance and nested authority: Cohesive network structure, actor-driven mechanisms, and the balance of power in American corporations. *American Journal of Sociology*, *122*(3), 661-713. https://doi.org/10.1086/689397

Bhana, N. (2016). The stock market reaction to board changes: the South African experience. *Journal of Emerging Market Finance*, *15*(3), 269-294. https://doi.org/10.1177/0972652716666459

Bizjak, J. M., Lemmon, M. L., & Naveen, L. (2008). Does the use of peer groups contribute to higher pay and less efficient compensation?. *Journal of Financial Economics*, *90*(2), 152-168. https://doi.org/10.1016/j.jfineco.2007.08.007

Black, F., & Scholes, M. (1973). The pricing of options and corporate liabilities. *Journal of Political Economy*, *81*(3), 637-654. https://doi.org/10.1086/260062

Bobbitt-Zeher, D. (2011). Gender discrimination at work: Connecting gender stereotypes, institutional policies, and gender composition of workplace. *Gender & Society*, *25*(6), 764-786. https://doi.org/10.1177/0891243211424741

Boivie, S., Bednar, M. K., & Barker, S. B. (2015). Social comparison and reciprocity in director compensation. *Journal of Management*, *41*(6), 1578-1603. https://doi.org/10.1177/0149206312460680

Boivie, S., Graffin, S. D., & Pollock, T. G. (2012). Time for me to fly: Predicting director exit at large firms. *Academy of Management Journal*, *55*(6), 1334-1359. https://doi.org/10.5465/amj.2010.1083

Boivie, S., Lange, D., McDonald, M. L., & Westphal, J. D. (2011). Me or we: The effects of CEO organizational identification on agency costs. *Academy of Management Journal*, 54(3), 551-576. https://doi.org/10.5465/amj.2011.61968081

Boudreau, J. W., & Berger, C. J. (1985). Decision-theoretic utility analysis applied to employee separations and acquisitions. *Journal of Applied Psychology*, *70*(3), 581-612. https://doi.org/10.1037/0021-9010.70.3.581

Brandes, P., Dharwadkar, R., & Suh, S. (2016). I know something you don't know!: The role of linking pin directors in monitoring and incentive alignment. *Strategic Management Journal*, *37*(5), 964-981. https://doi.org/10.1002/smj.2353

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*(3), 471-494. https://doi.org/10.1287/orsc.2017.1123

Bugeja, M., Matolcsy, Z., & Spiropoulos, H. (2016). The association between gender-diverse compensation committees and CEO compensation. *Journal of Business Ethics*, *139*(2), 375-390. https://doi.org/10.1007/s10551-015-2660-y

Burt, R. S. (1980). Cooptive corporate actor networks: A reconsideration of interlocking directorates involving American manufacturing. *Administrative Science Quarterly*, *25*(4), 557-582. https://doi.org/10.2307/2392281

Carcello, J. V., Hermanson, D. R., & Ye, Z. (2011). Corporate governance research in accounting and auditing: Insights, practice implications, and future research directions. *Auditing: A Journal of Practice & Theory*, *30*(3), 1-31. https://doi.org/10.2308/ajpt-10112

Carpenter, M. A., Geletkanycz, M. A., & Sanders, W. G. (2004). Upper echelons research revisited: Antecedents, elements, and consequences of top management team composition. *Journal of Management*, *30*(6), 749-778. https://doi.org/10.1016/j.jm.2004.06.001

Chang, R. D., & Wei, J. T. (2011). Effects of governance on investment decisions and perceptions of reporting credibility: Investment experience of Taiwanese individual investors. *Asia Pacific Journal of Management*, *28*(1), 139-155. https://doi.org/10.1007/s10490-010-9226-4

Chin, M. K., & Semadeni, M. (2017). CEO political ideologies and pay egalitarianism within top management teams. *Strategic Management Journal*, *38*(8), 1608-1625. https://doi.org/10.1002/smj.2608

Chizema, A., Liu, X., Lu, J., & Gao, L. (2015). Politically connected boards and top executive pay in Chinese listed firms. *Strategic Management Journal*, *36*(6), 890-906. https://doi.org/10.1002/smj.2253

Cho, T. S., & Hambrick, D. C. (2006). Attention as the mediator between top management team characteristics and strategic change: The case of airline deregulation. *Organization Science*, *17*(4), 453-469. https://doi.org/10.1287/orsc.1060.0192

Cho, T. S., & Shen, W. (2007). Changes in executive compensation following an environmental shift: The role of top management team turnover. *Strategic Management Journal*, *28*(7), 747-754. https://doi.org/10.1002/smj.600

Coleman JS. 1987. Norms as social capital. In G. Radnitzky & P. Bernholz (Eds.), *Economic Imperialism: The Economic Approach Applied Outside the Field of Economics* (pp. 133-155). Paragon House.

Combs, J. G., & Skill, M. S. (2003). Managerialist and human capital explanations for key executive pay premiums: A contingency perspective. *Academy of Management Journal*, *46*(1), 63-73. https://doi.org/10.5465/30040676

Conyon, M. J., & Peck, S. I. (1998). Board control, remuneration committees, and top management compensation. *Academy of Management Journal*, *41*(2), 146-157. https://doi.org/10.5465/257099

Coombs, J. E., & Gilley, K. M. (2005). Stakeholder management as a predictor of CEO compensation: Main effects and interactions with financial performance. *Strategic Management Journal*, *26*(9), 827-840. https://doi.org/10.1002/smj.476

Cordeiro, J. J., & Veliyath, R. (2003). Beyond pay for performance: A panel study of the determinants of CEO compensation. *American Business Review*, *21*(1), 56-66.

Core, J. E., Holthausen, R. W., & Larcker, D. F. (1999). Corporate governance, chief executive officer compensation, and firm performance. *Journal of Financial Economics*, *51*(3), 371-406. https://doi.org/10.1016/S0304-405X(98)00058-0

Cowen, A. P., & Marcel, J. J. (2011). Damaged goods: Board decisions to dismiss reputationally compromised directors. *Academy of Management Journal*, *54*(3), 509-527. https://doi.org/10.5465/amj.2011.61967992

Crystal, G. S. (1991). Why CEO compensation is so high. *California Management Review*, *34*(1), 9-29.

Dalton, D. R., & Dalton, C. M. (2009). On the progress of corporate women: less a glass ceiling than a bottleneck?. In S. Vinnicombe, V. Singh, R. J. Burke, D. Bilimoria, & M. Huse (Eds.), *Women on corporate boards of directors: International research and practice* (pp. 184-197). Edwards Elgar Publishing.

Davis, G. F., & Thompson, T. A. (1994). A social movement perspective on corporate control. *Administrative Science Quarterly*, *39*(1), 141-173. https://doi.org/10.2307/2393497

Davis, G. F., Yoo, M., & Baker, W. E. (2003). The small world of the American corporate elite, 1982-2001. *Strategic Organization*, *1*(3), 301-326. https://doi.org/10.1177/14761270030013002

Diestre, L., Rajagopalan, N., & Dutta, S. (2015). Constraints in acquiring and utilizing directors' experience: An empirical study of new-market entry in the pharmaceutical industry. *Strategic Management Journal*, *36*(3), 339-359. https://doi.org/10.1002/smj.2215

DiPrete, T. A., Eirich, G. M., & Pittinsky, M. (2010). Compensation benchmarking, leapfrogs, and the surge in executive pay. *American Journal of Sociology*, *115*(6), 1671-1712. https://doi.org/10.1086/652297

Eagly, A. H., & Johnson, B. T. (1990). Gender and leadership style: A meta-analysis. *Psychological Bulletin*, *108*(2), 233-256. https://doi.org/10.1037/0033-2909.108.2.233

Eagly, A. H., Karau, S. J., & Makhijani, M. G. (1995). Gender and the effectiveness of leaders: A meta-analysis. *Psychological Bulletin*, 117(1), 125-145. https://doi.org/10.1037/0033-2909.117.1.125

Ehrhart, M. G., & Naumann, S. E. (2004). Organizational citizenship behavior in work groups: a group norms approach. *Journal of Applied Psychology*, *89*(6), 960-974. https://doi.org/10.1037/0021-9010.89.6.960

Evans, D. S. (1987). Tests of alternative theories of firm growth. *Journal of Political Economy*, *95*(4), 657-674. https://doi.org/10.1086/261480

Fama, E. F. (1980). Agency problems and the theory of the firm. *Journal of Political Economy*, *88*(2), 288-307. https://doi.org/10.1086/260866

Fama, E. F., & Jensen, M. C. (1983). Agency problems and residual claims. *The Journal of Law and Economics*, 26(2), 327-349. https://doi.org/10.1086/467038

Feldman, D. C. (1984). The development and enforcement of group norms. *Academy of Management Review*, *9*(1), 47-53. https://doi.org/10.5465/amr.1984.4277934

Ferris, S. P., Jagannathan, M., & Pritchard, A. C. (2003). Too busy to mind the business? Monitoring by directors with multiple board appointments. *The Journal of Finance*, *58*(3), 1087-1111. https://doi.org/10.1111/1540-6261.00559

Fiss, P. C. (2006). Social influence effects and managerial compensation evidence from Germany. *Strategic Management Journal*, *27*(11), 1013-1031. https://doi.org/10.1002/smj.558

Fondas, N., & Sassalos, S. (2000). A different voice in the boardroom: How the presence of women directors affects board influence over management. *Global Focus*, *12*(2), 13-22.

Forbes, D. P., & Milliken, F. J. (1999). Cognition and corporate governance: Understanding boards of directors as strategic decision-making groups. *Academy of Management Review*, *24*(3), 489-505. https://doi.org/10.5465/amr.1999.2202133

Fulmer, I. S. (2009). The elephant in the room: Labor market influences on CEO compensation. *Personnel Psychology*, *62*(4), 659-695. https://doi.org/10.1111/j.1744-6570.2009.01154.x

Gore, A. K., Matsunaga, S., & Eric Yeung, P. (2011). The role of technical expertise in firm governance structure: Evidence from chief financial officer contractual incentives. *Strategic Management Journal*, *32*(7), 771-786. https://doi.org/10.1287/orsc.2017.1123

Gould, J. A., Kulik, C. T., & Sardeshmukh, S. R. (2018). Trickle-down effect: The impact of female board members on executive gender diversity. *Human Resource Management*, *57*(4), 931-945. https://doi.org/10.1002/hrm.21907

Gouldner, A. W. (1960). The norm of reciprocity: A preliminary statement. *American Sociological Review*, 161-178. https://doi.org/10.2307/2092623

Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness. *American Journal of Sociology*, *91*(3), 481-510.

Greenberger, D. B., Miceli, M. P., & Cohen, D. J. (1987). Oppositionists and group norms: The reciprocal influence of whistle-blowers and co-workers. *Journal of Business Ethics*, *6*(7), 527-542.

Gregorič, A., Oxelheim, L., Randøy, T., & Thomsen, S. (2017). Resistance to change in the corporate elite: Female directors' appointments onto Nordic boards. *Journal of Business Ethics*, *141*(2), 267-287. https://doi.org/10.1007/s10551-015-2703-4

Hale Jr, D., Ployhart, R. E., & Shepherd, W. (2016). A two-phase longitudinal model of a turnover event: Disruption, recovery rates, and moderators of collective performance. *Academy of Management Journal*, *59*(3), 906-929. https://doi.org/10.5465/amj.2013.0546

Hallock, K. F. (1997). Reciprocally interlocking boards of directors and executive compensation. *Journal of Financial and Quantitative Analysis*, *32*(3), 331-344. https://doi.org/10.2307/2331203

Hambrick, D. C., & Finkelstein, S. (1995). The effects of ownership structure on conditions at the top: The case of CEO pay raises. *Strategic Management Journal*, *16*(3), 175-193. https://doi.org/10.1002/smj.4250160304

Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of Management Review*, *9*(2), 193-206. https://doi.org/10.5465/amr.1984.4277628

Hayes, R. M., & Schaefer, S. (2009). CEO pay and the Lake Wobegon effect. *Journal of Financial Economics*, *94*(2), 280-290. https://doi.org/10.1016/j.jfineco.2008.12.006

Hoobler, J. M., Masterson, C. R., Nkomo, S. M., & Michel, E. J. (2018). The business case for women leaders: Meta-analysis, research critique, and path forward. *Journal of Management*, *44*(6), 2473-2499. https://doi.org/10.1177/0149206316628643

Hoppmann, J., Naegele, F., & Girod, B. (2019). Boards as a source of inertia: Examining the internal challenges and dynamics of boards of directors in times of environmental discontinuities. *Academy of Management Journal*, *62*(2), 437-468. https://doi.org/10.5465/amj.2016.1091

Huckman, R. S., & Pisano, G. P. (2006). The firm specificity of individual performance: Evidence from cardiac surgery. *Management Science*, *52*(4), 473-488. https://doi.org/10.1287/mnsc.1050.0464

Ijiri, Y., & Simon, H. A. (1967). A model of business firm growth. *Econometrica: Journal of the Econometric Society*, *35*(2), 348-355. https://doi.org/10.2307/1909116

Isenberg, D. J. (1986). Group polarization: A critical review and meta-analysis. *Journal of Personality and Social Psychology*, *50*(6), 1141-1151. https://doi.org/10.1037/0022-3514.50.6.1141

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

Jeong, S. H., & Harrison, D. A. (2017). Glass breaking, strategy making, and value creating: Meta-analytic outcomes of women as CEOs and TMT members. *Academy of Management Journal*, *60*(4), 1219-1252. https://doi.org/10.5465/amj.2014.0716

Jiraporn, P., Singh, M., & Lee, C. I. (2009). Ineffective corporate governance: Director busyness and board committee memberships. *Journal of Banking & Finance*, *33*(5), 819-828. https://doi.org/10.1016/j.jbankfin.2008.09.020

Joshi, A., Liao, H., & Roh, H. (2011). Bridging domains in workplace demography research: A review and reconceptualization. *Journal of Management*, *37*(2), 521-552. https://doi.org/10.1177/0149206310372969

Joshi, A., Son, J., & Roh, H. (2015). When can women close the gap? A meta-analytic test of sex differences in performance and rewards. *Academy of Management Journal*, *58*(5), 1516-1545. https://doi.org/10.5465/amj.2013.0721

Kalyta, P. (2009). Compensation transparency and managerial opportunism: A study of supplemental retirement plans. *Strategic Management Journal*, *30*(4), 405-423. https://doi.org/10.1002/smj.737

Kim, J. W., Kogut, B., & Yang, J. S. (2015). Executive compensation, fat cats, and best athletes. *American Sociological Review*, *80*(2), 299-328. https://doi.org/10.1177/0003122415572463

Kirsch, A. (2018). The gender composition of corporate boards: A review and research agenda. *The Leadership Quarterly*, *29*(2), 346-364. https://doi.org/10.1016/j.leaqua.2017.06.001

Kooij-de Bode, H. J., van Knippenberg, D., & van Ginkel, W. P. (2008). Ethnic diversity and distributed information in group decision making: The importance of information elaboration. *Group Dynamics: Theory, Research, and Practice*, *12*(4), 307-320. https://doi.org/10.1037/1089-2699.12.4.307

Kor, Y. Y. (2003). Experience-based top management team competence and sustained growth. *Organization Science*, *14*(6), 707-719. https://doi.org/10.1287/orsc.14.6.707.24867

Kossinets, G., & Watts, D. J. (2006). Empirical analysis of an evolving social network. *Science*, *311*(5757), 88-90. https://doi.org/10.1126/science.1116869

Kozlowski, S. W., & Ilgen, D. R. (2006). Enhancing the effectiveness of work groups and teams. *Psychological Science in the Public Interest*, *7*(3), 77-124. https://doi.org/10.1111/j.1529-1006.2006.00030.x

Krause, R., Whitler, K. A., & Semadeni, M. (2014). Power to the principals! An experimental look at shareholder say-on-pay voting. *Academy of Management Journal*, *57*(1), 94-115. https://doi.org/10.5465/amj.2012.0035

Krishnan, G. V., & Parsons, L. M. (2008). Getting to the bottom line: An exploration of gender and earnings quality. *Journal of Business Ethics*, *78*(1-2), 65-76. https://doi.org/10.1007/s10551-006-9314-z

Kulich, C., Trojanowski, G., Ryan, M. K., Alexander Haslam, S., & Renneboog, L. D. (2011). Who gets the carrot and who gets the stick? Evidence of gender disparities

in executive remuneration. *Strategic Management Journal*, *32*(3), 301-321. https://doi.org/10.1002/smj.878

Lara, J. M. G., Osma, B. G., Mora, A., & Scapin, M. (2017). The monitoring role of female directors over accounting quality. *Journal of Corporate Finance*, *45*, 651-668. https://doi.org/10.1016/j.jcorpfin.2017.05.016

Laux, C., & Laux, V. (2009). Board committees, CEO compensation, and earnings management. *The Accounting Review*, *84*(3), 869-891. https://doi.org/10.2308/accr.2009.84.3.869

Lazarova, M., & Taylor, S. (2009). Boundaryless careers, social capital, and knowledge management: Implications for organizational performance. *Journal of Organizational Behavior*, *30*(1), 119-139. https://doi.org/10.1002/job.545

Liao, C. H., & Hsu, A. W. H. (2013). Common membership and effective corporate governance: Evidence from audit and compensation committees. *Corporate Governance: An International Review*, *21*(1), 79-92. https://doi.org/10.1111/corg.12000

Linck, J. S., Netter, J. M., & Yang, T. (2009). 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. https://doi.org/10.1093/rfs/hhn084

Liu, Y., Wang, L. C., Zhao, L., & Ahlstrom, D. (2013). Board turnover in Taiwan's public firms: An empirical study. *Asia Pacific Journal of Management*, *30*(4), 1059-1086. https://doi.org/10.1007/s10490-013-9363-7

Lucas-Pérez, M. E., Mínguez-Vera, A., Baixauli-Soler, J. S., Martín-Ugedo, J. F., & Sánchez-Marín, G. (2015). Women on the board and managers' pay: Evidence from Spain. *Journal of Business Ethics*, *129*(2), 265-280. https://doi.org/10.1007/s10551-014-2148-1

Main, B. G., O'REILLY, C. A., & Wade, J. (1995). The CEO, the board of directors and executive compensation: Economic and psychological perspectives. *Industrial and Corporate Change*, *4*(2), 293-332. https://doi.org/10.1093/icc/4.2.293

Malenko, N. (2014). Communication and decision-making in corporate boards. *The Review of Financial Studies*, *27*(5), 1486-1532. https://doi.org/10.1093/rfs/hht075

Marcel, J. J., & Cowen, A. P. (2014). Cleaning house or jumping ship? Understanding board upheaval following financial fraud. *Strategic Management Journal*, *35*(6), 926-937. https://doi.org/10.1002/smj.2126

Marks, M. A., Mathieu, J. E., & Zaccaro, S. J. (2001). A temporally based framework and taxonomy of team processes. *Academy of Management Review*, *26*(3), 356-376. https://doi.org/10.5465/amr.2001.4845785

McDonald, M. L., & Westphal, J. D. (2011). My brother's keeper? CEO identification with the corporate elite, social support among CEOs, and leader effectiveness. *Academy of Management Journal*, *54*(4), 661-693. https://doi.org/10.5465/amj.2011.64869104

Méndez, C. F., Pathan, S., & García, R. A. (2015). Monitoring capabilities of busy and overlap directors: Evidence from Australia. *Pacific-Basin Finance Journal*, *35*, 444-469. https://doi.org/10.1016/j.pacfin.2015.05.006

Messersmith, J. G., Lee, J. Y., Guthrie, J. P., & Ji, Y. Y. (2014). Turnover at the top: Executive team departures and firm performance. *Organization Science*, *25*(3), 776-793. https://doi.org/10.1287/orsc.2013.0864

Miller, D. J. (1995). CEO salary increases may be rational after all: Referents and contracts in CEO pay. *Academy of Management Journal*, *38*(5), 1361-1385. https://doi.org/10.5465/256861

Mills, C. F. (1956). The dietary availability of copper in the form of naturally occurring organic complexes. *Biochemical Journal*, *63*(2), 190-193. https://doi.org/10.1042/bj0630190

Mizruchi, M. S. (1996). What do interlocks do? An analysis, critique, and assessment of research on interlocking directorates. *Annual Review of Sociology*, *22*(1), 271-298. https://doi.org/10.1146/annurev.soc.22.1.271

Morse, A., Nanda, V., & Seru, A. (2011). Are incentive contracts rigged by powerful CEOs?. *The Journal of Finance*, *66*(5), 1779-1821. https://doi.org/10.1111/j.1540-6261.2011.01687.x

Murphy, K. J., & Zabojnik, J. (2004). CEO pay and appointments: A market-based explanation for recent trends. *American Economic Review*, *94*(2), 192-196. https://doi.org/10.1257/0002828041302262

Nguyen, B. D., & Nielsen, K. M. (2010). The value of independent directors: Evidence from sudden deaths. *Journal of Financial Economics*, *98*(3), 550-567. https://doi.org/10.1016/j.jfineco.2010.07.004

Nielsen, S., & Huse, M. (2010). The contribution of women on boards of directors: Going beyond the surface. *Corporate Governance: An International Review*, *18*(2), 136-148. https://doi.org/10.1111/j.1467-8683.2010.00784.x

Nyberg, A. J., & Ployhart, R. E. (2013). Context-emergent turnover (CET) theory: A theory of collective turnover. *Academy of Management Review*, *38*(1), 109-131. https://doi.org/10.5465/amr.2011.0201

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. https://doi.org/10.1002/smj.2153

Pathan, S., Wong, P. H., & Benson, K. (2019). How do 'busy'and 'overlap'directors relate to CEO pay structure and incentives?. *Accounting & Finance*, *59*(2), 1341-1382. https://doi.org/10.1111/acfi.12272

Patnam, M. (2011, November). Corporate networks and peer effects in firm policies. In *Emerging Markets Finance Conference, Indira Gandhi Institute of Development Research*.

Powell, M., & Ansic, D. (1997). Gender differences in risk behaviour in financial decision-making: An experimental analysis. *Journal of Economic Psychology*, 18(6), 605-628. https://doi.org/10.1016/S0167-4870(97)00026-3

Reda, J. F., Reifler, S., Thatcher, L. G., & Lochner, P. R. (2014). *Compensation Committee Handbook*. Wiley.

Rediker, K. J., & Seth, A. (1995). Boards of directors and substitution effects of alternative governance mechanisms. *Strategic Management Journal*, 16(2), 85-99. https://doi.org/10.1002/smj.4250160202

Reilly, G., Nyberg, A. J., Maltarich, M., & Weller, I. (2014). Human capital flows: Using context-emergent turnover (CET) theory to explore the process by which turnover, hiring, and job demands affect patient satisfaction. *Academy of Management Journal*, *57*(3), 766-790. https://doi.org/10.5465/amj.2012.0132

Renneboog, L., & Zhao, Y. (2011). Us knows us in the UK: On director networks and CEO compensation. *Journal of Corporate Finance*, *17*(4), 1132-1157. https://doi.org/10.1016/j.jcorpfin.2011.04.011

Sanders, W. G., & Hambrick, D. C. (2007). Swinging for the fences: The effects of CEO stock options on company risk taking and performance. *Academy of Management Journal*, *50*(5), 1055-1078. https://doi.org/10.5465/amj.2007.27156438

Sauerwald, S., Lin, Z., & Peng, M. W. (2016). Board social capital and excess CEO returns. *Strategic Management Journal*, *37*(3), 498-520. https://doi.org/10.1002/smj.2339

Seibert, S. E., Kraimer, M. L., & Liden, R. C. (2001). A social capital theory of career success. *Academy of Management Journal*, *44*(2), 219-237. https://doi.org/10.5465/3069452

Seo, J., Gamache, D. L., Devers, C. E., & Carpenter, M. A. (2015). The role of CEO relative standing in acquisition behavior and CEO pay. *Strategic Management Journal*, *36*(12), 1877-1894. https://doi.org/10.1002/smj.2316

Sheridan, A. (2001). A view from the top: women on the boards of public companies. *Corporate Governance*, *1*(1), 8-15. https://doi.org/10.1108/EUM0000000005456

Shi, W., Zhang, Y., & Hoskisson, R. E. (2017). Ripple effects of CEO awards: Investigating the acquisition activities of superstar CEOs' competitors. *Strategic Management Journal*, *38*(10), 2080-2102. https://doi.org/10.1002/smj.2638

Shin, T. (2016). Fair pay or power play? Pay equity, managerial power, and compensation adjustments for CEOs. *Journal of Management*, *42*(2), 419-448. https://doi.org/10.1177/0149206313478186

Shivdasani, A. (2006). Are busy boards effective monitors. *The Journal of Finance*, *61*(2), 689-724.

Shivdasani, A., & Yermack, D. (1999). CEO involvement in the selection of new board members: An empirical analysis. *The Journal of Finance*, *54*(5), 1829-1853. https://doi.org/10.1111/0022-1082.00168

Smith, L. G., & Postmes, T. (2011). The power of talk: Developing discriminatory group norms through discussion. *British Journal of Social Psychology*, 50(2), 193-215. https://doi.org/10.1348/014466610X504805

Shropshire, C. (2010). The role of the interlocking director and board receptivity in the diffusion of practices. *Academy of Management Review*, *35*(2), 246-264. https://doi.org/10.5465/amr.35.2.zok246

Skovoroda, R., & Bruce, A. (2017). Shifting the goalposts? Analysing changes to performance peer groups used to determine the remuneration of FTSE 100 CEOs. *British Journal of Management*, *28*(2), 265-279. https://doi.org/10.1111/1467-8551.12209

Srinidhi, B. I. N., Gul, F. A., & Tsui, J. (2011). Female directors and earnings quality. *Contemporary Accounting Research*, *28*(5), 1610-1644. https://doi.org/10.1111/j.1911-3846.2011.01071.x

Sunden, A. E., & Surette, B. J. (1998). Gender differences in the allocation of assets in retirement savings plans. *The American Economic Review*, 88(2), 207-211.

Terry, D. J., & Hogg, M. A. (1996). Group norms and the attitude-behavior relationship: A role for group identification. *Personality and Social Psychology Bulletin*, *22*(8), 776-793. https://doi.org/10.1177/0146167296228002

Tosi, H. L., Werner, S., Katz, J. P., & Gomez-Mejia, L. R. (2000). How much does performance matter? A meta-analysis of CEO pay studies. *Journal of Management*, *26*(2), 301-339. https://doi.org/10.1016/S0149-2063(99)00047-1

Turley, S., & Zaman, M. (2007). Audit committee effectiveness: informal processes and behavioural effects. *Accounting, Auditing & Accountability Journal*, *20*(5), 765-788 https://doi.org/10.1108/09513570710779036

Useem, E. L. (1984). Education and high-technology industry: the case of Silicon Valley. *Economics of Education Review*, *3*(3), 215-221. https://doi.org/10.1016/0272-7757(84)90034-7

Usman, M., Zhang, J., Wang, F., Sun, J., & Makki, M. A. M. (2018). Gender diversity in compensation committees and CEO pay: evidence from China. *Management Decision*, *56*(5), 1065-1087. https://doi.org/10.1108/MD-09-2017-0815

Van Essen, M., Otten, J., & Carberry, E. J. (2015). Assessing managerial power theory: A meta-analytic approach to understanding the determinants of CEO compensation. *Journal of Management*, *41*(1), 164-202. https://doi.org/10.1177/0149206311429378

Van Knippenberg, D., De Dreu, C. K., & Homan, A. C. (2004). Work group diversity and group performance: an integrative model and research agenda. *Journal of Applied Psychology*, *89*(6), 1008-1022. https://doi.org/10.1037/0021-9010.89.6.1008

Westphal, J. D., & Khanna, P. (2003). Keeping directors in line: Social distancing as a control mechanism in the corporate elite. *Administrative Science Quarterly*, *48*(3), 361-398. https://doi.org/10.2307/3556678

Westphal, J. D., & Stern, I. (2006). The other pathway to the boardroom: Interpersonal influence behavior as a substitute for elite credentials and majority status in obtaining board appointments. *Administrative Science Quarterly*, *51*(2), 169-204. https://doi.org/10.2189/asqu.51.2.169

Westphal, J. D., & Stern, I. (2007). Flattery will get you everywhere (especially if you are a male Caucasian): How ingratiation, boardroom behavior, and demographic minority status affect additional board appointments at US companies. *Academy of Management Journal*, *50*(2), 267-288. https://doi.org/10.5465/amj.2007.24634434

Westphal, J. D., & Zajac, E. J. (1995). Who shall govern? CEO/board power, demographic similarity, and new director selection. *Administrative Science Quarterly*, *40*(1), 60-83. https://doi.org/10.2307/2393700

Westphal, J. D., & Zajac, E. J. (2013). A behavioral theory of corporate governance: Explicating the mechanisms of socially situated and socially constituted agency. *The Academy of Management Annals*, *7*(1), 607-661. https://doi.org/10.5465/19416520.2013.783669

Withers, M. C., Corley, K. G., & Hillman, A. J. (2012). Stay or leave: Director identities and voluntary exit from the board during organizational crisis. *Organization Science*, *23*(3), 835-850. https://doi.org/10.1287/orsc.1110.0660

Withers, M., Kim, J. Y. R., & Howard, M. (2018). The evolution of the board interlock network following Sarbanes-Oxley. *Social Networks*, *52*, 56-67. https://doi.org/10.1016/j.socnet.2017.05.005

Wolfe, J., & Sauaia, A. C. A. (2005). The Tobin q as a business game performance indicator. *Simulation & Gaming*, *36*(2), 238-249. https://doi.org/10.1177/1046878105275237

Wong, L. H. H., Gygax, A. F., & Wang, P. (2015). Board interlocking network and the design of executive compensation packages. *Social Networks*, *41*, 85-100. https://doi.org/10.1016/j.socnet.2014.12.002

Wowak, A. J., Hambrick, D. C., & Henderson, A. D. (2011). Do CEOs encounter within-tenure settling up? A multiperiod perspective on executive pay and dismissal. *Academy of Management Journal*, *54*(4), 719-739. https://doi.org/10.5465/amj.2011.64869961

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. https://doi.org/10.5465/3069384

Yeung, A. C., Lo, C. K., & Cheng, T. C. E. (2011). Behind the iron cage: an institutional perspective on ISO 9000 adoption and CEO compensation. *Organization Science*, *22*(6), 1600-1612. https://doi.org/10.1287/orsc.1110.0652

Zajac, E. J., & Westphal, J. D. (1996). Who shall succeed? How CEO/board preferences and power affect the choice of new CEOs. *Academy of Management Journal*, *39*(1), 64-90. https://doi.org/10.5465/256631

Zellmer-Bruhn, M. E. (2003). Interruptive events and team knowledge acquisition. *Management Science*, *49*(4), 514-528. https://doi.org/10.1287/mnsc.49.4.514.14423

Zhu, D. H. (2014). Group polarization in board decisions about CEO compensation. *Organization Science*, *25*(2), 552-571. https://doi.org/10.1287/orsc.2013.0848

Zhu, D. H., & Westphal, J. D. (2014). How directors' prior experience with other demographically similar CEOs affects their appointments onto corporate boards and the consequences for CEO compensation. *Academy of Management Journal*, *57*(3), 791-813. https://doi.org/10.5465/amj.2011.0590

Zorn, M. L., Shropshire, C., Martin, J. A., Combs, J. G., & Ketchen Jr, D. J. (2017). Home alone: The effects of lone-insider boards on CEO pay, financial misconduct, and firm performance. *Strategic Management Journal*, *38*(13), 2623-2646. https://doi.org/10.1002/smj.2661

TABLES

Table 1

Descriptive Statistics and Correlations

Variables	*M*	*S.D.*	1	2	3	4	5	6	7	8
1. CEO pay raise	0.024	0.214	–							
2. Interlocking director decrease	0.508	0.822	–.047**	–						
3. Interlocking director increase	0.404	0.649	–.028	.121***	–					
4. Female board representation	0.193	0.089	–.012	.087***	.102***	–				
5. CEO relative pay-formerly	1.555	1.904	.296***	–.046	–.036	–.027	–			
6. CEO relative pay-newly	1.574	1.960	.283***	–.075**	–.062*	–.060*	.557***	–		
7. Firm age	63.714	43.504	–.024	.118***	.064***	–.044	–.044	.108***	–	
8. Firm size	3.904	0.739	–.025	.239***	.189***	–.207***	–.198***	.122***	.171***	–
9. ROA	0.054	0.073	.002	–.023	–.008	–.019	–.005	.076***	.001	–.149***
10. Tobin Q	1.957	1.275	.024	–.003	–.001	.002	.001	.014	–.090***	–.264***
11. Debt to asset	0.627	0.249	.003	.121***	.085***	–.047	–.082***	.073***	.167***	.350***
12. Board size	11.088	2.453	–.037*	.094***	.224***	–.140***	–.126***	.009	.243***	.489***
13. CEO gender	0.961	0.195	.013	–.056***	–.018	–.018	.020	–.116***	–.010	–.035*
14. CEO tenure	7.194	6.414	.005	–.106***	–.076***	.039	.089***	–.079***	–.118***	–.113***
15. CEO duality	0.972	0.165	.001	.016	–.004	.004	.030	–.021	.001	–.032*
16. CEO equity ownership	0.909	3.167	.001	–.089***	–.061***	.126***	.140***	–.072***	–.096***	–.161***
17. CEO change	0.102	0.302	–.071***	.029*	.045***	–.003	–.017	.002	.028	.025
18. Interlocking director count	4.307	2.337	–.009	.079***	.278***	–.138***	–.165***	.162***	.133***	.360***
19. CEO pay in interlocked firms	3.904	0.259	–.006	.136***	.102***	–.117***	.061*	.098***	.042***	.369***

(Continued)

Variables	9	10	11	12	13	14	15	16	17	18
9. ROA	–									
10. Tobin Q	.454***	–								
11. Debt to asset	–.151***	.008	–							
12. Board size	–.073***	–.122***	.229***	–						
13. CEO gender	.000	–.002	–.023	–.042*	–					
14. CEO tenure	.025	.073***	–.090***	–.080***	.074***	–				
15. CEO duality	.014	–.007	–.055***	–.006	–.014	–.012	–			
16. CEO equity ownership	.027	.089***	–.075***	–.123***	.046**	.375***	.020	–		
17. CEO change	–.036*	–.031*	.007	.042*	–.033	–.342***	.013	–.070	–	
18. Interlocking director count	.007	–.031*	.158***	.405***	–.044**	–.123***	–.052***	–.126***	.001	–
19. CEO pay in interlocked firms	.029	.007	.099***	.221***	–.031***	–.027	–.017	–.013***	.005	.228***

Note: N = 1,677 for CEO Relative Pay-formerly; N = 1,574 for CEO Relative Pay-newly; N = 4,510 for remaining variable.
$^{*}p < .050$; $^{**}p < .010$; $^{***}p < .001$.

Table 2

Interlocking Director Changes and CEO Pay Raises

Variables	Model 1a		Model 1b		Model 1c		Model 1d	
	Estimate	*SE*	Estimate	*SE*	Estimate	*SE*	Estimate	*SE*
Firm age	–0.001	0.002	–0.001	0.002	–0.001	0.002	–0.001	0.002
Firm size	–0.002	0.039	–0.001	0.039	–0.002	0.053	–0.001	0.039
ROA	–0.012	0.072	–0.019	0.072	–0.017	0.072	–0.019	0.072
Tobin Q	0.013*	0.006	0.014*	0.006	0.013*	0.006	0.014*	0.006
Debt to asset	0.056	0.040	0.057	0.040	0.056	0.040	0.058	0.040
Board size	–0.006*	0.003	–0.007**	0.003	–0.006*	0.003	–0.006*	0.003
CEO gender	0.007	0.034	0.006	0.034	0.007	0.034	0.007	0.034
CEO tenure	–0.002*	0.001	–0.002*	0.001	–0.002†	0.001	–0.002*	0.001
CEO duality	0.046	0.033	0.047	0.033	0.046	0.033	0.047	0.033
CEO equity ownership	–0.0001	0.003	–0.000	0.003	–0.000	0.003	–0.000	0.003
CEO changes	–0.061***	0.013	–0.061***	0.013	–0.060***	0.013	–0.061***	0.013
Interlocking director count	0.005†	0.003	0.004	0.003	0.005†	0.003	0.004	0.003
CEO pay in interlocked firms	0.039†	0.022	0.037†	0.022	0.038†	0.022	0.037†	0.022
Interlocking director decrease			**–0.011***	0.005			–0.011*	0.005
Interlocking director increase					–0.004	0.006	–0.004	0.006
N	4,510		4,510		4,510		4,510	
R^2	.012		.013		.012		.013	
Adjusted R^2	–.174		–.173		–.174		–.173	
ΔR^2			.001* (Model 1a)		.000 (Model 1a)		.001*(Model 1a)	
F Statistic	3.433***		3.545***		3.228***		3.342***	

Note: † $p < .100$; * $p < .050$; ** $p < .010$; *** $p < .001$.

Table 3

Interlocking Director Decrease, Female Board Representation, and CEO Pay Raises

Variables	Model 2a		Model 2b		Model 2c		Model 2d		Model 2e	
	Estimate	*SE*	Estimate	*SE*	Estimate	*SE*	Estimate	*SE*	Estimate	*SE*
Firm age	–0.001	0.002	–0.001	0.002	–0.001	0.002	–0.001	0.002	–0.001	0.002
Firm size	–0.001	0.039	–0.005	0.039	–0.002	0.039	–0.002	0.039	–0.005	0.039
ROA	–0.017	0.072	–0.020	0.072	–0.011	0.072	–0.014	0.072	–0.022	0.072
Tobin Q	0.014*	0.006	0.014*	0.006	0.013*	0.006	0.013*	0.006	0.014*	0.006
Debt to asset	0.057	0.040	0.058	0.040	0.056	0.040	0.054	0.040	0.057	0.040
Board size	–0.007**	0.003	–0.007**	0.003	–0.006*	0.003	–0.006*	0.003	–0.007*	0.003
CEO gender	0.005	0.034	0.005	0.034	0.006	0.034	0.007	0.034	0.006	0.034
CEO tenure	–0.002*	0.001	–0.002†	0.001	–0.002^{+}	0.001	–0.002*	0.001	–0.002*	0.001
CEO duality	0.047	0.033	0.048	0.033	0.046	0.033	0.046	0.033	0.047	0.033
CEO equity ownership	–0.0001	0.003	0.000	0.003	–0.0002	0.003	–0.0001	0.003	–0.0001	0.003
CEO changes	–0.061***	0.013	–0.061***	0.013	–0.060***	0.013	–0.061***	0.013	–0.061***	0.013
Interlocking director count	0.004	0.003	0.004	0.003	0.006*	0.003	0.006*	0.003	0.005	0.003
CEO pay in interlocked firms	0.037†	0.022	0.036	0.022	0.038†	0.022	0.037†	0.022	0.035	0.022
Interlocking director decrease	–0.011*	0.005	0.009†	0.005					–0.009†	0.005
Interlocking director increase					–0.004	0.006	–0.003	0.006	–0.002	0.006
Female board presentation (Pwoman)	–0.051	0.060	–0.033	0.061	–0.043	0.060	–0.041	0.061	–0.030	0.061
Decrease * Pwoman			**–0.153****	0.051					**–0.147****	0.051
Increase * Pwoman							–0.084	0.063	–0.063	0.063
N	4,510		4,510				4,510		4,510	
R^2	.013		.015		.012		.012		.016	
Adjusted R^2	–.173		–.171		–.175		–.174		–.171	
ΔR^2	.000 (Model 1b)		.002** (Model 2a)		.000 (Model 1c)		.000 (Model 2c)			
F Statistic	3.357***		3.713***		3.046***		2.967***		3.371***	

Note: $^{\dagger}p < .100$; $^{*}p < .050$; $^{**}p < .010$; $^{***}p < .001$.

Table 4

Interlocking Director Decrease, Female Board Representation, CEO Relative Pay and CEO Pay Raises

Variables	Model 3a		Model 3b		Model 3c		Model 3d		Model 3e	
	Estimate	*SE*	Estimate	*SE*	Estimate	*SE*	Estimate	*SE*	Estimate	*SE*
Firm age	–0.001	0.004	–0.002	0.004	–0.002	0.004	–0.002	0.004	–0.001	0.004
Firm size	–0.024	0.077	0.043	0.072	0.037	0.071	0.045	0.071	0.032	0.071
ROA	0.155	0.136	0.183	0.126	0.172	0.126	0.188	0.126	0.187	0.125
Tobin Q	0.024	0.015	0.025†	0.014	0.025†	0.014	0.025†	0.014	0.024†	0.014
Debt to asset	–0.058	0.083	–0.055	0.077	–0.056	0.077	–0.056	0.077	–0.056	0.077
Board size	–0.005	0.005	–0.003	0.004	–0.003	0.004	–0.004	0.004	–0.004	0.004
CEO gender	0.101†	0.057	0.143**	0.053	0.143**	0.053	0.130*	0.054	0.137*	0.053
CEO tenure	–0.005*	0.002	–0.003	0.002	–0.003	0.002	–0.003	0.002	–0.003	0.002
CEO duality	0.029	0.060	0.038	0.056	0.037	0.056	0.045	0.056	0.049	0.056
CEO equity ownership	–0.010	0.012	–0.016	0.011	–0.016	0.011	–0.015	0.011	–0.015	0.011
CEO changes	–0.092***	0.023	–0.086***	0.022	–0.086***	0.022	–0.087***	0.022	–0.084***	0.022
Interlocking director count	–0.0002	0.005	–0.002	0.005	–0.002	0.005	–0.001	0.005	–0.001	0.005
CEO pay in interlocked firms	0.020	0.044	0.074†	0.041	0.067	0.041	0.070†	0.041	0.068†	0.041
Interlocking director decrease	–0.019*	0.008	–0.021**	0.007	–0.020**	0.007	–0.022**	0.007	–0.016*	0.008
CEO relative pay-formerly			0.053***	0.004	0.045***	0.005	0.053***	0.004	0.046***	0.005
Female board representation (Pwoman)							–0.222*	0.095	–0.095	0.119
Decrease * Pay-formerly					**0.011****	0.003			–0.114	0.004
Decrease * Pwoman									0.011**	0.081
Pay-formerly * Pwoman									–0.090	0.064
Decrease * Pay-formerly* Pwoman									**0.119***	0.058
N	1,677		1,677		1,677		1,677		1,677	
R^2	.030		.160		.167		.164		.176	
Adjusted R^2	–.467		–.272		–.262		–.267		–.254	
ΔR^2			.130*** (Model 3a)		.007 (Model 3b)		.134*** (Model 3a)		.012* (Model 3d)	
F Statistic	2.453**		14.046***		13.872***		13.560***		11.734***	

Note: $^{\dagger}p < .100$; $^{*}p < .050$; $^{**}p < .010$; $^{***}p < .001$.

Table 5

Interlocking Director Increase, Female Board Representation, CEO Relative Pay and CEO Pay Raises

Variables	Model 4a		Model 4b		Model 4c		Model 4d		Model 4e	
	Estimate	*SE*	Estimate	*SE*	Estimate	*SE*	Estimate	*SE*	Estimate	*SE*
Firm age	0.002	0.004	0.006	0.004	0.005	0.004	0.006	0.004	0.006	0.004
Firm size	–0.030	0.074	–0.012	0.070	–0.012	0.070	–0.010	0.068	–0.029	0.068
ROA	0.128	0.172	0.177	0.162	0.137	0.162	0.178	0.159	0.098	0.159
Tobin Q	0.001	0.015	0.007	0.014	0.008	0.014	0.007	0.014	0.007	0.014
Debt to asset	0.066	0.076	0.036	0.072	0.047	0.072	0.033	0.070	0.048	0.070
Board size	–0.002	0.005	–0.004	0.004	–0.003	0.004	–0.004	0.004	–0.003	0.004
CEO gender	0.010	0.056	0.025	0.053	0.023	0.053	0.019	0.052	0.021	0.052
CEO tenure	–0.0001	0.002	0.001	0.002	–0.0001	0.002	0.001	0.002	–0.001	0.002
CEO duality	0.130^{+}	0.067	0.117^{+}	0.064	0.113†	0.064	0.114†	0.062	0.111†	0.062
CEO equity ownership	–0.014	0.018	–0.009	0.017	0.004	0.017	–0.009	0.017	0.009	0.017
CEO changes	–0.092***	0.023	–0.090***	0.022	–0.098***	0.022	–0.091***	0.022	–0.101***	0.022
Interlocking director count	0.007	0.005	0.010*	0.005	0.011*	0.005	0.010*	0.005	0.011*	0.005
CEO pay in interlocked firms	0.068	0.050	0.005	0.048	–0.003	0.048	0.004	0.047	0.008	0.047
Interlocking director increase	–0.023*	0.010	–0.023*	0.010	–0.016†	0.010	–0.022*	0.010	–0.009	0.010
CEO relative pay-newly			0.043***	0.004	0.029***	0.105	0.043***	0.005	0.020***	0.005
Female board representation (Pwoman)							–0.121	0.122	–0.046	0.122
Increase * Pay-newly					**0.030*****	0.004			–0.081	0.006
Increase * Pwoman									0.042***	0.107
Pay-newly * Pwoman									0.190***	0.041
Increase * Pay-newly* Pwoman									**–0.169***	0.066
N	1,574		1,574		1,574		1,574		1,574	
R^2	.035		.137		.164		.139		.184	
Adjusted R^2	–.567		–.402		–.360		–.401		–.332	
ΔR^2			.102*** (Model 4a)		.027*** (Model 4b)		.104*** (Model 4a)		.045*** (Model 4d)	
F Statistic	2.491**		10.282***		11.865***		9.726***		10.877***	

Note: $^{\dagger}p < .100$; $^{*}p < .050$; $^{**}p < .010$; $^{***}p < .001$.

FIGURES

Figure 1

Interaction of Interlocking Director Decrease and CEO Relative Pay

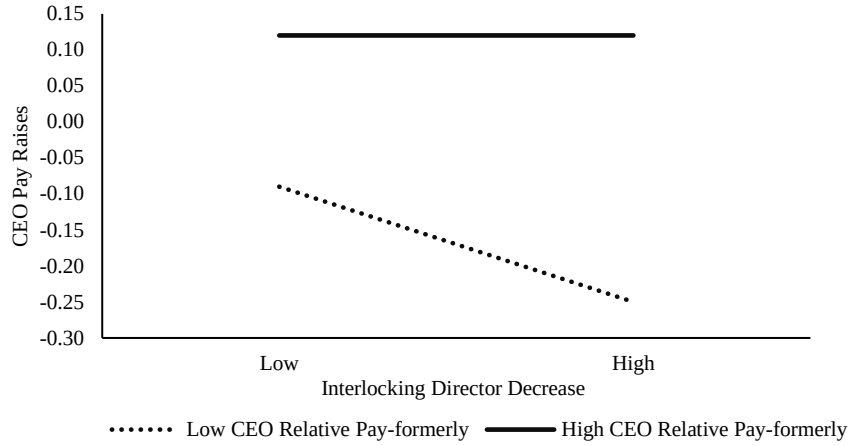

Figure 2

Interaction of Interlocking Director Increase and CEO Relative Pay

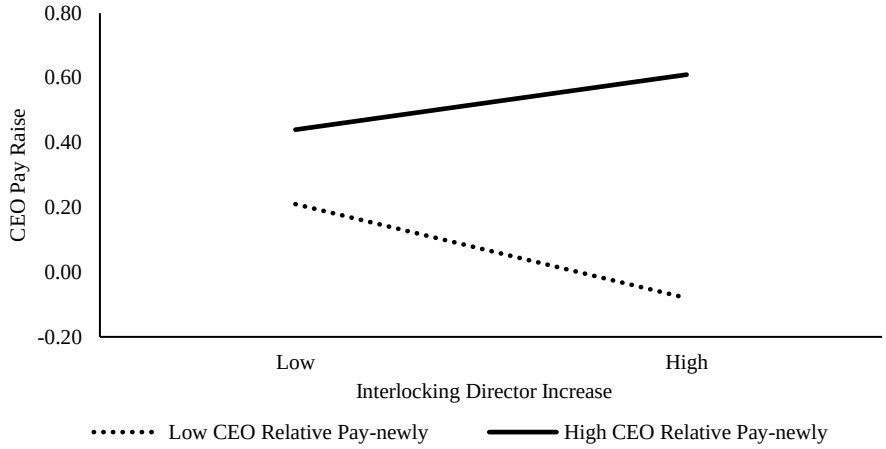

Figure 3

Interaction of Interlocking Director Decrease and Female Board Representation

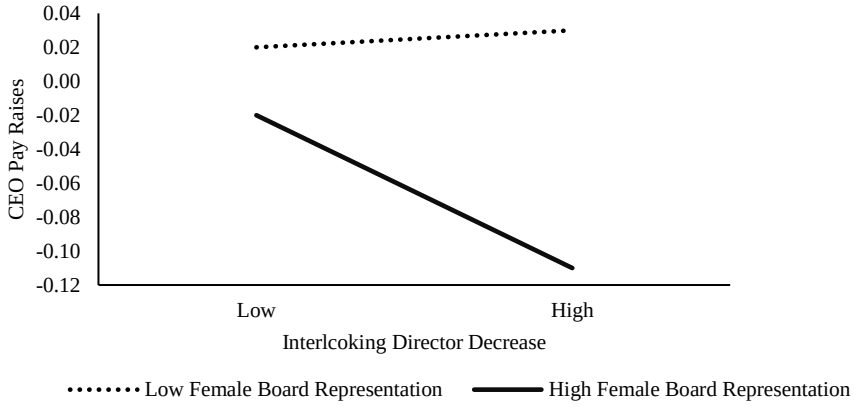

Figure 4

Interaction of Interlocking Director Decrease, CEO Relative Pay-formerly and Female Board Representation

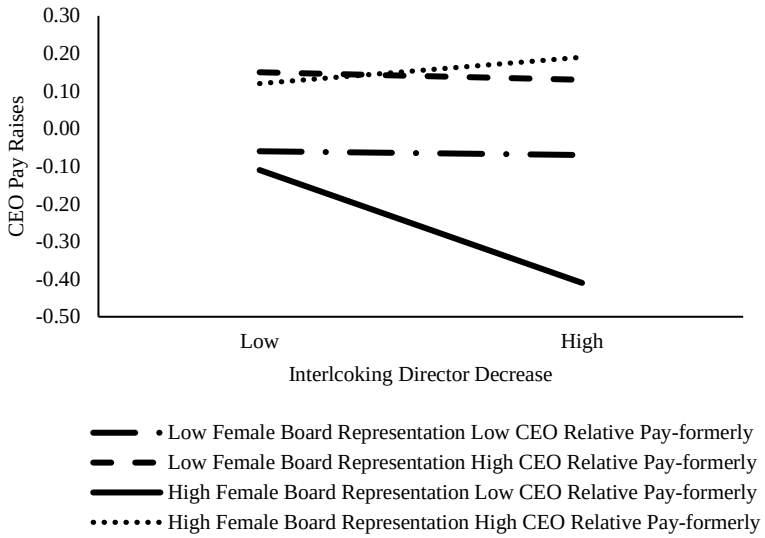

Figure 5

Interaction of Interlocking Director Increase, CEO Relative Pay-newly and Female Board Representation