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How do board ties affect the adoption of new practices? The effects of managerial interest and hierarchical power

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Abstract

Research Question/Issues: Most extant literature implicitly equates obtaining information through board interlocks to acting on the information. We investigate triggers that help to translate the information into action. In addition to exposure to the information by board interlocks, we suggest that the self-interest of the individuals who create these ties and hierarchical power of interlinked firms determines the likelihood of taking actions of adopting new practices.

Research Findings/Insights: Using the action of adopting two distinctive governance practices, stock option pays or board reform, we find that sent ties and received ties affect the adoption decisions differently. Whereas sent ties reflect managerial interests, received ties derive power from a hierarchical relationship between the focal firm and the interlinked firm. Such differential nature of sent and received ties drives a differential result in terms of adopting two distinctive governance practices. We also find support for different moderating effects of firm performance on the impact of sent and received ties.

Theoretical/Academic Implications: In this study, we incorporated the self-interest of executives with sent ties to prior adopters and the power of directors who establish ties with prior adopters that are hierarchically positioned. By doing so, this study paints a more fine-grained picture regarding underlying mechanisms by which information gained through ties is translated into action. This provides important insights for both agency theory and resource-dependency theory.

Practitioner/Policy Implications: Hierarchical board ties are not a unique phenomenon in Japan. We often find such ties in business groups in China, India, Korea, and some European countries. Establishing board interlocks among subsidiaries in a business group is an important governance resolution for controlling the whole business group. Hence, our findings that the ties carry not only information but also agent's interest and hierarchical power should be taken into account when a business group designs board interlocks.

KEYWORDS

Corporate governance, board policy issues, blockholder ownership, Japan, resource dependence theory

1 | INTRODUCTION

Extant research regards board interlocks as conduits of information that influence a firm's strategic direction and adoption of new practices (e.g., Geletkanycz & Hambrick, 1997; Johnson, Schnatterly, & Hill, 2013; Kim & Miner, 2007; Palmer, Jennings, & Zhou, 1993). Beckman and Haunschild (2002) show, for instance, how firms benefit from information on acquisition premiums gained through board interlocks with experienced firms. Similarly, various types of network ties with prior adopters have been found to accelerate the adoption of investor relation departments (Rao & Sivakurmar, 1999), the introduction of quality standards in hospitals (Young, Charns, & Shortell, 2001), and the diffusion of shareholder-oriented practices in a stakeholder-oriented environment (Sanders & Tuschke, 2007). Although most extant literature implicitly equates obtaining information through board interlocks to acting on the information (Shropshire, 2010), we suggest that the adoption of new practices depends on the self-interest of the individuals who create these ties.

Further, although previous research focuses on the impact of interlinked firms' characteristics such as experience in a specific domain and absorptive capacity (e.g., Diestre, Rajagopalan, & Dutta, 2015), they tend to ignore the hierarchal context of the interfirm relationships in which board interlocks are embedded (Boyd & Hoskisson, 2010). Although such hierarchical ties are often characterized by power imbalance (Zona, Gomez-Mejia, & Withers, 2018), they are present in many institutional contexts. Hierarchical ties are pronounced especially where business groups play a major economic role, such as Korea and India (Yiu, Lu, Bruton, & Hoskisson, 2007) and even some Western countries (Colpan & Hikino, 2018), as interfirm ties are characterized by core–periphery relationships due to the ownership structure and/or trading ties. Despite theoretical and empirical importance of hierarchal ties, we still have limited knowledge regarding differential impact of heterogeneous ties on the strategic decision making by interlinked firms (Boyd & Hoskisson, 2010). Using regulatory and institutional change in Japan from the late 1990s, this study explores when information obtained through board interlocks, especially through hierarchical ties, leads to the action of adopting new governance practices, namely, stock option pay and board reform called executive officer system (EOS). To investigate the differential influence of managerial self-interest and power of those who create ties to other firms on the adoption of new governance practices, we distinguish between sent ties and received ties and examine when these ties lead to the adoption of stock option pay and board reform.

Sent ties are created when an executive of the focal firm serves on the board of another firm that has already adopted a new practice, whereas received ties are established when an executive with experience with a new practice at another firm serves on the focal firm's board (Beckman & Haunschild, 2002; Haunschild & Beckman, 1998). We contend that received ties differ from sent ties in their potential power implications. Unlike previous research that disregards power implications between the focal firm and interlinked firm, a resource dependence perspective suggests that a firm that sends its executive to sit on another firm's board sometimes has power, based on the firm's capability to provide critical resources such as financial or reputational resource, over the other firm that accepts such a director transfer (Lincoln, Gerlach, & Takahashi, 1992; Pfeffer & Salancik, 1978). Some firms, however, may accept executives of other firms, without having a resource dependence consideration because those executives have expertise that the focal firms can use. Hence, the power-related aspect has become more salient when the interlinked firms have large equity stakes in the focal firms, as received directors represent large shareholders (Kroll, Walters, & Wright, 2008).

In contrast, we expect that the impact of sent ties on the practice adoption decision at the focal firms varies by the alignment between the nature of a particular practice and self-interest of executives who create such ties. In this setup, power implication between the two firms does not matter, because we are interested in the adoption decision at the focal firms that have established sent ties, not the adoption decision at the interlinked firms that have received such ties. Hence, we suggest that the self-interested executives selectively deliver the information gained through sent ties to the focal firms. Put together, the interests of the focal firm's executives creating sent ties and the power of interlinked nonfocal firms generating received ties determine the impact of ties in a separate manner on the adoption of a specific practice. In an empirical sense, the differential nature of sent and received ties would play their role in a distinctive manner on the adoption of stock option pay and board reform due to different economic and organizational implications of those practices.

In addition to the differential effects of these ties, we investigate the moderating effects of firm performance and propose that performance has a different impact on the effects of received and sent ties regarding the governance practices under study. We argue that the home institutions of executives who create received ties are interested in the adoption of governance practices like board reform for monitoring effectiveness. Especially when the focal firms do not deliver expected performance, they would be more likely to take such actions. On the other hand, executives who create sent ties to prior adopters may be indifferent with respect to board reform. They are more likely to take actions in the adoption of stock option pay, however, when they observe higher chances of obtaining economic benefits for themselves (Sanders, 2001). In other words, executives are more likely to implement stock option pay when they observe the focal firm's growth, which indicates greater chances of being able to exercise the options in the future.

To study these questions, we focus on the adoption of stock option pay and board reform among Japanese firms. Stock option pay was only legalized in 1997 in Japan. Another practice we focus on is a board reform called the executive officer system (EOS), which Sony initially adopted in 1997 and subsequently the practice diffused among Japanese firms. Those two regulatory and institutional changes provide an ideal setting to test our research question, as they were almost exogenous changes to firms in Japan. Furthermore, as our sample has no left censoring and covers all listed nonfinancial firms in Japan, we constitute an ideal setting to test our research questions.

In our model, we find that sent ties established by executives increase the probability of adopting stock option pay whereas received

ties are strongly related to the adoption of both stock option pay and board reform, as we predicted. Our findings make several important contributions to extant literature. First, we add to research on board interlocks by showing how different types of board ties vary with respect to their effects on when and for what kind of practice the information is more likely to be translated into action. Second, this study contributes to the literature by showing that the power of those creating ties matters for the diffusion of a new practice. We demonstrate that those who create received ties can exert power, which derives from the interlinked firm's hierarchical position and rich resources, to entice the focal firm to adopt a practice that executives at the focal firms may not be interested in, i.e. board reform. Third, we show that firm performance is an important contingency when we examine the impact of board ties on the adoption of governance practices. These findings extend prior research revealing that characteristics of the interlinked firms matter (Diestre, Rajagopalan, & Dutta, 2015). Finally, our findings contribute to increasing our understanding of how interfirm ties including those in business groups operate. Within a business group, board interlocks are one of the most important control mechanisms in its hierarchal interfirm relationships (Boyd & Hoskisson, 2010; Lincoln et al., 1992; Mizruchi & Stearn, 1988; Yiu et al., 2007). Given the fact that business groups often observed even in Western institutional contexts, this study lays a general foundation for future research on business groups across the globe.

2 | RESEARCH CONTEXT

2.1 | Boards of directors in Japan

In a legal sense, boards of directors of Japanese firms are responsible for monitoring rather than for operating business as those in many other countries. Most Japanese boards, however, have been dominated by inside executives because a board position is often perceived as the highest rank that employees can aspire to reach after their long service to the firm (Abegglen & Stalk, 1985; Charkham, 1994). As there was no legal requirement to have outside directors during our study period, the number of outside directors on many Japanese boards has been rather small and those outsiders were usually affiliated rather than independent directors (Charkham, 1994; Miwa & Ramseyer, 2005). Indeed, outsiders constituted only about 20–25% of Japanese boards from 1990 to 2002. Outside directorships have been used to strengthen business relationships and to monitor management on behalf of affiliated firms that often hold substantial equity stakes in the focal firm as strategic owners (David, O'Brien, Yoshikawa, & Delios, 2010; Gerlach, 1992; Lincoln, Lincoln, Gerlach, & Ahmadjian, 1996). This implies that outside directors' personal resources such as reputation and status were relatively less important when they exert their power. Further, as board committees such as a remuneration committee has not been mandatory in Japan, along with the insider-dominated feature of Japanese boards, top executives have significant discretion to determine their own compensation. Interestingly, however, it did not lead to higher executive pay in Japan (Salazar & Raggiunti, 2016). Hence, the Japanese board usually functioned as the top management team empowered by the strategic owners.

Actually, the majority of outstanding shares of listed Japanese firms have been owned by domestic banks and nonfinancial firms that are frequently labeled "stable" shareholders or relational investors that often belong to the same *keiretsu* and business groups (Ahmadjian & Robbins, 2005; David et al., 2010; Gerlach, 1992). These shareholders that are often business partners, parent firms, or commercial banks hold shares for the purposes of expressing goodwill, facilitating stable trade relationships, mutual monitoring, and hierarchical control of subsidiaries (Gerlach, 1992; Lincoln et al., 1992). It is indeed banks as well as large corporate owners, parent firms, and affiliated firms that send their executives to the boards of their client firms, business affiliates, and subsidiaries. Therefore, there often exist hierarchical relationships between corporate owners and other firms.

Board ties between higher status or core firms (who send directors) and a lower status firms (as "receiver" of these directors) sometimes reflect a resource dependence relationship (Gerlach, 1992; Lincoln et al., 1992), as higher status firms often control crucial resources. Further, core firms also have agency considerations in their relations with lower status firms as their interests may not be always aligned with those of executives in the lower status firms. This suggests that executives sent by those corporate owners are able to yield power based not only on equity stakes but sometimes also on the resource (Casiaro & Piscorski, 2005) that the core or higher status institution can provide to the focal firms (Zona et al., 2018). This practice is similar to how core firms in a business group control other firms in other institutional contexts such as South Korea, Turkey, and some Western countries (Boyd & Hoskisson, 2010; Colli & Colpan, 2016; Colpan & Hikino, 2018). We often observe similar board ties created by executive transfers in the context of equity strategic alliances, too. For example, such ties exist between Softbank (Japan) and Alibaba (China), Toyota Motor (Japan) and Grab (Singapore), and Renault (France) and Nissan (Japan) where the alliance partners with large equity stakes send their own executives to their partners' boards.

Even without large ownership stakes, however, the acceptance of an executive from another firm as a director (i.e., received ties) may represent some degree of power of the interlinked firm over the focal firm in the Japanese context, as it indicates the focal firm's intention to accept control or to co-opt the interlinked nonfocal firm (Mizruchi & Stearn, 1988; Pfeffer & Salancik, 1978). For example, the focal firm may accept an executive from another firm on which it has a heavy business dependence with the firm that sends its executives. Or the focal firm's tie with such a firm may allow easier access to external finance due to the reputation of the interlinked firm. Similarly, in bank-centered business groups, for example, in Japan and also in Italy, borrower firms often receive a bank executive as a board member, indicating acceptance of some degree of control and cooperation through loan ties with the bank (Colli & Colpan, 2016; Gerlach, 1992). Briefly, board interlocks are sometimes embedded in the interfirm resource dependence relationships in the Japanese and some other institutional contexts. Moreover, such interlocks are often used as a control mechanism by the core firm that has agency considerations in the corporate network.

There are also horizontal ties between firms in Japan and elsewhere that are often characterized by cross-shareholdings (Colli & Colpan, 2016; Yiu et al., 2007). Compared with hierarchical ties, the influence of one firm over another firm and their agency considerations are more complex and ambiguous in horizontal ties. Although it is possible that firms that are tied horizontally learn from one another and a new practice consequently diffuses, the influence of such ties is not always dyadic (Gerlach, 1992). In this study, we controlled for this effect partially by separating out received ties from nonlargest corporate owners from received ties from the largest corporate owners.

2.2 | Stock option pay and board reform

Although domestic shareholders still hold large portions of outstanding shares in Japanese firms, the globalization of share ownership by international investors led to a significant increase in foreign portfolio investment in Japan since the early 1990s and the Financial Big Bang in the late 1990s accelerated this trend. For example, the shareholding ratio of Japanese stocks held by foreign investors increased from about 4.7% in 1990 to 27.6% in 2007 (Tokyo Stock Exchange, 2008). Foreign investors in Japanese firms are predominantly institutional investors from the United States and the United Kingdom accounting for approximately 38.4% and 31.5%, respectively, of all foreign equity investments in Japan (Bank of Japan, 2000–2010). Compared with domestic investors, foreign institutional investors put much emphasis on financial returns from their equity investments and often favor governance practices that are common in their home countries (Ahmadjian & Robbins, 2005; Hoshi & Kashyap, 2001).

With these changes in stock markets, a series of legal changes in corporate governance took place in the late 1990s and 2000s. For instance, legalization of stock option pay for executives (and employees) in 1997 was one of such changes in Japan. Managerial incentives that are linked to share values—like stock option pay—are not consistent with the traditional managerial pay practice in Japanese firms, which is characterized by high degree of internal equality, low pay gaps between senior executives and other employees, and trivial amounts of managerial stock ownership (Kato, Lemmon, Luo, & Schallheim, 2005; Kubo, 2010). Hence, stock-based compensation is not in line with the stakeholder logic that many Japanese firms tend to follow (Geng, Yoshikawa, & Colpan, 2016). Nevertheless, the number of Japanese firms that adopted stock option pay has increased after 1997 similar to what happened in Germany with the same practice after its legalization (Sanders & Tuschke, 2007).

The growth in foreign ownership also triggered a more institutionalized alteration of board members in Japan after Sony initiated a board reform by introducing the so-called "executive office system (EOS)" in 1997. Under this system, the board size was substantially reduced, and former board members were separated into "genuine" board members (i.e., directors) based on the Commercial Law and "executive officers," which is a title with no legal foundation. The objective of the board reform was to improve the speed of managerial decision making by decreasing the size of board and to establish a clear division of labor between execution and monitoring through a separation of executing function from monitoring one (Ahmadjian & Okumura, 2005; Yoshikawa, Tsui-Auch, & McGuire, 2007). The EOS was designed to follow the logic of governance based on agency theory, a typical logic often observed in U.S. firms. According to this logic, executive officers craft and implement strategies and are monitored by a board consisting mostly of nonexecutive directors.

The introduction of EOS was politically problematic, as some board members became executive officers, which was perceived as demotion (Ahmadjian & Yoshikawa, 2013). This perception arose because board directors were synonymous to senior executives in the Japanese context and being stripped of the title of board director conveys a somewhat negative message. Despite this disadvantage, the EOS diffused among Japanese firms in a substantial manner as a response to the pressure from foreign investors asking shareholder-centered governance practices (Yoshikawa et al., 2007).

Although both stock option pay and board reform are contested practices, we argue that executives of the focal firm are more likely to be interested in stock option pay than in EOS. An important reason for this asymmetrically keen interest in stock option pay is the fact that stock option pay is usually provided in addition to, not instead of, other compensation components such as base salary and cash bonus (Geng et al., 2016; Kubo, 2010). In contrast, board reform does not necessarily provide such benefits for executives. Indeed, board reform was deemed as a rather politically sensitive initiative as discussed earlier (Ahmadjian & Yoshikawa, 2013), and hence, executives may rather want to avoid its adoption unless they feel significant pressure or need to do so. We contend that the diffusion of two governance practices with different economic and political consequences offers a research context where we can test the differential impact of sent and received ties as we will discuss next.

3 | THEORY AND HYPOTHESES

3.1 | Board interlocks

Board interlocks have been shown to influence strategic decisions such as acquisitions and hostile takeovers (e.g., Haunschild, 1993; Palmer & Barber, 2001), governance choices (e.g., Davis, 1991; Palmer et al., 1993), and strategic persistence (e.g., Geletkanycz & Hambrick, 1997). On the basis of different research contexts, there is ample evidence that organizational learning occurs, and it is influenced by factors such as the strength of ties (Granovetter, 1973) and a firm's position in the network (Gulati & Gargiulo, 1999; Katila, Rosenberger, & Eisenhardt, 2008; Sytch, Tatarynowicz, & Gulati, 2012). In line with extant literature, we expect that board ties with prior adopters generally facilitate organizational learning and subsequently lead to the adoption of a new practice in the focal firm. For example, studies by Diestre, Rajagopalan, and Dutta (2015) and Tuschke, Sanders, and Hernandez (2014) show that interlocking directors' experience in a specific market increases the probability that the focal firm will enter that market. Prior studies also examine the effects of different types of ties, for example,

directional and nondirectional ties (Haunschild, 1993; Palmer et al., 1993) and specific directions of ties defined as sent or received from the perspective of the focal firm (Beckman & Haunschild, 2002; Haunschild & Beckman, 1998). In the context of this study, sent and received ties (outgoing and incoming ties in Tuschke et al., 2014) with prior adopters enable the focal firm to gain information about stock option plans and board reform. Unlike some other contexts, "indirect" or "neutral" ties established by directors who serve on multiple boards without hierarchical authority (Haunschild & Beckman, 1998; Tuschke et al., 2014) have been relatively rare in Japan because of the extremely small number of independent outsiders on boards (Yoshikawa et al., 2007). Hence, we only consider sent and received ties established between focal firms and other firms in this study.

As we mentioned earlier, as Japanese firms are characterized by stable ownership structure of relational capital, boards are dominated by insiders and function almost like a top management team. Hence, board ties deliver more detailed information about the consequences caused by the adoption of stock option pay and board reform, such as possible political tensions and individual gains. Furthermore, the information carried by board ties would have more weight, because such detailed information is not available from other external sources (Lincoln et al., 1992, 1996). On the basis of this argument and in line with prior literature, we suggest as a baseline hypothesis that *board ties to firms that have already adopted stock option pay and board reform increase the likelihood that the focal firm will adopt these practices as well*.

Prior work does not pay much attention to the type of ties, sent and received, and subsequent difference in terms of quality of information (Shropshire, 2010) except some recent works (Diestre, Rajagopalan, & Dutta, 2015; Tuschke et al., 2014). For example, Tuschke et al. (2014) show that sent ties and received ties differ with respect to the quality of information they can transfer, especially in the case of risky strategic decisions. The weight given to the information transfer through board network ties, however, loses its value as the focal firm's own experience mitigates it (Tuschke et al., 2014).

We build upon but depart from these studies by focusing on characteristics of agent level, managerial self-interest of those creating sent ties, and the hierarchical power of directors who establish received ties with the focal firm. It is important to note that managerial self-interests drive adoption decision of the focal firms that sent the executives whereas hierarchical power of high-status firms drives adoption decision of the focal firms that receive the directors. We expect that those two characteristics underlie observed differences in impacts caused by those ties. In other words, when differential nature of each tie, sent and received ties, is combined with the distinctive characteristics of practice under study, we can identify unique function of sent ties and received ties, respectively.

3.2 | Impact of managerial self-interest

Executives creating sent ties to prior adopters have the opportunity to learn about the benefits and challenges surrounding practices like stock option pay and board reform. On the basis of boardroom discussions, they are able to assess the value of these new practices for their own firm and also for themselves. Unlike executives creating received ties (i.e., outside directors in the focal firm), executives creating sent ties have an executional decision authority in the focal firm. The authority includes acting on even for their own compensation package, such as adding stock option pay. As only a few firms had an independent remuneration committee in Japan, executives have significant power to influence their own compensation structure (Colpan & Yoshikawa, 2012; Kubo, 2010). Hence, in our research context, the authority of executives creating sent ties is especially relevant to the adoption of new executive pay practices.

Sent ties generally enable the transfer of information about both stock option pay and board reform. It is managerial self-interests that likely determine the likelihood of adopting each practice. Executives of the focal firm who create sent ties are likely to be interested in adopting stock option pay rather than board reform, because they might be able to obtain a personal financial gain from stock options whereas the benefits of board reform are unclear. Further, the adoption of board reform can be politically sensitive, as it often entails the reduction of board size and consequently the demotion of some board members (Ahmadjian & Yoshikawa, 2013). Thus, we propose the following:

> **Hypothesis 1.** *Sent ties are positively related to the adoption of stock option pay but not to the adoption of board reform.*

3.3 | Impact of hierarchical power

Although all types of board ties may be a channel to transfer information, we argue that some situational characteristics of the individuals creating these ties help us to explain when the implementation of a new practice is most likely to be observed (Kroll et al., 2008; Tuschke et al., 2014). Directors of a firm that has already adopted stock option pay and/or board reform are able to bring first-hand knowledge about the advantages and downsides of these practices to the boardroom of the focal firm. In addition to the ability of these directors to deliver information about new practices, their home institutions that "sent" them to the focal firm (i.e., establishing received ties from the perspective of the focal firm) sometimes but not always have hierarchical power over the focal firm due to resource dependency and/or its centrality within the business group as a hub firm (Granovetter, 2005; Khanna & Rivkin, 2006; Zona et al., 2018). This hierarchical nature is especially salient in the Japanese context during our data period where boards consisted of mostly inside executives and there was a high hurdle to accept outsiders on boards as the Japanese board functioned almost like a top management team (Miyajima & Aoki, 2002; Yoshikawa & McGuire, 2008). Because such directors represent their home institutions and hence do not sit on the focal firm's board only to serve on behalf of external shareholders pursuing financial interests, they have more strategic interests. This hierarchical power constitutes a necessary condition by which these directors influence the decision of implementation at the focal firm rather than they merely act as an information conduit (Mizruchi & Stearn, 1988).

Directors creating received ties with prior adopters are also likely to be interested in encouraging the adoption of new practices in the focal firms for two reasons: First, because their home institution is usually a parent firm or a business affiliate of the focal firm characterized by hierarchical relationships (Gerlach, 1992; Lincoln et al., 1992), directors have agency considerations and thus are interested in improving focal firm's performance through incentives like stock option pay (Oxley & Pandher, 2016) and in making a better decision-making structure based on board reform. Directors with received ties are therefore likely to promote both stock option pay and board reform, because these practices can direct managerial attention towards enhancing the focal firm's decision and incentive structures to improve firm performance.

Second, in the early stage of diffusion of stock option pay and board reform, the home institution's directors generating received ties may have been interested in promoting these practices in other firms in order to enhance the degree of legitimacy at the level of the business group or within the network in which they are embedded. As these reforms were not entirely consistent with the traditional compensation and board practices in the stakeholder-oriented Japanese context (Ahmadjian & Yoshikawa, 2013; Yoshikawa et al., 2007), it is likely that some stakeholders—such as employees who do not receive stock option pay or executives (insider directors) who are "demoted" from being a director to the position of an executive officer—may have viewed these practices with skepticism and aversion (Ahmadjian & Yoshikawa, 2013). Increasing the number of adoption cases through wide diffusion can enhance legitimacy of stock option pay and board reform, addressing the issue of skepticism and aversion. Monitoring needs and pursuit of legitimacy from the perspective of executives creating received ties constitute sufficient conditions for action. Hence, executives of prior adopters who serve as directors of the focal firm may be tasked to promote the adoption of these new practices for the interests of their home institution.

> **Hypothesis 2.** *Received ties are positively related to the adoption of stock option pay and board reform.*

3.4 | Impact of large corporate ownership power

We have argued that there is a hierarchical relationship between the focal firm and the interlinked firm that sent its own executive to the focal firm and, hence, the interlinked firm likely has power over the focal firm (Lincoln et al., 1996; Mahmood, Zhu, & Zaheer, 2016). Further, its power will likely be greater when the interlinked firm owns the largest stake among all the shareholders in the focal firm. By emphasizing blockholders' incentives to be vigilant, Kroll et al. (2008) examine the impact of blockholder board membership with prior experience in the target industry on acquisition outcomes using the U.S. sample and show positive acquisition performance for acquiring firm shareholders. This finding suggests that blockholders exert great influence through their board representation in the focal firm and influence the quality of strategic outcomes. It is thus expected that when a blockholder is the focal firm's largest corporate owner, it is likely that the directors creating received ties by the blockholder have even greater power on the focal firm's board than those from other prior adopter firms to exert his or her influence on managerial decisions.

These large corporate owners are usually strategic investors rather than financial investors and often have relationships with their invested firms as suppliers, customers, or both in the case of some types of strategic alliance (Aguilera & Jackson, 2003; Desender, Aguilera, Lopez Puertas-Lamy, & Crespi, 2016). The largest corporate block owner in the Japanese context is usually a large trading partner and often the parent firm of the focal firm. For firms with such ties, it is common to have a long-run trading relationship as well as managerial ties. Examples include the relationships between Toyota Motor and Denso, one of the major automotive components manufactures. When the focal firm establishes a received tie to its largest corporate owner, it is likely that the interlinked firm's directors who create such ties have a significant influence on strategic choices of the focal firm (Kotz, 1978; Kroll et al., 2008; Mahmood et al., 2016). There are outside directors who represent large shareholders in other contexts, for example, in the United States, where such shareholders send their representatives to the investee firms' boards (Kroll et al., 2008). Although the interest of such shareholders can be financial (in the case of financial investors) or strategic (in the case of strategic alliance partners) in other contexts, in the Japanese context, their interest tends to be more strategic than in director transfers in equity strategic alliances elsewhere. The above argument thus suggests that such directors with received ties can promote the adoption of stock option pay or board reform in the focal firm using the ownership power of their home institutions as long as these practices contribute to aligning the behaviors of the focal firms to the interests of such institutions.

Due to its large equity stake in the focal firm, such a corporate owner is already well positioned to monitor the focal firm's management closely and directly (Desender et al., 2016). Therefore, one might argue that large corporate owners do not need to rely on equity-based incentives like stock option pay or board reform to monitor or control executives of the focal firm (Miyoshi & Nakao, 2011). It should be noted, however, that holding a stake is one thing and exerting control power based on the ownership is another.[1] Actually, governance scholars pay more attention to specific mechanisms other than ownership stakes through which business groups improve the performance of affiliates (Lincoln, Guillot, & Sargent, 2017; Mahmood et al., 2016). According to those studies, it is the configuration of interorganizational ties that can improve or damage the performance of group-affiliated firms (Almeida & Wolfenzon, 2006; Colpan, Hikino, & Lincoln, 2010; Khanna & Rivkin, 2006). Through the ties, the corporate owners ensure greater scrutiny and impose diverse governance practices to minimize potential agency problems between them. Thus, we hypothesize the following:

> **Hypothesis 3.** *Received ties from the largest corporate owner is more strongly related to the adoption of stock option pay and board reform than received ties from other prior adopter firms.*

3.5 | Contingency effects of firm performance

One of the key contingencies that likely affects the adoption of new governance practices like stock option pay and board reform is the performance of the focal firms. Whereas stock option pay is usually adopted in order to align the interests of executives with that of shareholders (Jensen & Meckling, 1976; Oxley & Pandher, 2016), board reform often aims at improving the board's monitoring and the executives' decision-making functions (Gerlach, 1992; Granovetter, 2005). Given the additional costs for stock option pay and potential political tension caused by the board reform, the focal firm's performance would constitute an important contingency moderating the main effects of this study.

We have discussed earlier that executives are likely to be interested in adopting stock option pay, because such compensation provides potential upside financial gain without sharing downside risk (Sanders, 2001). Because the value of stock options is strongly influenced by expected future cash flow, executives will usually expect greater upside gain when the firm generates sound evidence of growth potential (Sanders & Hambrick, 2007). This suggests that executives who have established sent ties with prior adopters and learned about stock option pay are more interested in bringing back the practice when the firm they manage shows healthy growth. In conclusion, although executives with sent ties to prior adopters are generally interested in stock option pay, sound growth of their firms further motivates and justifies them to implement the practice.

As for the effects of received ties on the adoption of stock option pay, directors with such ties should generally be in favor of using stock option pay to incentivize executives in the focal firm as we predicted in Hypothesis 2 (Murphy, 2003; Ofek & Yermack, 2000). In fact, they might be more interested in using this pay practice as a means of strategic changes when the firm's growth is below the expectation. However, there are three obstacles to the introduction of stock option pay as a part of strategic change process for firms with low growth. First, with lower expectation on future growth, the introduction of stock option pay would not motivate executives as it is designed. Stock option pay delivers economic gain to executives only if the firm performs well enough for the executives to exercise the options. Otherwise, stock option pay would not have an economic consequence to the executives (Sanders & Hambrick, 2007). Due to the lower feasibility of financial gain, we expect directors to be hesitant to implement them in the focal firm. Furthermore, stock option pay involves additional costs (Morgenson, 1998). It would not make sense to add an additional burden to low-performing firms by introducing a new practice with cost implications. Lastly, directors do not want to honor executives who failed to deliver sound growth results with an additional compensation. Given the fact that stock option pay violates the institutional logic prevalent in Japan (Geng et al., 2016), it would be hard to justify rewarding less competent executives with additional pay. In contrast, if the focal firm is growing well, directors creating received ties with prior adopters will be more lenient on the implementation of stock option pay for executives.

Hypothesis 4. *Sales growth of the focal firm positively moderates the impact of sent and received ties on the adoption of stock option pay.*

As we mentioned earlier, the board members creating received ties are likely to be interested in improving the performance of the focal firm. It is therefore likely that the likelihood to implement board reform in the focal firm will increase against the background of a weak performance. Especially in the Japanese context, executives usually emphasize the growth of the firm because stakeholders such as trading partners, parent firms, and employees often benefit from sustainable growth of focal firms (Ahmadjian & Robbins, 2005; Desender et al., 2016). Furthermore, the primary purpose of board reform is to monitor long-term performance. Other incentive systems based on accounting-based short-term profit, such as annual cash bonus, are already in place. Hence, we argue that there is a strong interaction between board reform and firm growth rather than profit. When the focal firm experiences low or no sales growth, directors establishing received ties are motivated to use their power to enforce the adoption of EOS and, thereby, to improve board monitoring and the managerial decision-making structure. Although received ties to prior adopters with performance problems are likely to foster the adoption of board reform, we expect that the level of sales growth makes no difference regarding the effects of sent ties. This is based on the argument that executives of the focal firm are generally not interested in implementing board reforms regardless of firm performance levels. We therefore argue that sent ties have no effect on the adoption of board reform if the focal firm's sales growth is zero or negative. Thus, we propose the following:

Hypothesis 5. *Sales growth of the focal firm negatively moderates the impact of received ties on the adoption of board reform but has no effect on the impact of sent ties.*

4 | METHODS

4.1 | Sample and data

Our sample consists of all publicly listed nonfinancial firms in Japan for the period from 1997 to 2002. The original sample size of this study is 3,565 firms, with the number of listed firms varying each year due to new listings, delisting, mergers, and bankruptcy. As stock option pay was not legalized in Japan before 1997 and the EOS was initially introduced by Sony in 1997, our sample does not suffer from left censoring. We collected all financial and ownership data from the Development Bank of Japan (DBJ) database. For the data on firms' board structure and board interlocks, we manually collected them from annual reports.

Dependent variables. To capture stock option adoption and EOS adoption among Japanese firms, we use a dummy variable that takes the value of 1 if firm *i* adopts the practice in year *t*, and 0 otherwise. As we focus on the first adoption of stock option pay or EOS (in contrast to repeated events), we drop the observation from the sample after the company adopted those practices.

Independent variable. We included a number of independent variables that were all lagged by 1 year ($t - 1$). The main independent variables are the focal firm's sent ties and received ties. *Sent ties* are the number of the focal firm's executive directors who serve on the board of another firm that has already adopted stock option pay and/or EOS. We defined sent ties with respect to stock option pay and EOS separately. Similarly, *received ties* are the count of the focal firm's directors who also serve as directors on the board of firms that are prior adopters. *Received ties from the largest corporate owner* are measured as the number of directors who are sent by the focal firm's largest corporate owner that has previously adopted stock option pay or EOS. If the firm's largest shareholder is not a corporation, then this variable has a value of zero. In other words, we only used the cases where the largest owner of the focal firm is another corporation. *Received ties from other corporate owners* are measured as the number of directors who are sent by the focal firm's nonlargest corporate owners that are prior adopters of stock option pay or board reform.

It is not likely that a firm sends its own executive to serve on the board of a prior adopter or invite an executive of a prior adopter to sit on its own board only to learn about stock option pay or EOS due to the commitment and legal liabilities involved with a board appointment. Nevertheless, we addressed the potential endogeneity problem by only including sent and received ties that were created before the tied-to firm adopted stock option pay and/or EOS. As the number of prior adopters changes over the years under study, we updated the information annually. Interestingly, indirect ties—which are formed when an individual sits on the board of two firms but has no managerial position in either of them—are rare in the Japanese context and thus not part of this study. In this respect, Japan also differs from other stakeholder-oriented contexts like Germany, in which indirect ties are more common (e.g., Hernandez, Sanders, & Tuschke, 2015). Another independent variable in this study is *sales growth*. We computed this variable as yearly change in total sales.

Control variables. We included a number of control variables to account for alternative explanations. All control variables were lagged by 1 year ($t - 1$), and their effects have been ascertained by prior literature. First, we included measures that account for market-based performance. Specifically, we controlled for a firm's stock performance computed as *Tobin's Q* (Sanders & Tuschke, 2007). We included a control for *firm size*, measured as log value of total assets. Like in other countries, firm size may positively affect the likelihood of stock option and EOS adoption (Westphal & Zajac, 1994). We captured the effect of a firm's *leverage* measured as the ratio of total debts to total assets. Higher leverage likely affects the adoption of stock option pay negatively, because debt holders do not encourage executives to pay close attention to shareholders' interests especially when their stakes are high (John & John, 1993).

Second, we controlled for several ownership effects. *Foreign ownership* is measured as the ratio of shareholdings by foreign investors who are among a firm's 10 largest shareholders. As foreign institutional investors usually seek financial returns, they likely support governance mechanisms for interest alignment like stock option pay and board reform (Colpan & Yoshikawa, 2012; Miyoshi & Nakao, 2011). *Bank ownership* is calculated as the ratio of bank ownership among a firm's 10 largest shareholders. This control was included because prior studies suggest that those domestic shareholders tend to pay less attention to the focal firm's market performance (Ahmadjian & Robbins, 2005; David et al., 2010), which may affect the focal firm's decision to adopt stock option pay and/or EOS. We also included *managerial ownership* measured as the total shareholdings by individual shareholders among the 10 largest shareholders of a firm. These individuals are usually a firm's senior executives. Managerial ownership is included to control for managerial decision-making power through shareholdings. We used the aggregated ratio of the firm's 10 largest shareholders to measure foreign ownership, bank ownership, and managerial ownership as these investors can be expected to be influential.

Third, we controlled for *CEO age* because it can affect a CEO's propensity to implement new practices. It was suggested that older executives are more likely to resist change and, hence, are less likely to adopt new practices (Fiss & Zajac, 2004). We have also included *board size* as a control because one of the main purposes of EOS is to reduce board size for making decision-making processes more speedily. Thus, we expect to see a positive relationship between board size and EOS adoption. We included the variable *subsidiary relationship*, which measures the total shareholdings by corporate shareholders among the largest shareholders of a firm to capture the parent company effect on the adoption of new practices. Lastly, to analyze the influence of *industry diffusion*, we computed the ratio of adopting firms in the same industry as the focal firm for each year. The industry classification is based on the 2-digit industry classification code. In sum, we include several firm traits, ownership structure types, CEO characteristics, interfirm relationships, and the diffusion of the practices under study as control variables for the adoption of stock option compensation and EOS.

4.2 | Analysis

As our dependent variables are dummy variables that indicate the adoption of stock option plans and/or the EOS, we employed a logit regression to analyze the data. In line with prior literature, we used a discrete-time logit specification of event history with each spell corresponding to a year (Gimeno, Hoskisson, Beal, & Wan, 2005; Tuschke et al., 2014). This model is especially suited to account for right censoring that accrues for firms that do not adopt stock option pay and/or EOS throughout the observation period. Our sample spans the time period from 1997 to 2002. Consequently, we have six spells that were updated annually to accommodate for time-varying

covariates. Once a firm adopted stock option pay or EOS, the next year's risk set was diminished by that firm.

The fact that limited dependent variable models (in our case a logit model) are intrinsically nonlinear complicates the interpretation of our findings. A unit change in an explanatory variable on the dependent variable (*marginal effect*) does not equal the variable's model coefficient. In addition, the value of this marginal effect varies with the value of all variables in the model. These facts imply that, in a limited dependent variable model, an explanatory variable's estimated coefficient can rarely be used to infer the true nature of the relationship between the explanatory variable and the dependent variable (Hoetker, 2007; Wiersema & Bowen, 2009). There are two common solutions for this. The first is to compute the value of the marginal effect using the sample mean of all variables and assess its significance. The second method computes the average of the individual marginal effect values at each observation and assesses its significance. In this paper, we followed the first method and computed the marginal effects of all explanatory variables with the Stata command *mfx*. We used the Huber/White/sandwich estimator of variance for the robust standard errors (Hoetker, 2007; Wiersema & Bowen, 2009).

5 | RESULTS

Tables 1, 2, and 3 show the descriptive statistics and pairwise correlations. We provide the results of stock option and EOS separately as the effects of sent and received ties (our main independent variables) differ depending on the practice under study. As Tables 2 and 3 indicate, there is an expected and considerably high correlation between received ties and received subgroup ties. This correlation is unproblematic as we analyze the two types of ties in different empirical models. None of the remaining correlations indicate problems with multicollinearity.

TABLE 1 Diffusion of stock option pay and EOS

	Adoption events per year			Accumulated adoption events		
Year	Total sample	Adoptions	%	Total sample	Adoptions	%
Stock option pay						
1997	2,881	26	0.9	2,881	26	0.9
1998	2,923	50	1.7	2,923	76	2.6
1999	2,987	43	1.4	2,987	119	4.0
2000	3,144	290	9.2	3,144	409	13.0
2001	3,264	191	5.9	3,264	600	18.4
2002	3,306	199	6.0	3,306	799	24.2
EOS						
1997	2,881	10	0.3	2,881	10	0.3
1998	2,923	142	4.9	2,923	152	5.2
1999	2,987	20	0.7	2,987	172	5.8
2000	3,144	131	4.2	3,144	303	9.6
2001	3,264	146	4.5	3,264	449	13.8
2002	3,306	167	5.1	3,306	616	18.6

Table 4 provides results for the baseline hypothesis and the individual impact of sent and received ties on the adoption of stock option pay and EOS. With respect to our baseline hypothesis, Model 1 for stock option pay and Model 5 for EOS in Table 4 indicate positive and statistically significant relationships between board ties to prior adopter firms and the adoption of the two practices under study, implying that there is an information transfer through board ties with prior adopters. Models 2 and 6 in Table 4 show the effects of sent ties on the adoption of stock option pay and EOS. Our results indicate that although sent ties have a significantly positive effect on the adoption of stock option pay ($p < .05$ in all models), they have no significant relationship with the adoption of EOS. These results lend strong support to Hypothesis 1, which predicts an effect of sent ties on the adoption decision of stock option pay but no effect on the adoption of EOS. Our finding underscores the role of managerial self-interest for translating new information gained through board ties into action.

We predict in Hypothesis 2 that received ties are positively related to the adoption of stock option pay and EOS. In Table 4, Model 3 for stock option pay and Model 7 for EOS indicate that received ties are indeed significantly related to the adoption of these two practices ($p < .01$ for stock option pay and $p < .01$ for EOS). Models 4 and 8 in Table 4 are also consistent with these results. These results support Hypothesis 2.

The control variables in Table 4 show the expected results. Growing firms are more likely to adopt stock option compensation, but not EOS. Tobin's Q has a positive relationship with the adoption of both practices. Firm size positively affects the adoption of stock option compensation and EOS, indicating that large companies are more likely to adopt these new practices. Institutional ownership (foreign owners and banks) positively affects the adoption of stock option pay but not of EOS. Managerial ownership positively affects the adoption of stock option compensation and negatively affects the adoption of EOS, further indicating managerial self-interest. CEO age has a negative impact on the adoption of both stock option pay and EOS. Accordingly, younger CEOs are more likely to adopt new practices. Board size has a positive effect on the adoption of EOS indicating that companies with large boards are more likely to implement board reform. Subsidiary relationships have a negative impact on the adoption of stock option pay and EOS. This shows that relationships with the parent company itself are not sufficient for the adoption of the new practices under study. Lastly, high levels of diffusion within the industry positively affect the adoption of both stock option pay and EOS. Put differently, as new practices become more popular within an industry, the focal firm is more likely to adopt them as well.

Hypothesis 3 predicts the impact of the differential hierarchical power of directors with received ties to prior adopters by comparing the effects of those directors representing the focal firm's largest corporate shareholder and those representing other corporations. In line with our expectations, the results in Table 5 show that received ties to the largest corporate shareholder are significantly related to the adoption of stock option pay and EOS ($p < .05$ or $p < .01$ for stock option pay and $p < .01$ for EOS). To the contrary, received ties from other corporate owners are marginally related to

TABLE 2 Correlation matrix (stock option)

Variable		Mean	*SD*	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1)	Stock option adoption	0.044	0.205	1															
(2)	Sent ties ($t-1$)	0.004	0.072	.0194	1														
(3)	Received ties ($t-1$)	0.064	0.320	.0400*	−.0044	1													
(4)	Received ties from the largest corporate owner ($t-1$)	0.040	0.243	.0304*	−.0003	.8323*	1												
(5)	Received ties from other corporate owners ($t-1$)	0.024	0.179	.0302*	−.0075	.6560*	.1276*	1											
(6)	Sales growth ($t-1$)	−0.003	0.140	.0914*	−.0017	.0307*	.0330*	.0100	1										
(7)	Tobin's Q ($t-1$)	1.350	0.522	.1518*	.0063	.0354*	.0210	.0347*	.2386*	1									
(8)	Firm size ($t-1$)	17.824	1.439	−.0208	.0366*	−.0129	−.0220	.0068	−.0039	.0713*	1								
(9)	Leverage ($t-1$)	0.194	0.157	−.0448*	−.0001	−.0268*	−.0054	−.0406*	−.0890*	−.2846*	.1092*	1							
(10)	Foreign ownership ($t-1$)	1.661	6.081	.0642*	.0056	.0354*	.0269*	.0267*	.0591*	.1422*	.0574*	−.1101*	1						
(11)	Bank ownership ($t-1$)	11.432	7.078	−.0150	−.0147	−.0569*	−.0649*	−.0134	−.0109	.0961*	.4252*	−.0341*	−.1037*	1					
(12)	Managerial ownership ($t-1$)	6.857	12.138	.1242*	.0035	−.0630*	−.0510*	−.0434*	.1010*	.1247*	−.3883*	−.0146	−.0436*	−.3143*	1				
(13)	CEO age ($t-1$)	61.009	7.082	−.0850*	.0177	.0055	.0125	−.0072	−.0550*	−.0809*	.1763*	.0133	−.0491*	.0940*	−.2375*	1			
(14)	Board size ($t-1$)	12.983	6.567	−.0268*	.0482*	.0141	.0076	.0150	−.0014	.0438*	.7404*	.0453*	.0282*	.2934*	−.2952*	.1646*	1		
(15)	Subsidiary relationship ($t-1$)	14.943	18.403	−.0545*	.0001	.1531*	.1381*	.0859*	.0078	−.0299*	−.1828*	−.0414*	−.0810*	−.3698*	−.2575*	.0547*	−.1312*	1	
(16)	Industry diffusion ($t-1$)	0.072	0.078	.1340*	−.0144	.1286*	.0949*	.1008*	.0100	.0722*	−.2400*	−.0680*	.0481*	−.1831*	.2707*	−.1099*	−.2669*	.0176	1

Note. $N = 12{,}914$.

*Correlation coefficient is statistically significant at the 1% level.

TABLE 3 Correlation matrix (EOS)

Variable	Mean	*SD*	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1) EOS adoption	0.044	0.204	1															
(2) Sent ties ($t-1$)	0.009	0.139	.0174	1														
(3) Received ties ($t-1$)	0.184	0.536	.0163	−.0026	1													
(4) Received ties from the largest corporate owner ($t-1$)	0.094	0.390	.0244*	−.0104	.7415*	1												
(5) Received ties from other corporate owners ($t-1$)	0.059	0.286	.0136	.0052	.5598*	.0530*	1											
(6) Sales growth ($t-1$)	0.002	0.152	−.0101	−.0043	.0075	−.0025	−.0087	1										
(7) Tobin's Q ($t-1$)	1.383	0.579	.0248*	−.0059	.0117	−.0090	.0074	.2672*	1									
(8) Firm size ($t-1$)	17.709	1.431	.1277*	.0224*	−.0054	−.0144	−.0112	−.0122	.0327*	1								
(9) Leverage ($t-1$)	0.191	0.157	−.0007	−.0077	−.0300*	−.0257*	−.0160	−.0851*	−.2799*	.1022*	1							
(10) Foreign ownership ($t-1$)	1.729	6.144	.0292*	.0035	.0063	.0004	.0185	.0675*	.1588*	.0331*	−.1149*	1						
(11) Bank ownership ($t-1$)	11.228	7.153	.0581*	−.0221	−.1143*	−.1058*	−.0564*	−.0063	.1019*	.4385*	−.0415*	−.1031*	1					
(12) Managerial ownership ($t-1$)	8.084	13.320	−.0525*	−.0293*	−.1520*	−.1181*	−.0702*	.1208*	.1616*	−.4111*	−.0148	−.0363*	−.3313*	1				
(13) CEO age ($t-1$)	60.669	7.370	.0061	.0074	.0541*	.0389*	.0174	−.0851*	−.1212*	.2056*	.0156	−.0725*	.1188*	−.2769*	1			
(14) Board size ($t-1$)	12.643	6.458	.1103*	.0568*	.0524*	.0242*	.0220	−.0135	.0190	.7597*	.0430*	.0100	.3141*	−.3291*	.1951*	1		
(15) Subsidiary relationship ($t-1$)	14.717	18.288	−.0313*	.0076	.2877*	.2912*	.0641*	−.0071	−.0440*	−.1440*	−.0356*	−.0799*	−.3414*	−.2788*	.0668*	−.1061*	1	
(16) Industry diffusion ($t-1$)	0.069	0.060	.0574*	−.0307*	−.0167	.0441*	.0322*	−.0955*	−.0097	−.1538*	−.0525*	.0517*	−.1048*	.1220*	−.0442*	−.1753*	.0211	1

Note. $N = 13{,}360$.

*Correlation coefficient is statistically significant at the 1% level.

TABLE 4 Main results (Hypotheses 1 and 2)

	Stock option				Executive officer system			
Practice diffusion	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Board ties to prior adopter firms $t-1$)	.0091*** (3.18)				.0051*** (2.99)			
Sent ties ($t-1$)		.0191** (2.09)		.0193** (2.14)		.0082 (1.38)		.0085 (1.44)
Received ties ($t-1$)			.0084*** (2.84)	.0085*** (2.86)			.0047*** (2.72)	.0048*** (2.75)
Sales growth ($t-1$)	.0305*** (3.84)	.0312*** (3.90)	.0306*** (3.84)	.0306*** (3.85)	−.0102 (1.31)	−.0097 (1.24)	−.0102 (1.31)	−.0101 (1.31)
Tobin's Q ($t-1$)	.0101*** (6.03)	.0104*** (6.16)	.0102*** (6.06)	.0101*** (6.02)	.0038** (2.01)	.0041** (2.21)	.0038** (2.01)	.0038** (2.03)
Firm size ($t-1$)	.0026** (2.08)	.0024* (1.88)	.0026** (2.07)	.0026** (2.06)	.0073*** (6.06)	.0072***(5.95)	.0073*** (6.05)	.0073*** (6.05)
Leverage ($t-1$)	−.0092 (1.11)	−.0085 (1.03)	−.0091 (1.10)	−.0091 (1.11)	.0000 (0.00)	.0002 (0.02)	−.0001 (0.01)	.0001 (0.02)
Foreign ownership ($t-1$)	.0005*** (4.09)	.0006*** (4.25)	.0005*** (4.10)	.0005*** (4.11)	.0002 (1.11)	.0002 (1.11)	.0002 (1.12)	.0002 (1.10)
Bank ownership ($t-1$)	.0005** (2.25)	.0005** (2.34)	.0005** (2.24)	.0005** (2.29)	.0001 (0.71)	.0001 (0.55)	.0001 (0.66)	.0001 (0.72)
Managerial ownership ($t-1$)	.0006*** (6.17)	.0006*** (6.00)	.0006*** (6.16)	.0006*** (6.11)	−.0004*** (2.65)	−.0004*** (2.86)	−.0004*** (2.67)	−.0004*** (2.65)
CEO age ($t-1$)	−.0008*** (4.70)	−.0008*** (4.76)	−.0008*** (4.70)	−.0008*** (4.72)	−.0004** (2.39)	−.0004** (2.35)	−.0004** (2.39)	−.0004** (2.37)
Board size ($t-1$)	.0001 (0.21)	.0001 (0.46)	.0001 (0.26)	.0001 (0.20)	.0006*** (2.79)	.0006*** (2.96)	.0006*** (2.85)	.0006*** (2.77)
Subsidiary relationship ($t-1$)	−.0002** (2.30)	−.0002* (1.80)	−.0002** (2.26)	−.0002** (2.25)	−.0002* (1.93)	−.0001 (1.43)	−.0002* (1.90)	−.0002* (1.89)
Industry diffusion ($t-1$)	.1769*** (6.80)	.1797*** (6.86)	.1775*** (6.82)	.1766*** (6.78)	.0684*** (2.74)	.0676*** (2.70)	.0682*** (2.73)	.0685*** (2.74)
Number of observation	12,914	12,914	12,914	12,914	13,360	13,360	13,360	13,360
Pseudo R^2	.1347	.1332	.1343	.1349	.1122	.1110	.1119	.1123
Prob > χ^2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note. *T* values appear in parentheses. The value of the coefficient is the marginal effects using the sample mean of all variables.

*Statistical significance at the 10% level.

**Statistical significance at the 5% level.

***Statistical significance at the 1% level.

TABLE 5 Hierarchical effects (Hypothesis 3)

Practice diffusion	Stock option				Executive officer system			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Sent ties ($t-1$)	.0193** (2.14)	.0192** (2.13)	.0192** (2.11)	.0192** (2.14)	.0085 (1.44)	.0085 (1.44)	.0082 (1.39)	.0085 (1.44)
Received ties ($t-1$)	.0085*** (2.86)				.0048*** (2.75)			
Received ties from the largest corporate owner ($t-1$)		.0102*** (2.67)		.0096** (2.53)		.0060*** (2.73)		.0060*** (2.69)
Received ties from other corporate owners ($t-1$)			0.0079 (1.58)	.0067 (1.35)			.0020 (0.62)	.0015 (0.47)
Sales growth ($t-1$)	.0306*** (3.85)	.0306*** (3.86)	.0311*** (3.88)	.0305*** (3.84)	−.0101 (1.31)	−.0100 (1.29)	−.0098 (1.25)	−.0101 (1.30)
Tobin's Q ($t-1$)	.0101*** (6.02)	.0102*** (6.08)	.0103*** (6.10)	.0101*** (6.02)	.0038** (2.03)	.0039** (2.08)	.0041** (2.18)	.0038** (2.06)
Firm size ($t-1$)	.0026** (2.06)	.0026** (2.03)	.0025* (1.93)	.0026** (2.06)	.0073*** (6.05)	.0072*** (6.01)	.0072*** (5.97)	.0073*** (6.02)
Leverage ($t-1$)	−.0091 (1.11)	−.0095 (1.15)	−.0084 (1.01)	−.0093 (1.13)	.0001 (0.02)	.0002 (0.03)	.0001 (0.02)	.0002 (0.03)
Foreign ownership ($t-1$)	.0005*** (4.11)	.0005*** (4.13)	.0005*** (4.21)	.0005*** (4.10)	.0002 (1.10)	.0002 (1.09)	.0002 (1.11)	.0002 (1.09)
Bank ownership ($t-1$)	.0005** (2.29)	.0005** (2.37)	.0005** (2.27)	.0005** (2.31)	.0001 (0.72)	.0001 (0.63)	.0001 (0.59)	.0001 (0.66)
Managerial ownership ($t-1$)	.0006*** (6.11)	.0006*** (6.07)	.0006*** (6.04)	.0006*** (6.11)	−.0004*** (2.65)	−.0004*** (2.75)	−.0004*** (2.81)	−.0004*** (2.72)
CEO age ($t-1$)	−.0008*** (4.72)	−.0008*** (4.79)	−.0008*** (4.70)	−.0008*** (4.73)	−.0004** (2.37)	−.0004** (2.37)	−.0004** (2.35)	−.0004** (2.37)
Board size ($t-1$)	.0001 (0.20)	.0001 (0.25)	.0001 (0.38)	.0000 (0.19)	.0006*** (2.77)	.0006*** (2.82)	.0006*** (2.93)	.0006*** (2.79)
Subsidiary relationship ($t-1$)	−.0002** (2.25)	−.0002** (2.12)	−.0002** (1.97)	−.0002** (2.25)	−.0002* (1.89)	−.0002** (2.01)	−.0001 (1.43)	−.0002** (2.00)
Industry diffusion ($t-1$)	.1766*** (6.78)	.1784*** (6.87)	.1778*** (6.78)	.1770*** (6.80)	.0685*** (2.74)	.0675*** (2.70)	.0679*** (2.71)	.0678*** (2.71)
Number of observation	12,914	12,914	12,914	12,914	13,360	13,360	13,360	13,360
Pseudo R^2	.1349	.1346	.1338	.1350	.1123	.1122	.1111	.1123
Prob > χ^2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note. *T* values appear in parentheses. The value of the coefficient is the marginal effects using the sample mean of all variables.

*Statistical significance at the 10% level.

**Statistical significance at the 5% level.

***Statistical significance at the 1% level.

TABLE 6 Moderating effects of sales growth on stock option (Hypothesis 4)

Practice diffusion	Stock option							
Moderation	Below median value group				Over median value group			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Sent ties ($t-1$)	.0064 (0.28)	.0062 (0.27)	.0061 (0.27)	.0063 (0.28)	.0242** (2.15)	.0242** (2.15)	.0242** (2.13)	.0242** (2.15)
Received ties ($t-1$)	.0071 (1.58)				.0093** (2.32)			
Received ties from the largest corporate owner ($t-1$)		.0090 (1.56)		.0088 (1.53)		.0105** (2.04)		.0097* (1.88)
Received ties from other corporate owners ($t-1$)			.0052 (0.85)	.0044 (0.75)			.0101 (1.34)	.0087 (1.18)
Sales growth ($t-1$)	−.0128 (0.81)	−.0125 (0.79)	−.0127 (0.81)	−.0126 (0.80)	.0523*** (5.02)	.0522*** (5.02)	.0531*** (5.05)	.0523*** (5.01)
Tobin's Q ($t-1$)	.0130*** (4.55)	.0131*** (4.54)	.0133*** (4.61)	.0130*** (4.54)	.0091*** (4.22)	.0092*** (4.29)	.0093*** (4.27)	.0091*** (4.22)
Firm size ($t-1$)	.0034** (2.10)	.0035** (2.13)	.0034** (2.05)	.0035** (2.12)	.0017 (0.86)	.0016 (0.81)	.0015 (0.76)	.0017 (0.86)
Leverage ($t-1$)	−.0208* (1.80)	−.0212* (1.83)	−.0207* (1.79)	−.0210* (1.82)	.0019 (0.16)	.0016 (0.14)	.0033 (0.28)	.0018 (0.15)
Foreign ownership ($t-1$)	.0003* (1.77)	.0003* (1.75)	.0003* (1.81)	.0003* (1.75)	.0007*** (3.41)	.0007***(3.45)	.0007***(3.48)	.0007*** (3.41)
Bank ownership ($t-1$)	.0003 (1.11)	.0003 (1.08)	.0003 (1.10)	.0003 (1.10)	.0007** (2.12)	.0007** (2.23)	.0006** (2.08)	.0007** (2.13)
Managerial ownership ($t-1$)	.0005*** (3.45)	.0005*** (3.42)	.0005*** (3.42)	.0005*** (3.44)	.0007*** (4.68)	.0007*** (4.65)	.0007*** (4.62)	.0007*** (4.68)
CEO age ($t-1$)	−.0007*** (3.24)	−.0007*** (3.28)	−.0007*** (3.24)	−.0007*** (3.25)	−.0008*** (3.22)	−.0008*** (3.28)	−.0008*** (3.20)	−.0008*** (3.22)
Board size ($t-1$)	−.0000 (0.07)	−.0000 (0.09)	.0000 (0.02)	−.0000 (0.09)	.0002 (0.55)	.0003 (0.64)	.0003 (0.70)	.0002 (0.55)
Subsidiary relationship ($t-1$)	−.0001 (1.17)	−.0001 (1.11)	−.0001 (0.98)	−.0001 (1.17)	−.0003* (1.95)	−.0002* (1.84)	−.0002* (1.75)	−.0003* (1.95)
Industry diffusion ($t-1$)	.1308*** (3.82)	.1317*** (3.85)	.1333*** (3.89)	.1309*** (3.83)	.2204*** (5.47)	.2227*** (5.53)	.2201*** (5.40)	.2206*** (5.46)
Number of observation	6,457	6,457	6,457	6,457	6,457	6,457	6,457	6,457
Pseudo R^2	.1104	.1103	.1094	.1105	.1563	.1557	.1551	.1563
Prob > χ^2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note. *T* values appear in parentheses. The value of the coefficient is the marginal effects using the sample mean of all variables.

*Statistical significance at the 10% level.

**Statistical significance at the 5% level.

***Statistical significance at the 1% level.

TABLE 7 Moderating effects of sales growth on executive officer system (Hypothesis 5)

Practice diffusion	Executive officer system							
Moderation	**Below median value group**				**Over median value group**			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Sent ties ($t-1$)	.0089 (1.11)	.0088 (1.10)	.0084 (1.04)	.0089 (1.11)	.0072 (0.95)	.0071 (0.94)	.0071 (0.94)	.0071 (0.94)
Received ties ($t-1$)	.0066*** (2.76)				.0029 (1.12)			
Received ties from the largest corporate owner ($t-1$)		.0072** (2.42)		.0072** (2.37)		.0044 (1.33)		.0045 (1.35)
Received ties from other corporate owners ($t-1$)			.0046 (1.07)	.0045 (1.04)			−.0006 (0.11)	−.0012 (0.25)
Sales growth ($t-1$)	−.0010 (0.06)	−.0007 (0.04)	−.0009 (0.05)	−.0009 (0.05)	−.0134 (0.97)	−.0134 (0.98)	−.0126 (0.92)	−.0133 (0.97)
Tobin's Q ($t-1$)	.0029 (0.71)	.0032 (0.79)	.0033 (0.82)	.0030 (0.74)	.0050** (2.44)	.0050** (2.45)	.0051** (2.54)	.0050** (2.46)
Firm size ($t-1$)	.0069*** (3.73)	.0068*** (3.68)	.0068*** (3.68)	.0069*** (3.72)	.0073*** (4.55)	.0073*** (4.55)	.0072*** (4.51)	.0073***(4.54)
Leverage ($t-1$)	−.0096 (0.87)	−.0093 (0.85)	−.0100 (0.91)	−.0095 (0.86)	.0116 (1.14)	.0116 (1.14)	.0117 (1.15)	.0116 (1.14)
Foreign ownership ($t-1$)	.0002 (1.01)	.0002 (1.00)	.0002 (1.03)	.0002 (1.01)	.0001 (0.65)	.0001 (0.65)	.0001 (0.65)	.0001 (0.65)
Bank ownership ($t-1$)	.0003 (1.13)	.0003 (1.02)	.0003 (1.00)	.0003 (1.09)	−.0000 (0.19)	−.0001 (0.22)	−.0001 (0.25)	−.0001 (0.23)
Managerial ownership ($t-1$)	−.0003* (1.70)	−.0003* (1.83)	−.0003* (1.82)	−.0003* (1.74)	−.0004** (2.19)	−.0004** (2.22)	−.0004** (2.29)	−.0004** (2.23)
CEO age ($t-1$)	−.0004* (1.67)	−.0004* (1.67)	−.0004* (1.65)	−.0004* (1.67)	−.0003 (1.60)	−.0003 (1.60)	−.0003 (1.59)	−.0003 (1.60)
Board size ($t-1$)	.0011*** (3.32)	.0011*** (3.36)	.0011*** (3.43)	.0011*** (3.33)	.0001 (0.36)	.0001 (0.37)	.0001 (0.46)	.0001 (0.39)
Subsidiary relationship ($t-1$)	−.0001 (0.99)	−.0001 (1.02)	−.0001 (0.51)	−.0001 (1.02)	−.0002 (1.64)	−.0002* (1.72)	−.0002 (1.49)	−.0002* (1.73)
Industry diffusion ($t-1$)	.0569 (1.54)	.0559 (1.51)	.0574 (1.54)	.0565 (1.53)	.0716** (2.10)	.0711** (2.08)	.0704** (2.05)	.0708** (2.07)
Number of observation	6,680	6,680	6,680	6,680	6,680	6,680	6,680	6,680
Pseudo R^2	.1217	.1212	.1198	.1215	.1058	.1060	.1053	.1060
Prob > χ^2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note. *T* values appear in parentheses. The value of the coefficient is the marginal effects using the sample mean of all variables.

*Statistical significance at the 10% level.

**Statistical significance at the 5% level.

***Statistical significance at the 1% level.

the adoption of stock option pay but not to the adoption of the EOS. These results suggest that the power of directors forming received ties can be attributed to hierarchical power of large corporate shareholders supporting Hypothesis 3.

We hypothesized a moderating effect of sales growth on the adoption of stock option pay (Hypothesis 4) and EOS (Hypothesis 5). Unlike ordinary least squares (OLS) model, the marginal effect of an interaction between two variables in a logit model is not simply the coefficient of their interaction. Indeed, the magnitude and even the sign of the marginal effect can differ across observations (Hoetker, 2007; Wiersema & Bowen, 2009), and the effect of the interaction is a function of not only the coefficient for the interaction but also the coefficients for each interacted variable and the values of all other variables.

Due to concerns raised about the interpretation of interactions in logistic regressions (Hoetker, 2007; Wiersema & Bowen, 2009), we first followed Shaver (2007) and split the sample at the median value of sale growth for the two dependent variables, stock option pay (Table 6) and EOS (Table 7). We predict that the impact of sent and received ties on the adoption of stock option pay is significant when sales growth is high. Table 6 shows that sent ties are significantly related to the adoption of stock option for the high sales growth group ($p < .05$ in Models 5 to 8), whereas the impact is insignificant for the low sales growth group. Further, we find that received ties and received ties from the largest corporate owner are positively related to the adoption of stock option pay in firms with growing sales ($p < .05$) for received ties in Model 5 ($p < .05$ and $p < .1$) for received ties from the largest corporate owner in Models 6 and 8, whereas the impact is insignificant for the group with low sales growth. Taken together, these results support Hypothesis 4.

We predict in Hypothesis 5 that the impact of received ties on the adoption of EOS is significant when the focal firm is experiencing low sales growth. Table 7 indicates that received ties are significantly related to the adoption of EOS when there is no or negative sales growth ($p < .01$ in Model 1) and the effect of received ties is mainly driven by received ties from the largest corporate owner suggesting that hierarchical power of received directors matters when it comes to the adoption of EOS that executives do not necessarily want to implement. Taken together, these results support Hypothesis 5.

To see the moderating influence of sales growth on the impact of sent and received ties on the adoption of stock option pay and EOS graphically, we follow Zelner's (2009) simulation-based graphical approach. Y axis is the probability of the practice adoption, and X axis is the sales growth. Figure 1 indicates that when the sales growth is increasing, the probability of stock option adoption also increases both with sent and received ties and the lower bound of 95% confidence interval slightly stays in the positive zone. Thus, graphical results support our hypothesized positive relationship between sales growth and sent and received ties with the stock option adoption. Figure 1 also indicates that when the sales growth is declining, the probability of EOS adoption increases with received ties, but not with sent ties and the lower bound of 95% confidence interval slightly stays in the positive zone for received ties. Thus, Figure 1 also supports our hypothesized relationship between sales growth and received ties with the EOS adoption.

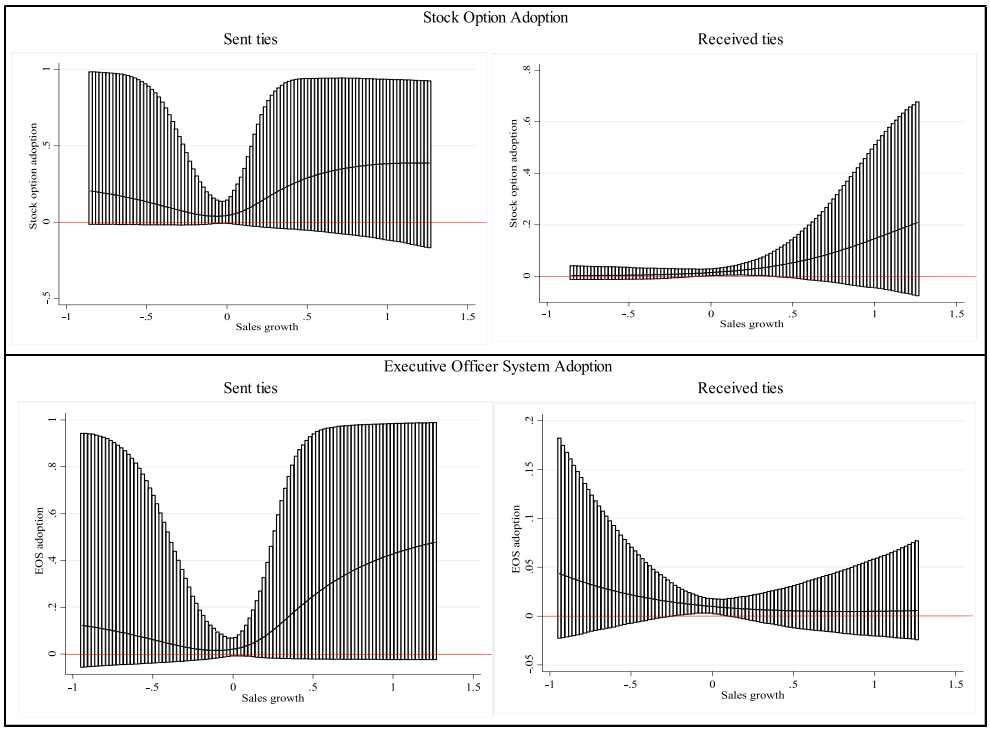

FIGURE 1 Moderating effects of sales growth on stock option and EOS adoptions [Colour figure can be viewed at wileyonlinelibrary.com]

6 | DISCUSSION AND CONCLUSION

Against the background of board ties among publicly listed nonfinancial firms in Japan, this study has examined the effects of self-interest of individuals creating sent ties and the power of directors establishing received ties on the adoption of stock option pay and/or board reform. In line with our predictions, for the adoption of stock option pay that has economic consequences to executives, we were able to show that the self-interest of executives creating sent ties is the trigger translating the information into action. For the adoption of board reform with political implications, the power of directors creating received ties is the trigger for the implementation. Consequently, gaining information through board ties seems to be a necessary, but not always sufficient condition for translating organizational learning into action.

Regarding stock option pay, we found that both sent ties and received ties are significantly related to the adoption decision when the focal firm's sales growth is positive. Consistent with our argument, we find that self-interested executives are keener on adopting this pay scheme when it is more likely for them to be able to exercise the option in the future. The positive effect of received ties on the adoption of stock option pay further suggests that directors are unlikely to object additional managerial incentives when those incentives can be legitimized by the focal firm's sound growth signal.

Our results also show that received ties from prior adopters are significantly related to the implementation of board reform if the focal firm shows low sales growth. Seemingly, directors who create received ties between their home institution and the focal firm conceive board reform as a governance means that enables their home institution to intervene and address the issue of long-term competitiveness of the focal firms. Sent ties, however, are not related to the adoption of board reform regardless of the level of sales growth. This result suggests that executives who create sent ties are not interested in board reform with political implications and without clear economic benefits for them. Again, our findings reveal stark differences between sent and received ties.

This study contributes to board interlock research in several ways. Early research on board interlocks tends to focus on their role as information conduit without paying explicit attention to specific attributes of the directors and executives who establish ties with prior adopters (e.g., Davis & Greve, 1997; Haunschild, 1993; Rao & Sivakurmar, 1999). More recent studies, however, have started to take experience of agents involved in the network closely associated with information into consideration. Diestre, Rajagopalan, and Dutta (2015) examine the impact of interlocking directors' market-specific experience on the focal firms' entry into that market and the moderating effects of the focal firms' absorptive capacity. Executives and directors in their study, however, are neutral agents carrying information in the vacuum. Their study does not take the directors' interests and situational context into consideration. In this study, we incorporated the self-interest of executives with sent ties to prior adopters and the power of directors who establish ties with prior adopters that are hierarchically positioned. By doing so, this study paints a more fine-grained picture regarding underlying mechanisms by which information gained through ties is translated into action. This is especially so in institutional contexts in which board interlocks are established between business affiliates and trading partners, which is quite common not only in emerging economies but also in some highly developed countries (Colpan et al., 2010).

Another contribution of our study is to expand previous research that examines the differences between sent ties and received ties. Although Tuschke et al. (2014) investigate the effects of different types of ties on the entry into emerging economies based on organizational learning, our study rather focuses on managerial self-interest and the power of those individuals who create sent and received ties. Furthermore, we have shown when the self-interest and power take more or less active role as focal firms face different contingencies. This dynamism confirms that exposure to the information about new practices is not sufficient. Those individuals who create sent and received ties need either an incentive to adopt a new practice or the decision-making authority to enforce the implementation of a practice with political ramification in the focal firm.

To our best knowledge, previous studies do not examine the moderating effects of firm performance on the adoption of new practices. However, we believe that this is an important contingency especially with respect to the adoption of governance practices. It may well be that the adoption of other practices like anti-takeover mechanisms (Davis, 1991) or the multidivisional form (Palmer et al., 1993) are also moderated by the focal firm's performance.

We have incorporated the hierarchical relationship between a prior adopter and the focal firm, thereby suggesting that board interlocks are sometimes embedded in interfirm ties and reflect underlying power relationships. Board interlocks are prevalent in many institutional contexts, but such ties are often used as an interfirm control mechanism within a business group, especially in emerging economies (Boyd & Hoskisson, 2010; Colli & Colpan, 2016) but also in some developed economies (Colpan & Hikino, 2018; Lincoln et al., 1992). This study brings hierarchical power relationships into board interlock research.

As with all empirical work, this study has limitations that provide opportunities for future research. First, we have focused on a firm's decision to adopt stock option pay and board reform without considering the details of how they were executed. Although this is beyond the scope of our study, the decision of adoption might be a symbolic reaction leading to decoupling (Westphal & Zajac, 1994, 2001). By taking into consideration to what extent a practice was actually executed, future research could increase our longitudinal understandings of the roles played by the power dynamics between executives and key stakeholders.

Second, although executives tend to have the decision-making authority to influence executive compensation in the Japanese context, such an influence may be limited in other contexts in which a remuneration committee chaired by an independent director make decisions on executive compensation, as is the case in the listed U.S. firms. Although it is likely that top executives do have a strong influence on their own pay in many other contexts, future research should

consider the degree to which executives can indeed shape their own compensation contracts.

Third, we focused on dyadic relationship generated by a tie. In our dataset, fortunately, the frequency of indirect ties is very low enough to disregard. Hence, we do not suffer from potential impact driven by indirect ties or tie network structure. However, in a different context where we can find a network structure of ties due to high frequency of indirect ties, an investigation on the impact of network structure of ties paves an important path for future research in corporate governance.

Lastly, as we suggested earlier, although we can observe director transfers between focal firms and other firms that are characterized by hierarchical relationships in many institutional contexts including emerging and Western economies, such practice may be used mostly in specific circumstances such as equity strategic alliance by Western firms. That may be why the power relationship in director interlocks is often ignored in prior research that focuses on Western firms. Also, received ties are often formed by current CEOs and senior executives in other firms in various institutional contexts such as the United States, and they typically do not represent their home institutions when they sit on the focal firm's board. This suggests that the presence of hierarchical relationship in received ties may be less common especially when there are no equity ties between the focal and other firms. Hence, our argument may be applied to only a limited number of director interlock cases in Western economies compared with director interlocks in other institutional contexts.

Organizations often learn about new practices from other organizations, and board interlocks are an important conduit of information (Haunschild, 1993; Johnson et al., 2013). However, it is not sufficient for executives and directors forming these ties to have access to information. Rather, the executives or directors who are exposed to information need to have self-interest or power to act on it. This suggests that we need to pay greater attention to the actor-level attributes of those creating ties and of their tied-to organizations to predict whether information will be translated into action.

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ENDNOTE

[1]In our models, we include ownership stake as a control variable to partial out the impact of sent and received ties. By doing so, we can observe whether ownership position is just a necessary condition or a necessary and sufficient condition for the adoption of stock option pay and board reform.

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