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SOCIAL NETWORK CONTINGENCY, SYMBOLIC MANAGEMENT, AND BOUNDARY STRETCHING

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A firm's structural position within corporate networks may affect the extent to which it engages in boundary stretching practices. Since social norms support low CEO compensation, offering high CEO compensation in China can be seen as a boundary stretching practice. Setting up a compensation committee (CC) may be viewed as a form of symbolic management in China. We argue that firms operating within central corporate network positions opt to pay higher CEO compensation without engaging in symbolic management. On the other hand, firms operating in structural hole positions tend to either pay lower CEO compensation or use CCs as a symbolic management tool in order to pay higher CEO compensation. Our hypotheses are largely supported based on 7,618 firm-year observations in China. Copyright © 2013 John Wiley & Sons, Ltd.

INTRODUCTION

Firms are concerned with legitimacy (Scott, 2001). A gray area of legitimacy is practice that is legal but may not be socially approved (e.g., gambling) or an illegal practice that is still socially accepted (e.g., employing illegal immigrants as day laborers) (Haynes *et al.*, 2010). Gray areas may offer opportunities to firms (Webb *et al.*, 2009), but stretching the boundaries of firms' practices into gray areas (hereafter 'boundary stretching practices') has its risks. Stretching boundaries can trigger social disapproval that raises the threat of intervention and retribution from powerful institutional, societal, and economic forces.

Considering the potential for social disapproval, firms differ in the extent to which they risk stretching their practice boundaries into gray areas. Some firms may also opt to use symbolic management in order to create the appearance of legitimacy for boundary stretching practices. Symbolic management is reliance on symbolic practices that conform to societal rules, norms, and expectations in appearance but not in substance (Westphal and Graebner, 2010; Westphal and Zajac, 1994, 1998, 2001). This raises two important but underexplored questions. (1) What influences the extent to which firms risk stretching the boundaries of their practices into gray areas of legitimacy? (2) Why are some firms more or less likely to rely on symbolic management in order to engage in boundary stretching practices?

Keywords: symbolic management; corporate interlocks; CEO compensation; China
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We draw on the social network perspective to address these questions. A key assumption of this perspective is that firms are not autonomous but instead are embedded within networks of relationships (Davis and Greve, 1997; Granovetter, 1985; Yang, Lin, and Peng, 2011). We suggest that both the extent to which a firm engages in boundary stretching practices and its propensity to do so via symbolic management are contingent on its structural position within its social network. Corporate interlocks, where the board members of one firm sit on the board(s) of one or more other firms, are an important form of the social network ties that shape firm behavior (Khanna and Thomas, 2009; Mizruchi, 1996).

Interlocks can be used by firms to coopt (absorb) potentially disruptive elements in order to mitigate potential external threats (Mizruchi, 1996; Pfeffer and Salancik, 1978). Cooptation is a self-defense mechanism against external threats (Selznick, 1949). We suggest that a firm's structural positions within corporate interlocks (specifically centrality and structural holes) affect its engagement in boundary stretching practices because these positions reflect differences in the cooptation of external forces that can mitigate external threats. Specifically, more central firms within corporate interlocks (when a firm can both independently and directly access a large number of other firms within the network) can build network-based self-defenses by forming trust-based reciprocal relationships with other firms by inviting board directors from other firms to sit on their boards (Au, Peng, and Wang, 2000; Ren, Au, and Birtch, 2009). Firms occupying structural holes (by brokering between otherwise unconnected firms known as alters), on the other hand, may find it difficult to use their network position as a mechanism for mitigating external threats. Brokers are often suspect as to whether they serve mutual interests (Stovel, Golub, and Milgrom, 2011).

We argue that if firms operating within structural holes positions opt to stretch the boundaries of their practices, they may rely on symbolic management as an alternative cooptation mechanism to network-based self-defenses (Fiss and Zajac, 2004; Westphal and Zajac, 1994, 1998, 2001). By using socially approved rhetoric or adopting socially approved structures firms may be able to divert attention from nonconformity with expectations in some practices (Westphal and Zajac, 1998).

We explore these issues in the context of Chinese CEO compensation. In our theoretical framework (see Figure 1), we argue that in China the higher CEO compensation that a firm pays the more it is stretching boundaries. This is because CEO compensation in China tends to be low under historic and institutionally embedded norms centered on income equality fostered by socialism (Adithipyangkul, Alon, and Zhang, 2011; Sun, Zhao, and Yang, 2010). The higher a CEO's compensation, the more likely that it will trigger interventions from officials who fear public outrage (Firth, Leung, and Rui, 2010). We argue that firms with a high level of centrality within corporate interlocks—hereafter 'central firms'—are more likely to pay higher CEO compensation because their network positions allow them to access resources reliably from network partners and thus reduce their resource dependence from the state (Pfeffer and Salancik, 1978). We also suggest that broker firms that occupy structural holes are less likely to possess such network-based self-defenses to mitigate against potential state interventions. Broker firms are therefore less likely to stretch their levels of CEO compensation.

Alternatively, firms occupying structural hole positions may rely on symbolic management in order to create the appearance of legitimacy by paying high CEO compensation. We suggest that setting up a compensation committee (CC) that in theory controls CEO compensation can be used as a symbolic management tool in China. In theoretical terms, a CC is a particularly good tool for us to study symbolic management because in 1999 the China Securities Regulatory Commission (CSRC) issued a recommendation that listed firms set up a CC. Setting up a CC signals that a firm is willing to 'go the extra mile' in order to ensure that its corporate control of CEO compensation is seen as scrupulous. Yet as we show in this paper, CCs not only do not limit CEO compensation but, in fact, have a positive effect on it.

Overall, we endeavor to make four contributions. First, we enrich our understanding of cooptation modes and their effects on firm behavior. Institutional theorists (Selznick, 1949) and resource dependence scholars (Pfeffer and Salancik, 1978) both suggest that firms coopt forces of uncertainty and potential threats. Social network theorists claim that social networks can be used as a mechanism for cooptation (Mizruchi, 1996). Our focus on the effect of a firm's

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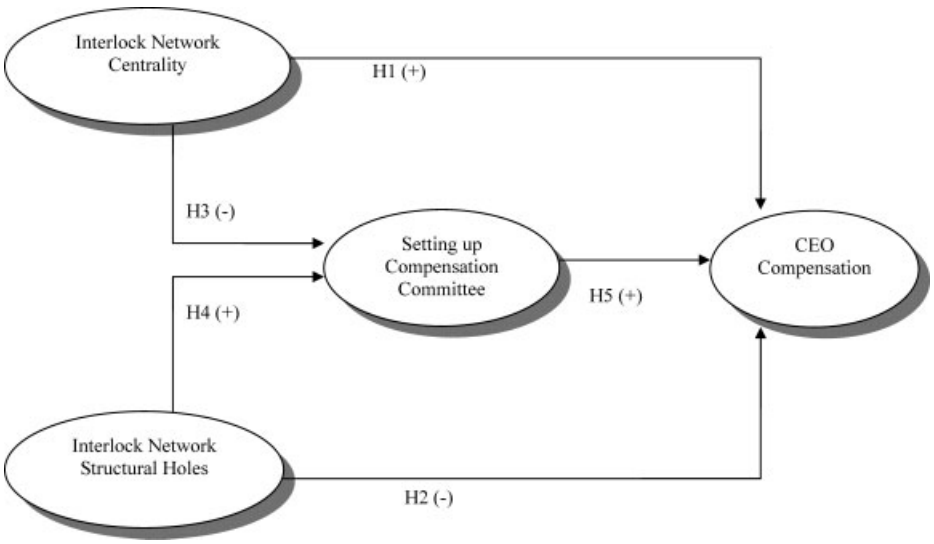

Figure 1. Theoretical framework

structural position within corporate interlocks on boundary stretching practices distinguishes our approach from previous studies on interlocks that focus on the diffusion process of new practices within social networks (Adithipyangkul *et al.*, 2011; Davis, 1991; Fligstein, 1985; Haunschild, 1993; Herrbach, 2005; Khanna and Thomas, 2009; Snyder, Priem, and Levitas, 2009).

Second, we explore conditions under which symbolic management is more likely to be used. Specifically, symbolic management is more likely to be adopted by firms with a network position that offers less self-defense against potential external threats. While the role of symbolic management in manipulating the perceptions of investors (Zott and Huy, 2007), shareholders (Fiss and Zajac, 2004), and capital markets (Westphal and Zajac, 1998) has been explored, identifying the contexts where symbolic management is more likely to be used is a question that mostly remains unanswered.

Third, previous studies in the area of symbolic management have not considered the possibility that setting up a CC can be used as a tool for symbolic management. While previous studies in developed economies note that CCs may in fact lead to higher CEO compensation (Conyon and Peck, 1998), the possibility that this may be because CCs can be used as a form of symbolic management has not yet been explored.

Finally, we address these issues in a less explored context: China. China is undergoing major institutional transitions that create abundant gray areas of legitimacy (Peng, 2004). This provides an ideal context for investigating the degree to which a firm may risk stretching the boundaries of its practices.

THEORETICAL BACKGROUND AND CONTEXT

Boundary stretching practices

The boundaries of legitimacy are not clear-cut. In gray areas where the legal, normative, and cognitive pillars of legitimacy are not clearly aligned (Scott, 2001; Webb *et al.*, 2009), various groups of actors contest practices that others consider legitimate (Fiss and Zajac, 2004; Sanders and Tuschke, 2007). We suggest that gray areas tend to be abundant during institutional transitions because various institutions often change at different paces (Roland, 2004) and because various actors hold different interpretations of what practices are legitimate (Kraatz, Broschak, and Shah, 2002).

In pre-transition China, strong norms for egalitarianism did not allow for large wage differentials between managers and workers (Walder, 1995). Higher wage differentials have now become one of the hallmarks of China's transition. Although high wage differentials are still contested, many firms in China now have significantly higher executive (and specifically CEO) compensation.

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In the face of social norms that favor low CEO compensation, paying high CEO compensation can be viewed as a boundary stretching practice. Firms may stretch practices because doing so either corresponds to the interest of powerful actors (such as CEO) (Fiss and Zajac, 2004) or opens up new opportunities (such as attracting talented CEO) (Webb *et al.*, 2009). We also suggest that firms differ in the extent to which they risk themselves by stretching practices into gray areas. It is difficult to predict up front when stretching a practice will go too far and trigger the threat of intervention or retribution from powerful institutional, societal, and economic forces (external threats). We suggest that the extent to which a firm risks stretching its practices into gray areas depends on firms' self-defenses against potential external threats. Corporate interlocks may offer these defenses.

Corporate networks as cooptation tools

According to Selznick (1949), firms that face potential threats from the environment often rely on cooptation as a self-defense mechanism. Cooptation is, 'absorbing new elements into the leadership and policy determining structure of an organization as a means of averting threats to its stability and existence' (Selznick, 1949: 34; Pfeffer and Salancik, 1978). We suggest that firms may also use corporate interlocks in order to coopt external forces. Specifically, firms' structural positions within social networks—i.e., occupying a central position or a structural hole position—reflect differences in their abilities to use networks to coopt forces and mitigate external threats. Firms in central positions may risk stretching practices into gray areas while firms in structural positions may refrain from doing so based on these differences. We also propose that, when a firm is short on the self-defenses that corporate interlocks may offer, it may rely on symbolic management as an alternative cooptation mechanism when stretching the boundaries of existing practices.

Empirical context

China is undergoing major institutional transitions. The changes entail the (partial) privatization of many state-owned enterprises (SOEs) and the separation of ownership from control (Walder, 2011). During these changes the strategic investment and resource allocation decisions of firms have been placed under the control of professional CEOs, who, similar to their Western counterparts, are responsible for maximizing shareholder value. Shareholding companies also set up boards in order to monitor the behavior of CEOs and design CEO compensation.

Since high-quality professional CEOs are in short supply in China (Lane and Pollner, 2008), offering greater CEO compensation in order to attract qualified CEOs often makes economic sense for boards. However, the typical CEO pay is very low in China,[1] which makes it difficult to attract skilled and talented CEOs (Buck, Liu, and Skovoroda, 2008). CEO pay in China used to be calculated based on seniority and civil service, and the norms were to pay nearly equal amounts to managers and workers. Although boards can appoint CEOs and decide their pay, breaching the implicit norms of seniority and (near) equality with workers can easily trigger public outrage concerning 'unfair' income distribution. This outcry can trigger the intervention of officials (Adithipyangkul *et al.*, 2011; Firth, Fung, and Rui, 2006). One form of state intervention is to manipulate access to state-controlled resources by punishing firms that deviate too significantly from the state's political and socio-economic priorities, including the goal to maintain social harmony and avoid public outrage (Firth *et al.*, 2010). The state still controls access to critical resources, such as access to raw materials and capital. For example, the lack of a high-functioning capital market makes it difficult to raise capital without state support (Keister, 2004). When it comes to deciding the level of CEO compensation, firms must therefore take into account the potential external threat from the state that high CEO compensation can activate.

HYPOTHESES

Network centrality and increased degree of boundary stretching

We argue that firms operating within central positions may be more willing to take a bolder approach in stretching the boundaries of their

[1] During our sample period (2001–2006) the average Chinese CEO at a listed firm only received $20,262 USD in cash compensation (based on our database).

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practices directly into gray areas of legitimacy. Central firms may depend less on the state for critical resources because central firms are able to form direct ties with other firms that provide alternative access such as those controlled by SOEs (Shropshire, 2010). Central firms are in a position to attract SOE directors due to the preference of these SOEs for direct ties based on stability, trust, and mutual obligations (i.e., *guanxi*). Direct ties with SOEs are desirable because, 'SOEs often are endowed with unique assets that the government is reluctant to privatize. SOEs often have exclusive control over valuable assets, such as natural resources, communication, and transportation networks or unique technologies' (Okhmatovskiy, 2010: 1025). SOEs also tend to be important customers for products and services (Toninelli, 2000). By coopting SOEs focal firms can use corporate interlocks to access resources from SOEs without fearing state interference; SOEs often have significant autonomy in making decisions (Ralston *et al.*, 2006). Directors from SOEs that provide access to valuable resources and large orders are in high demand for corporate interlocks (Ren, Au, and Peng, 2004).

Obtaining critical resources such as bank loans from the mostly state-owned banks is difficult in China; it often requires state sponsors in order to secure the loans and obtain favorable conditions (Bai, Lu, and Tao, 2006; Brandt and Li, 2003; Keister, 2004). However, bank loans can also be obtained by having a loan guarantee from a third party with a good reputation (Peng and Luo, 2000). Central firms can rely on their *guanxi*-based network ties to secure loan guarantees, while they also reciprocate such favors by providing loan guarantees to their network partners. Ren *et al.* (2009) found that centrality in Chinese business networks is significantly and positively correlated with loan guarantee ties (both receiving loan guarantees from other firms and giving loan guarantees to other firms). Centrality in China reflects the cooptation of forces that may mitigate the threat of potential state interventions. Firms with a higher level of centrality may therefore risk stretching the boundaries of existing practices by paying higher CEO compensation.

Hypothesis 1: The higher the level of centrality a focal firm has within the interlock director network, the higher the compensation of its CEO.

Structural holes and forbearance in stretching practice boundaries

Unlike central firms, firm occupying structural holes (broker firms) in China may not be able to count on their network members to provide reliably critical resources such as loan guarantees where the, 'magnitude of the losses caused by (potentially) defecting partners is (potentially) high' (Gargiulo and Benassi, 2000: 193). Securing these resources requires expectations for reciprocity and confidence that mutual obligations will be met. However, the very fact that broker firms often link unconnected parties (alters) and act as middlemen between them is likely to 'undermine (the alters') confidence in the broker' (Stovel *et al.*, 2011: 4) and reduce expectations for mutual reciprocity (Shi, Markoczy, and Dess, 2009). The demand for brokers tends to exist in situations where alters experience information asymmetries with regard to a transaction and where the alters are highly dependent on brokers as the only feasible path to access each other. However, this duality of information asymmetry and high dependence on the broker for transactions is the very combination that can undermine confidence in brokers (Levin, Walter, and Appleyard, 2010; Stovel *et al.*, 2011). Since brokers in this situation have more information than alters do, brokers may be suspected of using this asymmetry to their advantage to the detriment of alters (Batjargal, 2010; Gulati, Dialdin, and Wang, 2002). The confidence-reducing effect inherent in the brokerage role may therefore limit alters' willingness to provide critical resources to broker firms beyond those required for a specific transaction.

This problem is exasperated in the Chinese context because firms occupying structural holes that connect otherwise unconnected groups tend to be viewed with disdain, while belonging to close-knit networks and loyalty to such networks is the norm (Xiao and Tsui, 2007). This may make it particularly difficult for broker firms to attract directors from SOEs and other desirable firms.

Given the inherent confidence-reducing nature of occupying a structural hole position in China, one may argue that it is in the interest of firms in structural hole positions not to reveal their structural positions to others. We need to keep in mind, however, that broker firms do provide benefits

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to (potential) alters, otherwise they would not be able to sustain their brokerage positions. Benefits include allowing alters to access information that do not overlap with their information network (Burt, 1992), aiding the recognition of new opportunities (Ma, Huang, and Shenkar, 2011) and facilitating innovativeness (Burt, 1992). In addition, brokers play an important role of matching unconnected parties (e.g., sellers and buyers) to realize a particular transaction (Ma *et al.*, 2011; Shi *et al.*, 2009). Thus, there is a need for broker firms, which incentivize these firms to 'advertise' their existence and their services.

Broker firms also tend to exhibit patterns of behaviors that make it easy for partners to discern that they are dealing with a broker (Gulati, Sytch, and Tatrynowicz, 2010; Sytch, Tatarynowicz, and Gulati, 2011). For example, broker firms often take noticeable efforts to make it difficult for alters to form direct links with each other (Burt, 1992). Our open-ended interviews with top managers (one CEO and one vice president) from two Chinese companies concerning the discernibility of dealing with brokers reinforce these points. The interviewees suggested that while broker firms tend to publicize their abilities to provide access to other alters, they also tend to guard carefully direct access to these alters. Brokers, for example avoid copying alters in e-mail communications in order to prevent the possibility that alters will directly contact each other. Also, one of the interviewed managers shared with us:

> . . . if someone suggests that perhaps the parties should come together to have an open discussion they [the brokers] make every effort to discourage that to happen. They even go as far as to hide contact information to prevent this.

Thus, a firm's structural hole positions tend to be easily discernable and even known by alters based on information from the brokers themselves. However, the confidence-reducing effect inherent in brokerage reduces brokers' ability to count reliably on their social networks in order to reduce resource dependence on the state. Vulnerability to state interventions accordingly causes brokers to refrain from pushing the boundaries of their practices into the gray area of legitimacy. Thus,

> *Hypothesis 2: The higher the level of structural holes a focal firm has within the interlock director network, the lower the compensation of its CEO*.

Symbolic management as an alternative cooption tool

Firms may use symbolic management as an alternative means of coopting external threats. While symbolic management can take many forms (Fiss and Zajac, 2006; Higgins and Gulati, 2006), a common one is using externally visible structures (such as committees, procedures, and formal organizational positions) that formally meet legal requirements or social pressures. In this section we argue that voluntarily setting up a CC is such a visible formal structure for board control that signals a firm's seriousness in ensuring that CEO compensation is appropriate and is aligned with the firm's strategic goals (Landsberg, 2007; Main *et al.*, 2008). We then argue that CCs fill more of a symbolic then a substantive role by positively affecting CEO compensation versus constraining it.

CCs tend to be seen as important tools for monitoring and constraining CEO compensation (Daily *et al.*, 1998). That having a CC conforms with the prevailing norms of good corporate governance in the Chinese context is reflected in a survey conducted in 2006 by Hong Kong's Chartered Financial Analyst (CFA) Institute. The survey found that the surveyed CFA members (from government agencies, banks, securities companies, asset management companies, and financial advisory firms) rated the importance of a CC as an indicator of good governance practice as a 3.85 (with one denoting extremely unimportant and five denoting extremely important) (Ding *et al.*, 2010). In short, external constituencies consider having a CC as a credible signal for quality governance. This legitimizing role of having a CC makes them potentially useful for firms with weak network-based self-defense mechanisms such as structural holes. By creating the appearance of legitimacy CCs can mitigate the risk of stretching the boundaries of CEO compensation practices. On the other hand, central firms with network-based self-defenses will not need to rely on the legitimizing role of CCs for higher CEO compensation.

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Hypothesis 3: The higher the level of centrality that a focal firm has within the interlock director network, the lower the likelihood that the focal firm will set up a compensation committee.

Hypothesis 4: The higher the level of structural holes that a focal firm has within the interlock director network, the higher the likelihood that the focal firm will set up a compensation committee.

Compensation committee as a form of symbolic management

We argued above that having a CC is considered a credible signal for high-quality corporate governance by external constituents. Here we suggest that setting up CCs may serve more of a symbolic (rather than a substantive) role in CEO compensation.

The credibility of CCs to set fair, competitive, and justifiable CEO compensation lies in the rule of having mainly outside directors on the committee who are likely to be impartial and are less influenced by CEOs (Williamson, 1985). Yet Peng (2004) has shown that appointing outside directors to board positions in Chinese firms often serves a symbolic purpose without actually improving corporate governance. In addition, Chen, Liu, and Li (2010), and Ding, Akhtar, and Ge (2006) showed that when Chinese firms set up CCs they tend to appoint directors who believe that CEO compensation should be based on comparison with global peer companies (that tend to pay their CEOs much more). This suggests that while in theory CCs are expected to improve monitoring and constrain CEO compensation, in practice CC members are selected with the intention of favoring higher CEO compensation. That CCs may be used to justify higher CEO compensation has been documented by West by Wade, Porac, and Pollock (1997) who showed that CCs in fact can become legitimizing tools for CEO compensation by varying justifications in ways that favor higher CEO compensation (e.g., external validation, shareholder interest alignment, and reference to firm performance). Similarly, Crystal (1992) argued that CCs tend either to elevate or to downplay firm performance measures in ways that helps them justify higher CEO compensation. Accordingly, we expect that while the existence of CCs appears to conform with the normative requirement for effective monitoring and constraint of CEO pay, in substance CCs may not actually constrain compensation but may have a positive effect on CEO compensation.

Hypothesis 5: If a focal firm has set up a compensation committee, then its CEO has a higher level of compensation than other firms without a compensation committee.

METHODS

Data

We sample firms publicly listed on the Shanghai and Shenzhen Stock Exchanges between 2001 and 2006 (inclusive). To our knowledge no previous studies have explored the practice of setting up CCs in China, nor have they explored CEO compensation in China for the length of time we do here (Buck *et al.*, 2008; Firth, Fung, and Rui, 2007; Firth *et al.*, 2006; Kato and Long, 2006). For this study we developed a unique dataset of corporate interlocks among listed firms.

Due to different reporting regulations we follow Firth *et al.* (2006) in excluding all financial services firms and conglomerates from our sample. Our sample includes 7,618 firm-year observations spanning six years. The number of firms ranges from 1,097 in 2001 to 1,405 in 2006, representing 92 percent of all listed firms. Setting up a CC is a relatively new practice in China. Although the CSRC began recommending this practice for listed firms in 1999, only 7.74 percent of the sampled firms had such a CC in 2000. Between 1998 and 2000 most Chinese firms did not have a CC (Firth *et al.*, 2006). However, since 2000, listed firms have increasingly adopted CCs, and a total of 61.92 percent of our sampled firms had set up a CC by 2006. The six-year period between 2001 and 2006 is accordingly an ideal period for examining the practice of voluntarily setting up a CC in China.

We manually collected information on the background of CEOs and interlock director linkages from the annual reports of each firm in our sample. Data are from the China Stock Market and Accounting Research (CSMAR) database and Wind database. Both are widely used in recent studies (Bai and Xu, 2005; Kato and Long, 2006; Lin *et al.*, 2009). While the average board tenure

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for directors in China is three years, the overall interlock network pattern among all listed firms is changing much faster than the average of a single firm board due to the ongoing institutional transitions (Ren *et al.*, 2009). We therefore collected director data annually and compiled a list of directors in order to construct interlocking directorate networks, then finally calculated network variables using UCINET 6.[2]

Variables

CEO compensation

CEO compensation refers to the natural log of the annual cash compensation (salary and bonuses) that CEOs received between 2001 and 2006. It does not include long-term incentive plans (LTIPs), such as stock options, consistent with all previous compensation studies in China (Buck *et al.*, 2008; Firth *et al.*, 2006; Kato and Long, 2006). We also suggest that conceptually cash compensation represents the closest match to the construct 'compensation' in China. Unlike stock options whose value is not entirely controlled by boards, cash is directly controlled by boards. Consequently, using only cash has been argued as a strength of Chinese data in CEO compensation research (Buck *et al.*, 2008).

Compensation committee

Following Conyon and Peck (1998) we coded whether a firm has a CC (1) or not (0) as a dummy variable.

Network centrality

Centrality measurements generate the expected values for certain kinds of node outcomes such as the speed and frequency of reception. We calculated the degree of centrality for a firm's interlock network by using the command 'Network . . . Centrality . . . Degree' in UCINET 6 (Borgatti, Evereff, and Freeman, 2002). The software estimates this by simply counting the number of other firms that are adjacent to the focal firm within the director interlocks network. Specifically, degree centrality is calculated as

$$C_D\,(P_k) = \sum_{i=1}^{n} a\,(p_i, p_k)$$

where $a(p_i,p_k) = 1$ if and only if an actor and an actor are connected by a line, and 0 otherwise.

The interpretation of the above formula is that the degree centrality $C_D\,(P_K)$ for an actor is equal to the total number of ties that actor is p_k adjacent with for all other actors within the network. We measure *structural holes* as a constraint using the command 'Network . . . Ego Network . . . Structural Holes' in UCINET (Borgatti *et al.*, 2002). Following Burt (1992) we first obtained the effective size of the ego network. The ego is an individual focal node representing a firm's own interlock director within the network. Networks have as many egos as nodes. The size of an ego's network is essentially the number of contacts or alters minus the average degree of alters within the ego network, not counting the ties to the ego. We calculated the efficiency of the ego's network by dividing the effective size by the number of alters within the ego's network. The higher the score of a firm's own interlock directors in accessing the efficiency of the ego's network, the richer this individual firm is in terms of structural holes. If the network is heavily fragmented, then the above network measurement may not be appropriate. We accordingly ran fragmentation tests. The results showed that the average fragmentation level of the network across six years (2001–2006) was 0.48, suggesting that the network is not highly fragmented. In Figure 2 we show the overall network in 2006 with a fragmentation index close to the average level (around 0.50). The network formed during 2006 includes several major components and some isolates. The largest component contains 992 companies taking up 69 percent of the total 1,433 companies during that year.

Control variables

Marketization index

Fan, Wang, and Zhu (2007) developed a 12-point marketization index on a province-by-province basis capturing the degree of institutional transition toward increased market competition in China.

[2] We hired three Master's students to double-check the names of directors through carefully reviewing the profile of each director in annual reports and identified directors who are different individuals with the same names.

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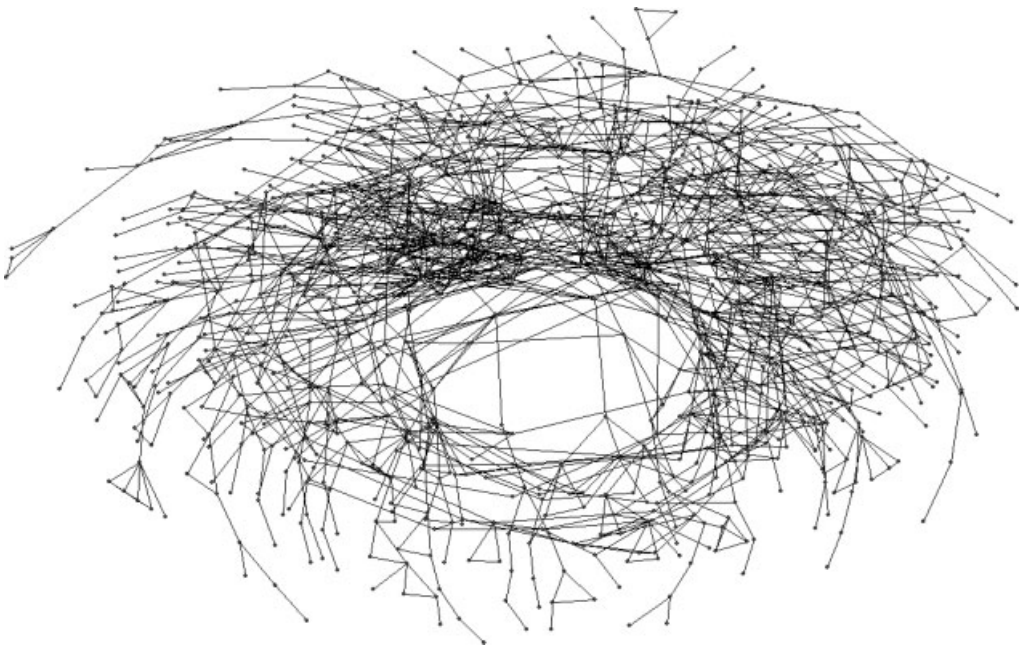

Figure 2. Largest component in the interlocks network, 2006

Following Shi, Sun, and Peng (2012) we used this index based on the headquarters region for each listed firm. Marketization as a form of deregulation is likely to increase firms' autonomy and may have a positive effect on CEO compensation (Cho and Shen, 2007).

Firm size

Firm size is measured as the log number of employees during each year (Tosi *et al.*, 2000). Firm size has been shown to affect CEO compensation due to the increasing complexity that managing a larger firm entails, as well as the increasing prestige and power of the CEO that results from managing such firms.

We used a dummy variable in order to distinguish between state-owned enterprises (SOEs) (1) and non-SOEs (0) (Firth *et al.*, 2006). We controlled for state ownership because SOEs tend to conform to the norm of near equality between the CEO's and workers' compensation; this negatively affects CEO compensation in publically listed Chinese firms (Firth *et al.*, 2007).

Controlling shareholder shares

We computed the amount of the largest *shareholder's shares* divided by all issuing shares. A higher level of controlling shareholder shares would indicate greater power for the controlling shareholders and increased monitoring of managers. This may limit CEO compensation (Mengistae and Xu, 2004).

Performance

We use return on equity (ROE) to measure firm *performance*. ROE (the net income divided by equity) is commonly used in compensation research (Tosi *et al.*, 2000). Maximizing firm profitability and increasing shareholder value are the goals that CEOs tend to strive for; ROE measures this well. We do not use stock market return because there is no broad consensus that China's stock markets are efficient or that the prices are set in a fair and transparent manner (Peng, 2004).

Slack

There is a debate regarding the role of *organizational slack* (Tan and Peng, 2003). It is possible that slack may help CEOs pursue firm growth and may have a positive effect on compensation. We measured slack as the debt divided by the equity ratio (Zajac and Westphal, 1995).

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Diversification

Corporate *product diversification* may also influence CEO compensation (DeYoung, Evanoff, and Molyneux, 2009). We measured diversification using the Herfindahl index as

$$HI = \sum_{i=1}^{M} P_i^2$$

where P_i is the sales attributed to segment i.

Outside director ratio

Outside directors are assumed to play an important monitoring role for executive compensation on the board (Berrone and Gomez-Mejia, 2009). Following Peng (2004) we measured the outside director ratio as the percentage of board positions held by outside directors.

CEO duality

CEO power has been argued to be a driving force behind higher CEO compensation (Peng *et al.*, 2010; Ryan and Wiggins, 2004). An indicator of CEO power is chair/*CEO duality*, which occurs when the CEO is also chair of the board (Wade, O'Reilly, and Pollock, 2006). We controlled for CEO duality in order to compensate for the possible effect of CEO power on CEO compensation. We coded as 1 the firms where the CEO is also the board chair, and 0 otherwise.

CEO education

Education is often used to capture human capital (Fiss, 2006). The value of the *CEO's education* ranges between 0 and 4: 0 is no college, 1 is some college, 2 is holding a Bachelor's degree, 3 is holding a Master's degree, and 4 is holding a doctorate degree.

CEO gender, CEO age, and firm age

We also controlled for the *CEO's gender* because gender has been show to affect CEO compensation (Renner, Bowlin, and Rives, 2005). This value is 1 when the CEO is female and 0'when the CEO is male. It is particularly important to control for the *CEO's age* in China-based research since pay has traditionally been based on seniority where older CEOs are expected to receive higher compensation. The *age of a firm* is also controlled since younger firms may not be as institutionalized as older firms pertaining to CEO compensation (Shropshire, 2010). We also employed dummy variables in order to control for year and industry effects. The industry dummy variables represent each firm's primary industry classification following CSRC's *Industry Classification Guide of Listed Companies*.

Networked practice diffusion

Previous research has found that director interlocks increase the *diffusion of firms' practices* (Davis, 1991; Davis and Greve, 1997; Shipilov, Greve, and Rowley, 2010). Following Shipilov *et al.* (2010), we first calculated the influence of director networks on setting up a CC:

$$\text{Diffusion1} = (\sum_{\text{j}\in\text{P}} \text{D}_\text{j})/\text{N}$$

where P is the set of interlock directors for a focal firm; D is an indicator variable capturing whether or not a firm, except the focal firm where the No. J interlock director on its board, has adopted a CC during the previous year (1 if there is a CC and 0 if there is no CC); and N is the total number of interlock directors within the focal firm. We only included this control variable in models where the focal firm set up a CC.

The diffusion process among director networks may also influence CEO compensation. We built a new measurement here:

$$\text{Diffusion2} = (\sum_{\text{j}\in\text{P}} \text{Overpay}_\text{j})/\text{N}$$

where P is the set of director interlocks for the focal firm, and $Overpay_i$ is the residuals from the CEO compensation from the baseline model in Table 2 (without controlling diffusion 2). A positive residual shows that the CEO is overpaid because his or her actual compensation is higher than his or her predicted compensation (Wade *et al.*, 2006); N is the total number of interlocked directors within the focal firm. We only included this control variable in models examining CEO compensation.

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Estimation strategy

According to our theoretical framework in Figure 1, we have three tasks in empirically examining our hypotheses: (1) testing the effects of network centrality and structural holes on CEO compensation (H1 and H2), (2) testing the effects of network centrality and structural hole positions on the propensity to set up a CC (H3 and H4), and (3) testing the effect of setting up a CC on CEO compensation (H5). While testing for the effects of centrality and structural holes on CEO compensation (H1 and H2) are only one chain long, testing whether these affect CEO compensation with or without having a CC (H4 and H5) involves two lengths, the variable of setting up a CC is an endogenous variable linking the relationships between the two kinds of network characteristics and CEO compensation. Namely, the focal independent variable (setting up a CC) with regard to the consequent variable (CEO compensation) in Task (3) becomes a dependent variable in Task (2) (Aneshensel, 2002). For Tasks (1) and (3) we not only include centrality and structural hole position as the independent variables, but also establish a focal relationship between setting up a CC and the dependent variable CEO compensation. We built multiple models based on random-effects generalized least squares (GLS) regression in order to examine these relationships. For Task (2) we applied the pooled logistic model in order to test the effects of the antecedent variables network centrality and structural hole position on setting up a CC. We also used the Cox proportional hazards model and found similar results (D'Agostino *et al.*, 1990).[3]

We examined H1, H2, and H5 on CEO compensation using a random-effects GLS regression in order to overcome the burdens of panel data in violating two basic assumptions of the OLS regression: the autocorrelation among repeated observations across years and the heteroscedasticity problem (Hsiao, 2003). By using a GLS we can obtain the estimators and investigate the time-series component of the data while maximizing the degrees of freedom.

Since the data can fit either a random-effect or a fixed-effect model, we ran Hausman (1978) tests for all possible regressions in order to determine the most appropriate method. Generally, fixed-effects models are preferred in panel data analyses. However, because some of our control variables (such as the SOE and CEO duality) are stable across time for our sample firms, a random-effects approach better suits our data. The Hausman tests show that the Chi-statistics for the corresponding regressors are not significant. The null hypothesis (the random-effect model) is therefore accepted but only for datasets where the fixed effects are uncorrelated with the other independent variables. We therefore estimated the effects of interlock network characteristics and the existence of a CC on CEO compensation using the random-effects model. We used a hierarchical regression analysis to test the effects of the three predicted variables (H1, H2, and H5). We lagged all variables by one year, except the dependent variables (CEO compensation) in all models, resulting in a sample of 5,655 observations in Table 3. Since we used residuals from the baseline model to predict CEO overpay and diffusion 2 for the following year this further reduced our sample size to 4,602 in Table 2.

We have multiple observations for a firm over several years that may raise the concern of potential interdependence. We addressed this using White's robust standard errors. Robust standard errors combined with the clustering option relax the assumption of interdependence within the cluster in provinces (Petersen, 2009). We conducted our analysis using a random-effects GLS regression and pooled logistic regression in Stata 10.

RESULTS

Descriptive statistics are presented in Table 1. The correlation matrix suggests that multicollinearity is not a severe problem. Furthermore, in a regression with all independent variables and control variables used to predict CEO compensation the highest *Variance Inflation Factor* (VIF) is 'industry 11' with 6.55, and the average VIF is 2.51; these are is well within the accepted threshold of 10.

Table 2 presents the results of the random-effects GLS regressions on CEO compensation. Under hierarchical regression analysis, the baseline model reports the effects of the control variables; Models 1, 2, and 3 examine H1, H2, and H5 respectively. Model 1 in Table 2 strongly

[3] Results are not reported here for brevity, but are available on request.

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Table 1. Descriptive statistics and correlations*

Variable	1	2	3	4	5	6	7	8	9	10
1. CEO compensation	1									
2. Marketization index	0.386	1								
3. Firm age	−0.0132	0.1289	1							
4. Firm size	0.0444	−0.1048	−0.1174	1						
5. SOE	−0.0025	−0.0897	−0.0978	0.18	1					
6. Controlling SH shares	−0.055	−0.0726	−0.3468	0.2309	0.3179	1				
7. Performance	0.1956	0.0117	−0.1435	0.111	0.0889	0.1445	1			
8. Slack	−0.0896	0.0545	0.1043	−0.0482	−0.0733	−0.0717	−0.3824	1		
9. Diversification	−0.0355	−0.0687	−0.3676	0.2317	0.2979	0.2197	0.1412	−0.0638	1	
10. Independent director ratio	0.2056	0.2976	−0.055	−0.0419	−0.1458	−0.0703	−0.0249	0.0475	−0.0704	1
11. CEO education	0.1032	0.0961	0.0229	−0.0381	0.0242	−0.0225	0.01	−0.0197	−0.0132	0.054
12. CEO gender	0.0001	0.0367	0.0369	−0.0361	−0.052	−0.0509	0.0095	0.0005	−0.0564	0.0337
13. CEO age	0.0413	0.0575	−0.0249	0.1279	0.1515	0.0834	0.042	−0.0027	0.0839	−0.011
14. CEO duality	0.0216	0.0217	0.0268	−0.0336	−0.0692	−0.0623	−0.0173	−0.0028	−0.0587	0.0241
15. Diffusion1	0.204	0.2377	−0.0507	0.0006	−0.0169	−0.063	−0.0114	0.0132	−0.0598	0.3778
16. Diffusion2	0.0628	0.0202	0.0057	−0.0025	0.0058	0.0038	−0.0106	−0.0114	0.0011	0.0465
17. Compensation committee	0.1838	0.1318	−0.0583	−0.0061	0.0315	−0.0434	0.0123	−0.0143	−0.0456	0.3252
18. Centrality	0.2028	0.2316	0.0331	0.0305	0.0482	−0.0597	0.0385	−0.0035	−0.0604	0.274
19. Structural holes	−0.1975	−0.17	−0.015	−0.0389	−0.0423	0.024	−0.0427	−0.0028	0.0287	−0.2471
Mean	11.63821	6.81111	12.46499	7.258785	0.74445	42.32428	1.00416	0.533612	0.227941	0.2692
Standard deviation	0.898914	2.015649	3.961739	1.310984	0.436204	16.81052	11.65046	0.754628	0.140726	0.126875

Variable	11	12	13	14	15	16	17	18	19
11. CEO education	1								
12. CEO gender	0.0335	1							
13. CEO age	−0.323	0.0044	1						
14. CEO duality	0.0004	0.0354	0.0974	1					
15. Diffusion1	0.0606	0.0069	0.0064	0.0082	1				
16. Diffusion2	0.0051	0.0108	−0.0103	0.0081	0.0461	1			
17. Compensation committee	0.0314	−0.005	0.0178	0.0152	0.2426	0.0317	1		
18. Centrality	0.056	−0.0124	0.0228	−0.0423	0.2931	0.0402	0.2299	1	
19. Structural holes	−0.0232	−0.0005	−0.0341	0.0139	−0.2841	−0.0314	−0.1764	−0.5115	1
Mean	2.190391	0.040091	44.77368	0.109459	0.327155	0.008763	0.417561	0.277227	0.212497
Standard deviation	0.937466	0.196188	6.961275	0.312239	0.365637	0.27922	0.493185	0.278709	0.096148

* Correlations above |0.12| are significant at the 0.05 level.

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supports H1, underscoring the importance of the effect of interlock network centrality on CEO compensation. Based on our scale, increasing one standard deviation of interlock network centrality is equivalent to 0.32 percent higher CEO earning ($p < 0.01$).[4] Comparing Model 1 and the baseline model reveals that adding interlock network centrality significantly improves model fit ($\Delta R^2 = 0.0109$, $p < 0.001$).

Model 2 in Table 2 strongly supports H2. Specifically, CEO compensation decreases by approximately 0.04 percent when structural holes increase 1 unit ($p < 0.01$). Comparing Model 2 with Model 1 reveals that adding structural holes explains significant incremental variance in CEO compensation ($\Delta R^2 = 0.0043$, $p < 0.001$). This analysis shows that these two types of network characteristics have a strong effect on CEO compensation.

In Model 3 the coefficient for CC is positive and significant ($p < 0.05$), showing that in firms with CCs CEOs command 5.94 percent more compensation than CEOs at firms without CCs. This finding supports H5. Comparing Model 3 and the baseline model shows that the CC dummy improves model fit significantly ($\Delta R^2 = 0.0095$, $p < 0.001$).

Table 3 presents the results of the logistic regression model examining the likelihood of setting up a CC. In Model 6 the coefficient for interlock network centrality is negative and significant ($p < 0.001$), suggesting that interlock network centrality negatively affects the likelihood of setting up a CC. H3 is therefore supported. Model 7 shows that the coefficient of structural holes is positive and significant ($p < 0.001$), suggesting that H4 is also supported.

We also conducted likelihood ratio tests in order to determine whether or not adding the predictor variables significantly improves the model fit. The likelihood ratio test indicated that introducing centrality into the baseline model significantly increases the model fit ($\chi 2 = 27.55$ for one variable, $p < 0.01$). When introducing centrality and structural holes together, we find that the likelihood ratio is significant ($\chi 2 = 39.45$ for two variables, $p < 0.01$). This implies that adding these two predictor variables results in a statistically significant improvement in model fit.

It is also important to test whether or not our 'proposed mechanisms are indeed present in the empirical setting' (Miller and Tsang, 2011: 148). The diffusion of CEO compensation practices via corporate interlocks may be a competing mechanism to our proposed mechanism (centrality and structural hole effects). We separated this diffusion effect by specifically designing and controlling for two diffusion variables in all models. After adding the two network structure variables (centrality and structural hole position) both the coefficient and significant level of diffusion2 decrease from the baseline model to Model 2, and from Model 3 to Model 5 in Table 2. Similarly, both the coefficient and significant level of diffusion1 decrease in Models 6 and 7 in Table 3. These results point to the significant explanatory power of our two network structure variables. In fact, the explanatory power of these network structure variables is stronger than the explanatory power of the two diffusion variables. These latter variables are significant when they are entered alone but become insignificant in the models that also include the network structure variables. We further compared the partial and semipartial correlations of CEO compensation with the network structure variables and diffusion2, and find that two network structure variables have higher partial and semipartial correlations than diffusion2. This suggests that a firm's adoption of some practices attributed to diffusion by previous work may in fact be attributable to the firm's structural position within the network.

We further tested the indirect effect on CEO compensation by running a random-effects GLS regression on CEO compensation in Models 4 and 5 in Table 2. In Model 4, when centrality and CC are both included, the coefficient of centrality is 0.12. As predicted, centrality negatively and significantly affects the likelihood of setting up a CC in Model 6 in Table 3. However, after adding the effect of setting up a CC in Model 4, the effect between centrality and CEO compensation increases from 0.0113 (in Model 1) to 0.012 (in Model 4) in Table 2. This suggests that firms occupying a central position within corporate interlocks opt to have higher CEO compensation

[4] While CEO compensation uses the natural logarithm in our models, in the text we have transformed all coefficients in the models using the e^{β}-1 formula in order to obtain the ratio of the increase in compensation. In this example $\beta = 0.0113$ in Model 1 in Table 2; after transformation using the e^{β}-1 formula, we obtained 0.011364. We multiplied this with one standard deviation of centrality and obtained a 0.32 percent increase. There are similar calculations for the coefficients of structural holes and CCs in Models 2 and 3.

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Table 2. Random effects GLS regression on CEO compensation

Predictor variables (hypothesized sign)	Baseline model	Model 1	Model 2	Model 3	Model 4	Model 5
Centrality (H1^{+})	—	0.0113**	0.00852*	—	0.0120**	0.00862*
	—	(0.00401)	(0.00410)	—	(0.00410)	(0.00430)
Structural holes[a](H2-)	—	—	−0.440**	—	—	−0.472***
	—	—	(0.138)	—	—	(0.140)
Compensation committee (H5^{+})	—	—	—	0.0577*	0.0565*	0.0543*
	—	—	—	(0.0266)	(0.0270)	(0.0270)
Control variables						
Marketization index	0.137***	0.135***	0.134***	0.140***	0.139***	0.138***
	(0.0102)	(0.0102)	(0.0102)	(0.0105)	(0.0105)	(0.0104)
Firm age	−0.00911^{+}	−0.00982*	−0.00982*	−0.00857^{+}	−0.00946^{+}	−0.00948*
	(0.00471)	(0.00469)	(0.00465)	(0.00485)	(0.00484)	(0.00480)
Firm size	0.0585***	0.0661***	0.0657***	0.0609***	0.0690***	0.0686***
	(0.0162)	(0.0152)	(0.0151)	(0.0167)	(0.0155)	(0.0153)
SOE dummy	0.0708^{+}	0.0683^{+}	0.0677^{+}	0.0656	0.0655	0.0648
	(0.0405)	(0.0411)	(0.0411)	(0.0411)	(0.0413)	(0.0414)
Controlling SH shares	−0.0658*	−0.0685*	−0.0712*	−0.0785*	−0.0828*	−0.0861**
	(0.0307)	(0.0326)	(0.0324)	(0.0311)	(0.0329)	(0.0328)
Performance	0.00629***	0.00674***	0.00673***	0.00667***	0.00655***	0.00654***
	(0.00130)	(0.00135)	(0.00135)	(0.00131)	(0.00132)	(0.00132)
Slack	−0.0245	−0.0240	−0.0238	−0.0269	−0.0259	−0.0258
	(0.0198)	(0.0205)	(0.0202)	(0.0189)	(0.0190)	(0.0187)
Diversification	0.480	0.504	0.535	0.630^{+}	0.686^{+}	0.722^{+}
	(0.377)	(0.399)	(0.397)	(0.380)	(0.402)	(0.401)
Independent director ratio	0.156	0.114	0.106	0.181	0.128	0.124
	(0.154)	(0.156)	(0.156)	(0.147)	(0.148)	(0.147)
CEO education	0.0245	0.0229	0.0244	0.0243	0.0238	0.0252
	(0.0150)	(0.0154)	(0.0153)	(0.0156)	(0.0158)	(0.0157)
CEO gender	−0.104	−0.0907	−0.0912	−0.0999	−0.0879	−0.0892
	(0.0691)	(0.0717)	(0.0711)	(0.0721)	(0.0732)	(0.0725)
CEO age	0.00121	0.00165	0.00174	0.000890	0.000979	0.00106
	(0.00208)	(0.00211)	(0.00210)	(0.00222)	(0.00222)	(0.00221)
CEO duality	0.0197	0.0278	0.0273	0.0387	0.0440	0.0429
	(0.0399)	(0.0409)	(0.0407)	(0.0400)	(0.0408)	(0.0408)
Diffusion2	0.0590*	0.0497^{+}	0.0467	0.0608*	0.0521^{+}	0.0489
	(0.0285)	(0.0293)	(0.0293)	(0.0299)	(0.0304)	(0.0305)
Year effects	Included	Included	Included	Included	Included	Included
Industry effects	Included	Included	Included	Included	Included	Included
Intercept	10.47***	10.38***	10.339***	10.41***	10.32***	10.42***
	(0.197)	(0.194)	(0.174)	(0.203)	(0.200)	(0.200)
R^2	0.2638	0.2747	0.2790	0.2733	0.2822	0.2866
ΔR^2	—	0.0109***	0.0152***	0.0095***	0.0184***	0.0228***
N	4602	4602	4602	4602	4602	4602

Standard errors are in parentheses. $^{+}p < 0.1$; $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$.
[a] Structural holes are multiplied by 1000 in the regressions to avoid the coefficients in the table being too small.

without engaging in symbolic management (by setting up a CC). Meanwhile, structural holes have a significantly positive effect on setting up a CC in Model 7 in Table 3. In Model 2 in Table 2 structural holes also show a significant negative relationship with CEO compensation. However, when we add a CC together with structural holes in Model 5, the direct effect of structural holes on CEO compensation in Model 5 becomes more significantly negative ($\beta = -0.472$, $p < 0.001$) than the direct effect of structural holes in Model 2 without a CC involved ($\beta = -0.440$, $p < 0.01$). The result indicates that firms in structural holes positions tend to have lower CEO compensation without CC or that they use CCs to create the appearance of legitimacy

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Table 3. Logistic model on setting up a compensation committee

Predictor variables (hypothesized sign)	Baseline model	Mode 6	Model 7
Centrality (H3-)	—	−0.652***	−0.448***
	—	(0.115)	(0.126)
Structural holes[a](H4+)	—	—	1.237***
	—	—	(0.366)
Control variables	—	—	—
Marketization index	0.0302+	0.0220	0.0209
	(0.0159)	(0.0163)	(0.0163)
Firm age	−0.0252**	−0.0281***	−0.0285***
	(0.00799)	(0.00813)	(0.00811)
Firm size	−0.000927	−0.00497	−0.00756
	(0.0249)	(0.0256)	(0.0255)
SOE dummy	0.448***	0.387***	0.381***
	(0.0719)	(0.0731)	(0.0733)
Controlling SH shares	−0.0184	−0.0216	−0.0274
	(0.0676)	(0.0695)	(0.0693)
Performance	0.00162	0.000492	0.000226
	(0.00283)	(0.00287)	(0.00287)
Slack	−0.145*	−0.145*	−0.149*
	(0.0596)	(0.0585)	(0.0584)
Diversification	−0.999	−0.891	−0.825
	(0.809)	(0.832)	(0.829)
Independent director ratio	1.234**	1.198**	1.183**
	(0.396)	(0.403)	(0.402)
CEO education	−0.000252	−0.00766	−0.00622
	(0.0335)	(0.0341)	(0.0341)
CEO gender	−0.132	−0.144	−0.149
	(0.149)	(0.151)	(0.152)
CEO age	−0.00563	−0.00536	−0.00553
	(0.00458)	(0.00464)	(0.00466)
CEO duality	0.217*	0.220*	0.216*
	(0.0943)	(0.0957)	(0.0957)
Diffusion1	0.251*	0.145	0.102
	(0.0990)	(0.0991)	(0.100)
Intercept	0.881*	0.858*	1.252**
	(0.401)	(0.407)	(0.423)
Year effects	Included	Included	Included
Industry effects	Included	Included	Included
Log pseudo likelihood	−3566.3976	−3445.7813	−3440.1333
LL ratio relative to baseline model	—	27.55***(1)	39.45***(2)
N	5655	5655	5655

Standard errors are in parentheses.
+ $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.
[a] Structural holes are multiplied by 1000 in the regressions to avoid the coefficients in the table being too small.

for higher CEO compensation. That the effect of structural holes on CEO compensation remains significant even after including the CC variable also suggests that CCs play a role of a partial mediation. This indicates that in addition to the symbolic role CCs play, some of the newly set up CCs are also simply ineffective in constraining CEO compensation.

Post hoc robustness checks

Recent studies have raised the possibility that the high level of pay may be a sign of increasing pay–performance sensitivities for CEO compensation in China (Buck *et al.*, 2008; Firth *et al.*, 2006). We also examined this issue using a similar random-effects GLS regression from the following formulas:

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$$Pay\text{–}performance\ sensitivities = \Delta Compensation / \Delta Performance$$

$$\Delta Compensation = \beta_o \times \Delta Performance + \beta_{predictor\ variable} \times Predictor\ variable +$$

$$\beta_{moderator} \times Predictor\ variable \times \Delta Performance + \beta_{control\ variables} \times Control\ variables + u.$$

A common method of testing pay–performance sensitivities is to examine whether or not the coefficient $\beta_{moderator}$ is significant. We calculated the change of ROE from year t to year t-1 in order to measure the change in performance. The results are shown in Table 4. The baseline model supports Buck *et al.*'s (2008) finding that ΔPerformance significantly increases ΔCEO Compensation. While Model 8 suggests that setting up a CC increases ΔCEO Compensation (marginal support for H3 at $p < 0.1$), its interaction effect with ΔPerformance in Model 9 is not significant for ΔCEO Compensation. This means that setting up a CC has *not* increased pay–performance sensitivities, supporting our argument that setting up a CC serves a *symbolic* (but nonsubstantive) purpose justifying increased CEO compensation.

Model 10 in Table 4 shows that network ΔCentrality positively increases ΔCompensation, providing further support for H1 at $p < 0.05$. However, ΔCentrality's interaction with ΔPerformance in Model 11 is not significant on ΔCEO compensation. Model 12 shows that ΔStructural holes is negatively related with ΔCompensation, providing marginal support for H2 at $p < 0.10$. However, its interaction effect with ΔPerformance in Model 13 is not significant. Models 11 and 13 therefore suggest that the two types of network characteristics have not improved pay–performance sensitivities, although there is a positive relationship between ΔCentrality and ΔCEO Compensation in Model 10 and a weak negative relationship between ΔStructural holes and ΔCEO Compensation in Model 12.

DISCUSSION

Going beyond previous work on cooptation, corporate interlocks, symbolic management, and CEO compensation in China, four contributions emerge from this study. Our first contribution is to enhance our understanding of cooptation modes (Pfeffer and Salancik, 1978; Selznick, 1949). The concept that network positions (centrality and structural holes) correspond with different opportunities for firm cooptation by building network based self-defense is new to this study. It is also a new contribution to suggest that network-based self-defense and symbolic management can be used as alternative modes of cooptation mechanisms by firms that engage in boundary stretching. This study is the first to show that a firms' choice to stretch the boundaries of its practices is *contingent on* its structural position within its social network. Our focus on this contingency role of social networks distinguishes our approach from previous work that has tended to focus on the diffusion of new practices (Adithipyangkul *et al.*, 2011; Davis, 1991; Fligstein, 1985; Haunschild, 1993; Herrbach, 2005; Snyder *et al.*, 2009). While existing research has uncovered the mechanisms though which interlocks facilitate the adoption of new practices, it has not yet addressed the effect of firms' structural positions on boundary stretching. We show that firms occupying central positions are more at the vanguard of stretching existing practices, while firms within structural holes position are more cautious. These findings are interesting because structural holes are often seen as conducive to innovation. According to Burt (2004), structural holes that exist between groups are innovative because connecting different groups exposes them to new ways of thinking. While this may be true for engaging in cutting-edge innovation, this is not necessarily true for boundary stretching. The diffusion literature shows that central actors are quicker to adopt innovations consistent with the norms of the existing social system (Davis and Robbins, 2005). Our findings go one step further by showing that central actors are also more likely to adopt practices that stretch existing norms.

Second, we contribute to the symbolic management perspective. While previous research has explored the role of corporate interlocks in symbolic management (Westphal and Zajac, 2001),

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Table 4. Random effects GLS regression on ΔCEO compensation

	Baseline model	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13
ΔPerformance[a]	1.35**	1.35**	1.11+	1.37**	0.813	1.37**	2.106+
	(0.489)	(0.488)	(0.623)	(0.490)	(0.915)	(0.478)	(1.361)
Compensation committee	—	0.0288+	0.0298+	0.0236	0.0304	0.0329	0.0326
	—	(0.0169)	(0.0170)	(0.0126)	(0.0849)	(0.0872)	(0.0871)
ΔPerformance[a]× compensation committee	—	—	0.588	—	—	—	—
	—	—	(0.998)	—	—	—	—
ΔCentrality	—	—	—	0.0236*	0.0239*	0.0148	0.0147
	—	—	—	(0.0168)	(0.0127)	(0.0120)	(0.0120)
ΔPerformance[a]× ΔCentrality	—	—	—	—	0.0117	—	—
	—	—	—	—	(0.0125)	—	—
ΔStructural holes	—	—	—	—	—	−0.760+	−0.766
	—	—	—	—	—	(0.460)	(0.458)
ΔPerformance[a]× ΔStructural holes	—	—	—	—	—	—	−0.00856
	—	—	—	—	—	—	(0.0190)
Year effects				Controlled			
Industry effects				Controlled			
Intercept	−0.301***	−0.318***	−0.318***	−0.342***	0.238***	−0.353***	−0.355***
	(0.0628)	(0.0635)	(0.0634)	(0.0643)	(0.0621)	(0.0689)	(0.0714)
R^2	0.1767	0.1773	0.1774	0.1785	0.1786	0.1787	0.1788
Wald Chi^2	688.37	691.20	690.56	693.81	698.20	701.72	703.41
N	4314	4314	4313	4313	4313	4313	4313

Standard errors are in parentheses.
+ $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.
[a] Dependent variables for ΔPerformance and structural holes are multiplied by 1000 in the regressions to avoid the coefficients in the table being too small.

this study shows that opting for symbolic management is contingent on the structural position of a firm within the social network. In addition, while Wade *et al.* (1997), and Crystal (1992) showed that existing CCs often serve to justify rather than constrain high CEO compensation, we are the first to suggest that setting up a CC itself can be used as a potential tool for symbolic management. While Westphal and Graebner (2010) showed that some form of board control practices (such as increasing the portion of independent directors on the board) can be used as tools for symbolic management, no previous research has explored the possibility that setting up a CC (another corporate governance mechanism) may play a similar symbolic role.

Third, we shed new light on CC research. Previous work has tended to focus on the effect of CC composition on CEO pay (Conyon and Peck, 1998; Daily *et al.*, 1998), the influence of the CC member compensation on CEO compensation (O'Reilly, Main, and Crystal, 1988), and the effect of CEO power on CCs (Singh and Harianto, 1989). While Wade *et al.* (1997) have shown that existing CCs can play a legitimizing role for high CEO compensation by varying justifications in ways that place CEO compensation in a favorable light, no previous study has explored the potentially symbolic role of setting up a CC. A possible objection to our suggestion that setting up CCs as tools of symbolic management that aim to create the appearance of legitimacy for higher CEO compensation is the argument that one of the roles of CCs *is* to attract talented CEOs. Boards with CCs may therefore pay higher CEO compensation because they take this role seriously. However, attracting qualified CEOs is not the only role of CCs. They are also supposed to protect shareholders' interests by making sure that CEO compensation is appropriate and fair (Conyon and Peck, 1998; Landsberg, 2007). If CCs indeed perform all the roles expected of them, we would therefore expect that in firms

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that adopt CCs CEO compensation would be tied to improved pay–performance relationships. However, according to our post hoc robustness checks, this is not the case. Also, if the positive relationship between CCs and CEO compensation were simply the consequence of CCs doing their jobs then we would not find that setting up a CC is affected by a firm's position within corporate interlocks or that a firm occupying structural holes would use CCs to create the appearance of legitimacy for paying high CEO compensation as found in this study. However, we must note that we found that CCs only partially meditate the relationship between firms' structural positions and CEO compensation. This suggests that while CCs are often set up for symbolic purposes in China, as we predicted, once CCs are set up they may also positively affect CEO compensation due to their ineffectiveness in constraining CEO compensation. This latter finding is consistent with similar findings in previous studies (O'Reilly *et al.*, 1988).

Finally, we contribute to the small but expanding literature on CEO compensation in China. CEO compensation is still relatively low in China due to traditional norms (Sun *et al.*, 2010). Overcoming these norms and attracting qualified CEOs is still problematic in China. Setting up a CC may therefore be helpful for firms seeking to pay higher levels of CEO compensation in order to successfully compete for talent in the tight CEO market. However, our study also suggests that not all firms must engage in symbolic management in order to pay high-level CEO compensation.

Despite these contributions, at least three limitations point out directions for future research. First, the relatively low R-squared values of our explanatory variables suggest both the limitations of the parsimonious model and the need for incorporating additional factors or integrating other acceptance models in order to improve the specificity and explanatory utility of this model in the Chinese context. Second, endogeneity may be a concern when we explain CCs' symbolic effect on CEO compensation (H5). It is possible that firms that want to pay their CEOs more might simultaneously set up compensation committees in order to signal symbolic compliance. Although we lag one year of our independent variable in order to show the causal relationship, we cannot fully rule out this alternative explanation. Third, while limiting our sample to the Chinese context is a virtue that enriches the global diversity of studies on legitimacy, corporate interlocks, symbolic management, and CEO compensation (all areas rarely studied in China), the single-country context inevitably limits the generalizability of our findings.

In sum, this paper sheds new light on our understanding of the effect of corporate interlocks on firm behavior, the possibility of using CCs as a symbolic management tool and the drivers of CEO compensation in China. In terms of practical implications our findings point out that engaging in boundary stretching practices does not always require either a long legitimating process or the engagement of symbolic management. Certain firms may therefore be able to save the cost of symbolic management when adopting boundary stretching practices, particularly if these firms occupy central corporate network positions.

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