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Complementary or Substitutive Effects? Corporate Governance Mechanisms and Corporate Social Responsibility

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Management researchers have investigated how corporate governance mechanisms influence corporate social responsibility (CSR). The previous literature has been largely based on agency theory, which emphasizes the roles of effective monitoring and incentive alignment, but the empirical evidence has been mixed. This inconsistency may result from the assumption that each governance mechanism functions independently, even though they interact with one another to affect CSR. On the basis of a perspective of bundle of governance mechanisms, we examined whether multiple governance mechanisms act as complements or substitutes for each other in promoting CSR. Using a panel sample of U.S. firms for the years 2004 to 2010, we found that multiple governance mechanisms mainly act as substitutes to promote CSR. Our findings suggest that a similar level of CSR can be achieved with different combinations of governance mechanisms. Our study contributes to the fields of both corporate governance and CSR in theory and practice.

Keywords: *corporate social responsibility; corporate governance; bundle of governance mechanisms; complement/substitute framework; equifinality*

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There is a growing interest in the effects of corporate governance mechanisms on corporate social responsibility (CSR; Arora & Dharwadkar, 2011; Barnea & Rubin, 2010; Johnson & Greening, 1999). These studies are mainly based on agency theory, which emphasizes the roles of effective monitoring and incentive alignment (Eisenhardt, 1989; Jensen & Meckling, 1976). However, the empirical evidence of the relationships between corporate governance mechanisms and CSR has been equivocal.

Some researchers (e.g., Coffey & Fryxell, 1991; Graves & Waddock, 1994; Sethi, 2005) found that effective monitoring had a positive impact on CSR, but others (e.g., Arora & Dharwadkar, 2011) found that effective monitoring was negatively related to CSR. Similarly, the effect of incentive alignment on CSR was found to be positive in some studies (e.g., Johnson & Greening, 1999; Kock, Santaló, & Diestre, 2012), but negative in others (e.g., Arora & Dharwadkar; Oh, Chang, & Martynov, 2011). This lack of consistency in the previous findings calls for a more integrative theoretical framework that helps us better understand the relationships between corporate governance mechanisms and CSR.

Several scholars (e.g., Aguilera, Filatotchev, Gospel, & Jackson, 2008; Dalton, Daily, Certo, & Roengpitya, 2003; Rediker & Seth, 1995) assume that the mixed empirical findings may be due to a focus on the "independent" effects of governance mechanisms. Their assumption is largely based on Rediker and Seth's claim that "firm performance depends on the efficiency of a *bundle of governance mechanisms*" (1995: 87). Presumably, multiple governance mechanisms interactively influence organizational outcomes (Aguilera, Desender, & Kabbach de Castro, 2012; Filatotchev & Boyd, 2009; Misangyi & Acharya, 2014) in a complex way.

The purpose of this study is to explore how multiple governance mechanisms operate interactively in promoting a firm's social responsibility. On the basis of the "complement versus substitute" framework, we examine whether multiple governance mechanisms complement or substitute for each other in promoting CSR. In doing so, we employ the economic concept of *marginal effect*, which helps to describe whether multiple instruments work as complements or substitutes. The complementary view (Hoskisson, Castleton, & Withers, 2009; Schepker & Oh, 2013) suggests that one governance mechanism could increase the marginal effects of another mechanism on organizational outcomes in a synergistic fashion. Thus, if governance mechanisms act as complements, multiple governance mechanisms are harmonized to promote CSR. Conversely, the substitutive view (Rediker & Seth, 1995; Ward, Brown, & Rodriguez, 2009) suggests that one governance mechanism may decrease the marginal effects of another mechanism on organizational outcomes. Thus, when governance mechanisms act as substitutes, optimal outcomes do not require as many governance mechanisms as possible.

This complement versus substitute framework can address concerns about the inconclusive findings from the previous studies on CSR. For instance, this framework suggests that one governance mechanism can be more positively related to CSR if other governance mechanisms act as complements, but its positive effects can be diminished or even disappear if other governance mechanisms act as substitutes. Simply put, it is possible that the same governance mechanism has different implications for CSR, depending on the configuration of other governance mechanisms. In order to test this possibility, we follow previous studies (e.g., Connelly, Hoskisson, Tihanyi, & Certo, 2010; Shleifer & Vishny, 1997) and use blockholder ownership (BO) and board independence (proportion of outside directors, PO) as proxies for a

monitoring mechanism, and top management team (TMT) equity ownership (TO) and TMT long-term incentives intensity (TI) as proxies for an incentive alignment mechanism.

Using a panel sample of U.S. firms for the years 2004 to 2010, we found that multiple governance mechanisms mainly act as *substitutes* for each other in promoting CSR. Such findings may support the idea of "equifinality" (Gresov & Drazin, 1997), such that a similar level of social performance can be achieved through different combinations of governance mechanisms in various ways. Given that there are many equally effective combinations of governance practices to encourage CSR, our results suggest that firms can benefit from conducting a strategic cost-benefit analysis in designing an optimal corporate governance structure. The idea of equifinality implies that organizations have strategic flexibility in designing a bundle of governance practices in order to achieve optimal social outcomes.

Our study contributes to theory and practice in both the corporate governance and the CSR literatures. From a theoretical viewpoint, our study examines how multiple governance mechanisms interactively influence a firm's social outcomes, with an aim to account for the inconsistencies of previous findings on the relationships between governance mechanisms and CSR. In addition, most of the previous work on governance mechanisms (e.g., Hoskisson et al., 2009; Rediker & Seth, 1995; Schepker & Oh, 2013; Zajac & Westphal, 1994) has explored how the interdependencies of mechanisms themselves are formed by examining whether one mechanism (e.g., incentive alignment) increases or decreases the strength of another mechanism (e.g., monitoring roles); however, our study extends the theoretical boundary into how multiple governance mechanisms interactively yield organizational outcomes.

From a practical standpoint, this study offers a more precise explanation of how corporate governance mechanisms should be designed in order to promote CSR, especially by displaying the joint effects of multiple governance mechanisms. As such, our findings shed additional light on how a firm could become a better corporate citizen by designing corporate governance practices effectively. In particular, our findings suggest that governance mechanisms act mostly as substitutes for CSR; thus, in order to achieve their optimal social outcomes, organizations need to be selective in executing governance practices. Consistent with the notion of equifinality, organizations have strategic flexibility in configuring governance practices depending on their own circumstances.

Theoretical Background

Governance Mechanisms and CSR

There have been a vast number of studies (e.g., Arora & Dharwadkar, 2011; Graves & Waddock, 1994; Johnson & Greening, 1999; Kock et al., 2012) that examine the relationship between corporate governance and CSR. On the basis of agency theory (Eisenhardt, 1989; Jensen & Meckling, 1976), most studies emphasize the monitoring roles by large shareholders and independent boards or the incentive alignment by managerial stock ownership and compensation structure. Agency theory assumes that corporate executives will pursue self-interest without considering the interests of various stakeholders, unless they are properly monitored or provided with appropriate incentives (Shleifer & Vishny, 1997).

Although agency theory (Eisenhardt, 1989; Jensen & Meckling, 1976) proposes that effective corporate governance leads to better financial outcomes, it is not clear whether effective

corporate governance mechanisms also improve nonfinancial social outcomes, such as CSR. In fact, the inconsistencies in the empirical findings on the relationship between CSR and financial performance add to this lack of clarity. Previous studies reported inconclusive, and in some cases even contradictory, results for the relationship between CSR and financial performance, pointing in different causal directions (e.g., Marom, 2006; McWilliams & Siegel, 2000; Waddock & Graves, 1997; H. Wang, Choi, & Li, 2008). If governance entities (e.g., large shareholders, boards of directors) assume that socially responsible decisions enhance a firm's financial performance (i.e., positive relationship), effective governance mechanisms may promote CSR. In contrast, if governance entities assume that CSR engagement does not improve a firm's financial outcomes (i.e., negative relationship), effective governance mechanisms may discourage CSR since they may perceive CSR as an overinvestment or a waste of valuable resources.

As such, it is not surprising that the relationships between corporate governance mechanisms and CSR have been found to be inconclusive. Several researchers (e.g., Coffey & Fryxell, 1991; Graves & Waddock, 1994; Sethi, 2005) found that effective monitoring by large shareholders and independent boards had a positive impact on CSR. If a strong monitoring mechanism leads top managers to make decisions aligned with the shareholders' long-term interests (Shleifer & Vishny, 1997), a high level of monitoring by large shareholders and independent boards may encourage firms to actively engage in CSR. However, others (e.g., Arora & Dharwadkar, 2011) found that monitoring mechanisms had a negative impact on CSR because large shareholders and boards of directors could be more shortsighted with respect to the firm's financial performance (Guthrie & Sokolowsky, 2010; Oh, Chang, & Cheng, 2016). If CSR investment pays off over the long term,[1] as a few studies (e.g., Burke & Logsdon, 1996; T. Wang & Bansal, 2012) claim, large shareholders and boards of directors who might focus on short-term economic gains may hinder a firm from proactively seeking CSR engagement.

Similarly, the empirical findings on the effects of incentive alignment on CSR are also mixed. Some studies (e.g., Deckop, Merriman, & Gupta, 2006; Johnson & Greening, 1999; Kock et al., 2012) found that incentive alignment was positively associated with CSR. Executives' and shareholders' interests may converge through effective incentive alignment mechanisms (e.g., executive shareholdings and long-term incentive pay) that are designed to result in better social performance, if CSR is expected to enhance the firm's long-term value (Waddock & Graves, 1997; T. Wang & Bansal, 2012). In contrast, other studies (e.g., Arora & Dharwadkar, 2011; Oh et al., 2011) found a negative relationship between incentive alignment and CSR.

These mixed findings on the relationships between "effective" governance mechanisms and CSR call for a reorientation of research to enhance our understanding of the complex mechanisms of corporate governance as antecedents of CSR. We assume that one of the major pitfalls in the previous studies is an oversimplified view of governance mechanisms based on an assumption of *independence* and a lack of understanding of the possible joint effects of various governance mechanisms on CSR. In order to address these limitations, we rely on a "bundle of governance mechanisms" perspective (Rediker & Seth, 1995: 87).

Corporate Governance Mechanisms as a Bundle

A number of researchers (e.g., Hoskisson et al., 2009; Schepker & Oh, 2013; Yoshikawa, Zhu, & Wang, 2014) suggest that it may not be reasonable to assume that each governance mechanism functions independently. In particular, not all governance practices are the same

even though they may share a common goal (i.e., minimizing agency costs); rather, each governance practice has distinct characteristics, roles, and functions. For example, the degree to which the economic wealth of a governance entity is directly tied to a firm's financial outcome varies. Blockholders' ownership directly ties the value of their investment to a firm's stock market performance, whereas nominating a greater number of outside directors has no bearing on a governance entity's investment. In this sense, even though blockholders and independent boards both serve as monitoring mechanisms, they may have different strategic implications. Likewise, although both executives' shareholdings and long-term variable pay serve as incentive alignment mechanisms, the two practices are different. Executives' shareholding requires their capital commitment and gives them voting rights for the firm control, but long-term variable pay does not have such characteristics; rather, it merely serves as a contract aiming to increase the firm's long-term profits. Given these subtle differences in the characteristics, roles, and functions of each governance practice, it is feasible that firms are likely to use different configurations of governance mechanisms depending on their own circumstances.

Departing from the simplistic "independence" assumption, we contend that organizational outcomes can be "dependent on the effectiveness of the bundle of governance mechanisms" (Aguilera et al., 2012: 381). Since multiple corporate governance mechanisms coexist within an organization, they "collectively constitute the context of governance environments" (Yoshikawa et al., 2014: 253) and influence subsequent organizational decisions and outcomes. Thus, in order to better explain the effect of certain governance practices on organizational outcomes, it is necessary to consider a set of other interrelated governance mechanisms (Desender, García-Cestona, Crespi, & Aguilera, 2013). Following this "bundle of governance mechanisms" notion, we propose that corporate governance mechanisms will be more or less effective only in certain combinations, depending on how firms use different configurations of them. A number of studies have confirmed this so-called bundle approach. For example, Desender et al. (2013) showed that a board's monitoring function is contingent on ownership characteristics, such as the type of controlling shareholder. Ward et al. (2009) also noted that firm performance is determined by the conditions under which various monitoring functions and incentive alignments interact with each other.

Regarding the interactive effects of governance bundles on organizational outcomes, there are two competing perspectives—governance mechanisms as *complements* and as *substitutes*. In other words, various governance mechanisms can either complement or substitute for each other in affecting organizational outcomes. Two mechanisms interact as "complements (substitutes) if the marginal benefit of each activity increases (decreases) in the level of the other activity" (Siggelkow, 2002: 901). In the corporate governance and CSR context, when complementary effects exist, if one governance practice is strengthened, the marginal benefit of the other governance mechanism on CSR increases. For example, if the positive effect of an independent board on CSR becomes stronger (i.e., has a greater marginal benefit) when there is a high level of TMT's long-term incentive pay (compared to when there is a low level of incentive pay), there is a complementary effect between board independence and the TMT's long-term incentive pay. On the contrary, when substitutive effects exist, if one governance practice is enhanced, the marginal benefit of the other governance mechanism on CSR decreases. For instance, if the positive effect of an independent board on CSR becomes weaker (i.e., has a smaller marginal benefit) when there is a high level of blockholder

ownership (compared to when there is a low level of blockholder ownership), there is a substitutive effect between board independence and blockholder ownership.

The complementary perspective suggests that multiple governance mechanisms together increase shareholders' wealth in a synergistic fashion (Hoskisson et al., 2009; Schepker & Oh, 2013; Schmidt & Spindler, 2002). That is, firms can maximize shareholders' long-term value when *both* effective monitoring and incentive alignment schemes are exercised simultaneously. For example, Hoskisson et al. (2009) reported a complementary relationship between monitoring and bonding. Schepker and Oh (2013) also found that firms with both effective monitoring and incentive alignment were more likely to repeal poison pills in a pattern of strong corporate governance. Furthermore, Misangyi and Acharya (2014) found that high profits are obtained when CEO incentive alignment and monitoring mechanisms work together as complements.

In contrast, the substitutive perspective suggests that shareholders' value maximization does not require the presence of as many governance mechanisms as possible. This perspective assumes that using multiple governance mechanisms is costly and may not be efficient in terms of cost-benefit analysis (Rediker & Seth, 1995). Indeed, the heavy use of governance mechanisms results in higher costs for firms (e.g., providing executives with sizeable stocks and long-term incentive plans, simultaneously). In addition, it has been argued that there may be "diminishing behavioral returns" (Zajac & Westphal, 1994: 122) associated with adopting multiple governance mechanisms. In this paper, we adopt both complementary and substitutive frameworks to examine the interactive effects of multiple governance mechanisms on CSR.

Hypotheses Development

Given the contrasting perspectives on the bundle of governance mechanisms, we develop competing hypotheses to examine whether governance mechanisms act as complements or substitutes in affecting CSR.

Complementary Effect Hypothesis

A number of previous studies found that effective monitoring (e.g., Graves & Waddock, 1994; Sethi, 2005) and incentive alignment (e.g., Johnson & Greening, 1999; Kock et al., 2012) had a positive impact on CSR. This is because corporate managers would likely pursue immediate self-interest, and thus avoid investments that pay off over the longer term (e.g., CSR) unless they are properly monitored or provided with appropriate incentives (Shleifer & Vishny, 1997). Thus, a number of previous studies (e.g., Deckop et al., 2006; Johnson & Greening) argued that strong governance tends to encourage managers to engage in CSR.

One group of researchers (e.g., Rediker & Seth, 1995; Zajac & Westphal, 1994) used the concept of cost and benefit analysis in explaining the effects of *multiple* governance mechanisms, as a bundle, on organizational outcomes. They argue that multiple governance mechanisms can act as complements when they "mutually increase their benefits . . . and/or mutually reduce their disadvantages or costs" (Schmidt & Spindler, 2002: 319). In our research context, this implies that if the marginal benefit of one governance practice on CSR increases when another practice exists, both mechanisms can be *complementary*. The idea of complementarities suggests that governance mechanisms become more effective through "mutual

enhancement" when they are combined (Aguilera et al., 2008). Thus, the simultaneous operation of specific combinations of governance practices is necessary to maximize corporate social outcomes. An effective governance structure that promotes CSR is characterized by more cumulative mechanisms for monitoring and incentive alignment, thereby inducing synergistic effects among governance practices.

For example, an independent board can be more effective in enhancing CSR when it is complemented with a long-term incentive plan for executives. When executives are compensated by long-term incentives that motivate them to pay more attention to CSR (Deckop et al., 2006), the agency problem is less severe; thus, the need for monitoring by another governance entity becomes less necessary. Independent boards play both monitoring and resource provision roles (Hillman & Dalziel, 2003); therefore, when such long-term incentives for executives are in place, outside directors are more likely to be devoted to providing resources that are valuable in managing various stakeholders (Johnson & Greening, 1999), instead of focusing on monitoring roles to reduce managerial opportunism. Their resource provision contributes not only to the firm's financial goals but also to nonfinancial social goals because outside directors are "very conscious about the needs and expectations of the various constituencies of their firms" (J. Wang & Dewhirst, 1992: 120). Likewise, when executives are already properly monitored by blockholders, the agency problem is less likely to occur. In this case, outside directors have room to leverage more resources to manage external constituencies and improve a firm's social reputation. In contrast, if there are no other governance practices that can reduce the agency problem, outside directors have to pay greater attention to monitoring roles (Walsh & Seward, 1990), thus diminishing their effectiveness in providing resources for dealing with a firm's relationships with a variety of stakeholders.

The empirical findings based on the complementary view (Rutherford, Buchholtz, & Brown, 2007; Schepker & Oh, 2013) showed that the prevalence of one governance mechanism (e.g., effective monitoring) was positively associated with the other governance mechanism (e.g., incentive alignment), inducing synergistic effects among governance practices. For example, Rutherford et al. (2007) found that a board's information-gathering behavior is positively associated with CEO pay tied to firm performance, suggesting information and managerial control mechanisms act as complements. Schepker and Oh (2013) also reported that firms with both effective monitoring and incentive alignment tend to repeal poison pills in a pattern of strong corporate governance. Taken together, we propose that multiple governance mechanisms could work as complements to promote CSR.

Hypothesis 1: There will be complementary effects of corporate governance mechanisms on CSR.

Substitutive Effect Hypothesis

An alternative to Hypothesis 1 is that the governance mechanisms *substitute* for each other in promoting CSR. Given that governance decisions involve resource allocation, there should be costs associated with the use of governance instruments for monitoring and incentive alignment. As such, there are possible cost-benefit trade-offs between using monitoring mechanisms and using incentive alignment to control managerial behavior (Beatty & Zajac, 1994). In general, since using multiple governance mechanisms may incur substantial costs that may overweigh the potential benefits, the use of multiple mechanisms is not always ideal

(Schepker & Oh, 2013). Rather, "systematic balance between governance devices" (Hoskisson et al., 2009: 58) can be more desirable to the firm. In addition, there may be "diminishing behavioral returns" (Zajac & Westphal, 1994: 122) in strengthening the effects of governance mechanisms on CSR when adopting multiple governance mechanisms. All arguments above indicate that governance mechanisms could act as substitutes rather than complements for organizational outcomes.

In the specific context of CSR, for example, if large blockholders properly monitor executives to reduce their self-serving behavior, additional monitoring by another governance entity may be redundant and therefore not necessary. Blockholders may put pressure on executives to generate financial outcomes over social outcomes (Oh et al., 2016), especially if they assume that CSR does not always lead to better financial performance. In this situation, additional monitoring by an independent board to achieve the firm's profit goals would not significantly affect that firm's CSR investment decision because executives would be warned not to overinvest in CSR. Likewise, even though a long-term compensation structure encourages CSR to a certain degree (e.g., Deckop et al., 2006), executives are likely to avoid excessive CSR engagement if there is strong pressure from blockholders, making the impacts on CSR of long-term incentives for top managers less significant.

In a similar vein, if top managers are granted substantial shares through stock options or stock reward plans, in many cases, they are not allowed to vest in their stocks in the short term. For example, many U.S. firms allow executives to vest in their stocks after a substantial period of time (see Westreich, 1999). As such, top managers are likely to pursue the firm's long-term success through strategic investments that can be realized over a longer period of time. If executives believe that investing in CSR pays off over the long term (Burke & Logsdon, 1996; T. Wang & Bansal, 2012), firms will be more likely to promote CSR. In this case, firms may not need to implement long-term incentives for top managers (e.g., Deckop et al., 2006), which can play a similar role as stock options in promoting CSR.

Hence, if firms increase any governance mechanism—either monitoring or incentive alignment—for CSR when other governance practices are present, the costs of exercising additional governance instruments may outweigh the benefits, as the substitutive view suggests. In such cases, adopting multiple governance mechanisms at the same time is not likely to lead to proactive CSR; thus, the marginal effect of each governance mechanism will not increase (or may even become negative). Some empirical studies support this substitutive view (e.g., Randøya & Goel, 2003; Rediker & Seth, 1995; Zajac & Westphal, 1994) by showing that prevalence of one governance mechanism leads to the lack of other governance mechanisms. For instance, Zajac and Westphal (1994) found that when monitoring processes are in place, firms are less likely to use long-term incentive plans for CEOs. Rediker and Seth (1995) also found substitutive relationships between the monitoring potential of the board of directors and alternative governance mechanisms, including the incentive effects of managerial equity ownership. Furthermore, Randøya and Goel (2003) argued that many governance mechanisms in family firms are not efficient. They noted that since family firms do not have principal-agent problems, increasing the monitoring function or providing incentive alignment is not likely to improve organizational outcomes. Taken together, we propose that multiple governance mechanisms could work as substitutes to promote CSR.

Hypothesis 2: There will be substitutive effects of corporate governance mechanisms on CSR.

Method

Data and Sample

The sample for this study was initially derived from GMI Ratings (formerly titled Corporate Library), a specialized corporate governance database, for the years of 2004 to 2010. All our sample firms are publicly traded firms in the United States and have CSR data in the subsequent year (i.e., 2005–2011) assessed by Kinder, Lydenberg, Domini Research and Analytics (KLD). We also used a number of archival sources, including Standard and Poor's Compustat for firm-level data and ExecuComp for executive compensation data. As a result of the lack of full data availability, our final sample size was 8,072 firm-year observations from 1,559 firms.

Measurement of Variables

Dependent variable. We used KLD ratings as our dependent variables. KLD is a CSR rating provider that specializes in reporting firms' social responsibility across a wide range of areas: *environment, community, diversity, employee relations, human rights, product quality and safety*, and *corporate governance*. KLD ratings provide a value of 0 or 1 for various social responsibility indicators. For example, if a company gives a certain percentage of its net earnings to charity, it is scored 1 for the charitable giving strength indicator in the community dimension, and 0 otherwise. We used the sum of strengths in all areas as our dependent variable, consistent with previous studies (e.g., Arora & Dharwadkar, 2011; Oh et al., 2016).

Independent variables. As a measurement of monitoring mechanisms, we assessed *blockholder ownership* (BO) and *proportion of outside directors* (PO). BO was calculated by the proportion of shares held by investors with more than 5% of the firm's outstanding shares. PO was calculated by dividing the number of outside directors on a board by the total number of board members. In addition, as a measurement of incentive alignment mechanisms, we used *TMT ownership* (TO) and *TMT incentive intensity* (TI). TO was measured by the proportion of the sum of shares owned by a firm's executives who are listed on ExecuComp. TI in executive pay structure was measured by all executives' average proportion of long-term variable pay (e.g., stock-based compensation and long-term incentive plans) out of total compensation for each given year listed in ExecuComp (Messersmith, Guthrie, Ji, & Lee, 2011). Thus, a higher level of TI indicates greater use of long-term variable pay over fixed pay, such as salary (i.e., greater "pay-for-performance"). All raw data were collected from the GMI Ratings and ExecuComp databases, as well as from firm proxy statements (i.e., Securities and Exchange Commission Form DEF 14A) if necessary.

Control variables. We included a number of control variables that may influence firms' CSR, including industry, firm, and TMT characteristics. Since industry characteristics affect a firm's CSR decisions (Young & Marais, 2012), we controlled for *industry munificence* and *industry dynamism*. These variables are obtained through a two-step procedure, following Keats and Hitt (1988). First, the natural logarithm of total sales for each industry at the two-digit Standard Industrial Classification (SIC) level for 5 years was regressed against time

(as an independent variable). We then calculated the antilogarithms of the regression slope coefficients and standard errors. The values of the slope coefficients from the regression models indicate the growth trend of each industry and, thus, reflect *industry munificence.* Likewise, the values of standard errors indicate the variability of industry growth and are used as *industry dynamism*.

We also controlled for firm-level characteristics that could influence CSR ratings: firm size, firm age, return on assets (ROA), market-to-book ratio, current ratio, debt ratio, family and founder firms, and board size. Prior studies (e.g., Chang, Oh, Jung, & Lee, 2012; Cochran & Wood, 1984) noted that firm size and firm age have a positive effect on CSR. Consistent with previous studies (Arora & Dharwadkar, 2011), *firm size* was measured by its total sales and transformed logarithmically because of the positively skewed distribution. Also, Cochran and Wood (1984) reported that the average age of corporate assets is negatively associated with CSR. Thus, following previous studies (e.g., T. Wang & Bansal, 2012), we controlled for *firm age*, measured by the number of years since the firm was established.

Slack resources theory (Waddock & Graves, 1997) suggests that firms with better financial performance and more organizational slack can better afford a higher level of CSR investment. Thus, as a measurement of past financial performance and market-based performance, *ROA* and *market-to-book ratio* were controlled. ROA was calculated by net income divided by total assets, and market-to-book ratio was calculated as total market value divided by the firm's book value. We also controlled for *current ratio* and *debt-to-asset ratio* as indicators of organizational slack, following previous studies (e.g., H. Wang et al., 2008). Current ratio was calculated by the ratio of current assets relative to a firm's current liabilities. Debt-to-asset ratio was measured by a firm's long-term debt divided by its assets. Current ratio and debt ratio indicate a firm's ability to pay short-term and long-term debt obligations, respectively. Furthermore, family and founder firms differ from other firms with regard to CSR (e.g., McGuire, Dow, & Ibrahim, 2012); thus *family and founder firms* were controlled by using a dummy variable (i.e., 1 for family and founder firms, and 0 otherwise). In addition, *board size* was measured by the total number of directors on the board. Because a board with more directors brings more expertise and knowledge (Dalton, Daily, Johnson, & Ellstrand, 1999), board size may be positively related to a firm's CSR.

Previous studies (e.g., Oh et al., 2016) found that top managers also play an important role in shaping a firm's CSR decisions; therefore, we controlled for *TMT average age* and *TMT gender diversity*. TMT average age was the mean value of all executives' ages, and gender diversity was calculated as the proportion of women for each given year listed in ExecuComp. Lastly, given our multi-industry and multiyear data structure, we employed dummy variables to control for industry and year effects. To control for differences in industry effects, we used the industry classification used in previous studies of CSR (see Arora & Dharwadkar, 2011; Waddock & Graves, 1997). However, for the sake of simplicity, we did not report the coefficients and standard errors of these dummy variables in the subsequent analyses.

Statistical Analysis

Our dataset has both cross-sectional and time-series components, which violates the assumptions of independence across observations and prevents us from using ordinary least squares regressions. In addition, governance mechanisms and CSR may be endogenously

related. Thus, we used the Hausman–Taylor estimation (Hausman & Taylor, 1981), which allows us to eliminate the bias in parameter estimates stemming from endogenous unobserved effects by specifying different subsets of variables that were assumed to be endogenous. This method provides an improvement over the fixed-effects and random-effects models. Unlike the fixed-effects model, it allows for the estimation of regressors that are invariant over time (Greene, 2003), such as industry effects. Compared to the random-effects models, it addresses the endogeneity problem by using both the between-variation and within-variation of the exogenous variables as instruments for the specified endogenous variables (Baltagi, Bresson, & Pirotte, 2003). We also evaluated the multicollinearity by using variance inflation factors (VIFs). The mean VIF value is 1.97, and they ranged from 1.01 to 5.30. The range of VIFs falls below the conventional threshold of 10 (Neter, Wasserman, & Kutner, 1985), suggesting that our data do not have multicollinearity issues.

The complementary or substitutive effects of governance mechanisms on CSR can be tested by specifying interaction terms and examining the marginal benefit of one governance mechanism on CSR depending on the levels of the other governance mechanisms (Poppo & Zenger, 2002; Siggelkow, 2002). Our tests based on interactive effects rely on one of the most commonly used complements/substitutes assessment models in the field of economics (for details, see Topkis, 1998; Vives, 1990). Below are the conditions under which complementary or substitutive matching occurs:

- *Complementary condition:* $f(X\_H, Y\_H) - f(X\_L, Y\_H) > f(X\_H, Y\_L) - f(X\_L, Y\_L)$
- *Substitutive condition:* $f(X\_H, Y\_H) - f(X\_L, Y\_H) < f(X\_H, Y\_L) - f(X\_L, Y\_L)$

X and Y denote any given corporate governance mechanisms, whereas H and L denote high levels and low levels of mechanisms in use, respectively. The gain from any match can be represented by an increasing, positive-valued function *f*, which gives the match output $f(X, Y)$ for any pair of variables X and Y. For example, suppose $f(X, Y)$ is the PO (X) and TO (Y). Then X_H (vs. X_L) indicates a high (vs. low) level of PO, while Y_H (vs. Y_L) indicates a high (vs. low) level of TO. If the PO and TO levels interact as complements, the marginal gain between the high level of outside directors and the low level of outside directors should be greater when they work under a higher TO, that is, $f(X\_H, Y\_H) - f(X\_L, Y\_H)$, rather than under a lower TO, that is, $f(X\_H, Y\_L) - f(X\_L, Y\_L)$. On the contrary, if the PO and TO levels interact as substitutes, the marginal gain between the high level of outside directors and the low level of outside directors should be greater when they work under a lower TO rather than under a higher TO. Empirically, comparison of these conditions is conducted by creating interaction terms and comparing the marginal returns (i.e., examining slopes in the graph) for each combination. To examine significant interaction effects more closely, we plotted the simple slopes of one governance mechanism–CSR regression at 1 *SD* below the mean and 1 *SD* above the mean of another governance mechanism, consistent with Aiken and West's (1991) recommendation.

Results

Table 1 shows the means, standard deviations, and correlations among the variables. The mean value of CSR is 2.01 with the standard deviation of 2.93 in our sample. All the

Table 1
Correlations and Descriptive Statistics

	M	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. CSR	2.01	2.93																
2. Industry Munificence	1.05	0.05	−.01															
3. Industry Dynamism	1.02	0.02	−.01	−.10														
4. Firm Size	7.48	1.54	.56	.02	.00													
5. Firm Age	43.95	37.28	.23	−.06	.06	.26												
6. Return on Assets	0.05	0.11	.08	.07	−.03	.12	.06											
7. Market-to-Book Ratio	2.94	3.08	.10	.03	−.03	.01	−.01	.24										
8. Current Ratio	2.37	1.75	−.17	.01	−.01	−.47	−.17	.03	−.01									
9. Debt-to-Asset Ratio	0.18	0.17	.02	−.07	.02	.17	.06	−.17	−.10	−.25								
10. Family and Founder Firms	0.16	0.36	−.05	−.04	−.05	−.10	−.03	.01	.02	.05	−.09							
11. Board Size	9.12	2.27	.39	−.03	.06	.56	.26	.00	−.01	−.31	.17	−.07						
12. TMT Average Age	52.98	4.96	.05	.01	.06	.15	.16	.03	−.07	−.04	.05	.02	.14					
13. TMT Gender Diversity	0.07	0.12	.12	−.01	−.06	−.02	−.02	.01	.00	−.03	−.01	.01	.00	−.08				
14. Blockholder Ownership	0.22	0.15	−.19	−.01	−.01	−.22	−.13	−.14	−.06	.09	.06	−.07	−.16	−.11	.07			
15. Proportion of Outside Directors	0.73	0.14	.19	−.02	.03	.17	.12	−.02	.01	−.10	.05	−.28	.12	−.07	.06	.02		
16. TMT Ownership	0.03	0.08	−.12	−.01	−.05	−.17	−.07	.06	.02	.05	−.10	.40	−.17	.05	−.04	−.13	−.26	
17. TMT Incentive Intensity	0.63	0.22	.27	.06	−.01	.33	.02	.05	.09	−.11	.08	−.15	.20	−.12	.01	−.02	.22	−.22

Note: Correlations with absolute values greater than .02 are significant at $p < .05$, and absolute values greater than .03 are significant at $p < .01$. Two-tailed coefficient test ($N = 8{,}072$). CSR = corporate social responsibility; TMT = top management team.

corporate governance variables, including BO, PO, TO, and TI, were significantly correlated to CSR ($r = -.19$, $p < .001$; $r = .19$, $p < .001$; $r = -.12$, $p < .001$; $r = .27$, $p < .001$, respectively).

Table 2 reports the results of the complement versus substitute tests. Model 1 included control variables and governance mechanisms variables as the main effects. Models 2 through 7 tested the interaction effects of governance mechanisms on CSR. In each model, the effects of other untested governance mechanisms on CSR were controlled.

In Model 2, the interaction term made by two monitoring mechanisms (i.e., BO × PO) is negatively significant ($\beta = -1.98$, $p < .05$). A simple-slope test also indicates that the relationship between PO and CSR was not significant when BO was high (simple slope = 0.37, n.s.) but was significant when BO was low (simple slope = 0.97, $p < .001$). These results are portrayed in Figure 1, suggesting that when blockholders are present to monitor top management, additional monitoring by an independent board does not increase the marginal gain for CSR (and vice versa). This finding supports the substitutive hypothesis.

In Model 3, the interaction term made by two incentive alignment mechanisms (i.e., TO × TI) was negatively significant ($\beta = -2.19$, $p < .05$). A simple-slope test also indicates that the relationship between TI and CSR was not significant when TO was high (simple slope = 0.22, n.s.) but was significant when TO was low (simple slope = 0.57, $p < .001$). These results, portrayed in Figure 2, suggest that increasing TI is more effective in promoting CSR when there is a low (rather than high) level of TO. When there is a high level of TO, providing additional incentives does not make a significant marginal contribution to CSR. These results also provide support for Hypothesis 2, predicting the substitutive effect of corporate governance mechanisms on CSR.

In Model 4, we examined the interaction effects of BO and TO, but this interaction term was not statistically significant ($\beta = 0.07$, n.s.). In Model 5, we found that the interaction between TI and BO was negatively significant ($\beta = -1.39$, $p < .01$). A simple-slope test indicates that the relationship between TI and CSR was not significant when BO was high (simple slope = 0.15, n.s.) but was significant when BO was low (simple slope = 0.56, $p < .001$). These results are portrayed in Figure 3. These results also show support for the substitutes hypothesis, such that when TMT incentives are sufficiently high, BO does not provide the marginal benefit in promoting CSR.

In Model 6, we found a negative and significant interaction between PO and TO ($\beta = -6.79$, $p < .01$). A simple-slope test also indicates that the relationship between PO and CSR was not significant when TO was high (simple slope = 0.05, n.s.) but was significant when TO was low (simple slope = 1.14, $p < .001$). These results are portrayed in Figure 4 and also show support for the substitutive hypothesis. When there is a high level of TO, increasing the number of outside directors does not significantly promote CSR.

Finally, in Model 7, the interaction between TI and PO was found to be positively significant ($\beta = 4.77$, $p < .001$). A simple-slope test indicates that the relationship between TI and CSR was significant when PO was high (simple slope = 1.18, $p < .001$) but was not significant when PO was low (simple slope = −0.16, n.s.). As shown in Figure 5, the results suggest that CSR can be maximized when more TMT incentives are offered and more outside directors are assigned together, which supports the complements hypothesis. Taken together, our results support the substitutes hypothesis by and large, with an exception for the complementary effect between PO and TI (Model 7).

Table 2
Hausman–Taylor Estimation of Corporate Social Responsibility

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE
Constant	1.94***	(0.36)	1.94***	(0.36)	1.93***	(0.36)	1.94***	(0.36)	1.94***	(0.36)	1.93***	(0.36)	1.89***	(0.36)
Control Variables														
Industry Munificence	0.20	(0.50)	0.23	(0.49)	0.20	(0.49)	0.20	(0.50)	0.23	(0.49)	0.23	(0.49)	0.18	(0.49)
Industry Dynamism	−0.45	(1.46)	−0.36	(1.46)	−0.40	(1.46)	−0.45	(1.46)	−0.31	(1.46)	−0.44	(1.46)	−0.36	(1.45)
Firm Size	0.69***	(0.04)	0.69***	(0.04)	0.68***	(0.04)	0.69***	(0.04)	0.69***	(0.04)	0.68***	(0.04)	0.68***	(0.04)
Firm Age	0.01***	(0.00)	0.01***	(0.00)	0.01***	(0.00)	0.01***	(0.00)	0.01***	(0.00)	0.01***	(0.00)	0.01***	(0.00)
Return on Assets	−0.27	(0.16)	−0.28	(0.16)	−0.27	(0.16)	−0.27	(0.16)	−0.26	(0.16)	−0.27	(0.16)	−0.31	(0.16)
Market-to-Book Ratio	0.01	(0.01)	0.01	(0.01)	0.00	(0.01)	0.01	(0.01)	0.01	(0.01)	0.01	(0.01)	0.00	(0.01)
Current Ratio	0.05**	(0.02)	0.05**	(0.02)	0.05**	(0.02)	0.05**	(0.02)	0.05**	(0.02)	0.05**	(0.02)	0.05**	(0.02)
Debt-to-Asset Ratio	0.53**	(0.17)	0.52**	(0.17)	0.54***	(0.17)	0.53**	(0.17)	0.54***	(0.17)	0.54**	(0.17)	0.57***	(0.17)
Family and Founder Firms	0.04	(0.20)	0.05	(0.20)	0.05	(0.20)	0.04	(0.20)	0.04	(0.20)	0.04	(0.20)	0.04	(0.20)
Board Size	0.02	(0.01)	0.02	(0.01)	0.02	(0.01)	0.02	(0.01)	0.02	(0.01)	0.02	(0.01)	0.02	(0.01)
TMT Average Age	−0.01*	(0.00)	−0.01*	(0.00)	−0.01*	(0.00)	−0.01*	(0.00)	−0.01*	(0.00)	−0.01*	(0.00)	−0.01**	(0.00)
TMT Gender Diversity	1.31***	(0.22)	1.32***	(0.21)	1.31***	(0.21)	1.31***	(0.22)	1.30***	(0.21)	1.32***	(0.21)	1.31***	(0.21)
Testing Variables														
Blockholder Ownership (BO)	−0.62***	(0.15)	−0.64***	(0.15)	−0.62***	(0.15)	−0.62***	(0.15)	−0.63***	(0.15)	−0.61***	(0.15)	−0.56***	(0.15)
Proportion of Outside Directors (PO)	0.64***	(0.18)	0.67***	(0.18)	0.63***	(0.18)	0.64***	(0.18)	0.64***	(0.18)	0.59***	(0.18)	0.67***	(0.18)
TMT Ownership (TO)	0.30	(0.46)	0.31	(0.46)	−0.16	(0.50)	0.30	(0.50)	0.36	(0.46)	−0.43	(0.53)	0.08	(0.46)
TMT Incentive Intensity (TI)	0.36***	(0.10)	0.36***	(0.10)	0.39***	(0.10)	0.36***	(0.10)	0.36***	(0.10)	0.36***	(0.10)	0.51***	(0.10)
BO × PO			−1.98*	(0.78)										
TO × TI					−2.19*	(0.90)								
BO × TO							0.07	(2.19)						
BO × TI									−1.39**	(0.51)				
PO × TO											−6.79**	(2.39)		
PO × TI													4.77***	(0.54)
Wald Chi-Square	1,332.85***		1,341.21***		1,339.09***		1,332.71***		1,343.91***		1,340.29***		1,420.62***	
Number of Observations	8,072		8,072		8,072		8,072		8,072		8,072		8,072	

Note: Two-tailed coefficient test. Industry and year dummies are included but not reported for the sake of simplicity. TMT = top management team.
*$p < .05$.
**$p < .01$.
***$p < .001$.

Figure 1
Substitutive Effect of Board Independence and Blockholder Ownership on Corporate Social Responsibility

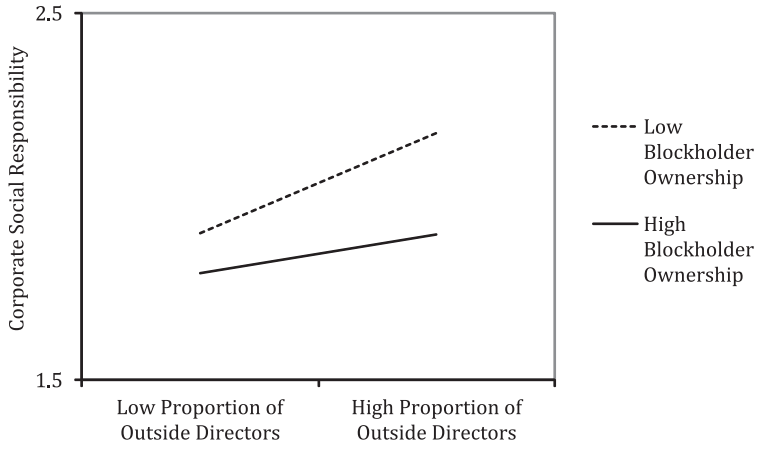
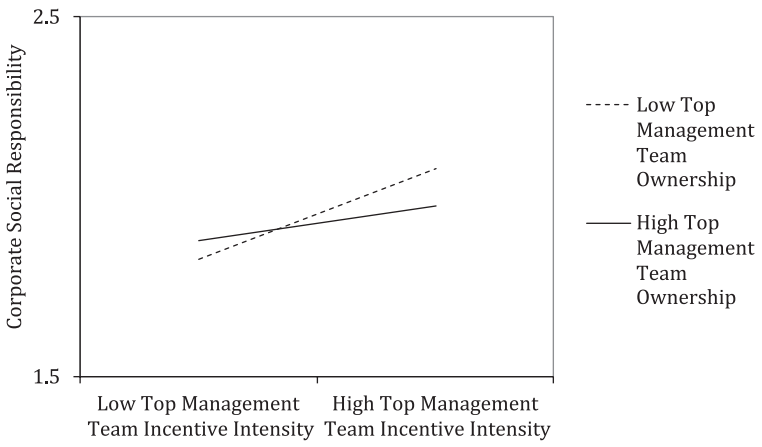


Figure 2
Substitutive Effect of Top Management Team Incentive Intensity and Top Management Team Ownership on Corporate Social Responsibility



Supplemental Analyses

We conducted a number of alternative analyses to examine the robustness of our results. First, we ran alternative models, assuming that firm performance and organizational slack variables (ROA, market-to-book ratio, current ratio, and debt-to-asset ratio) are also endogenous. The results of this alternative analysis remained the same. Second, we used industry dummy variables based on the two-digit SIC code as an alternative way

Figure 3
Substitutive Effect of Top Management Team Incentive Intensity and Blockholder Ownership on Corporate Social Responsibility

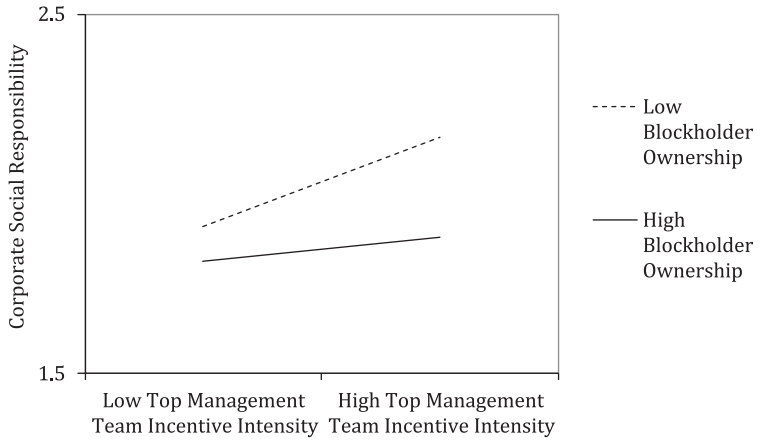
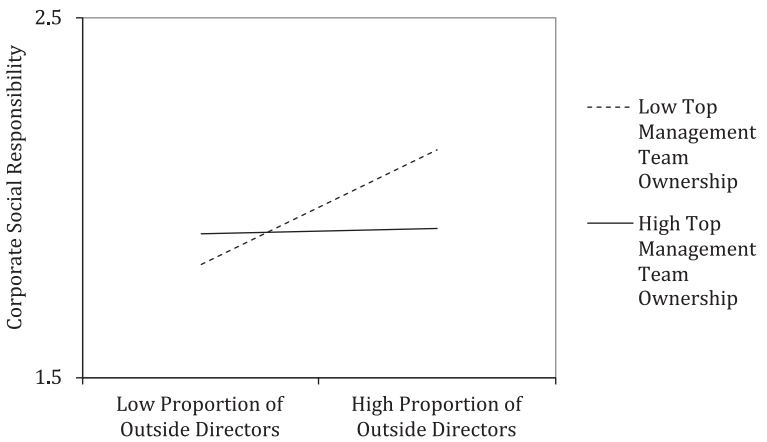
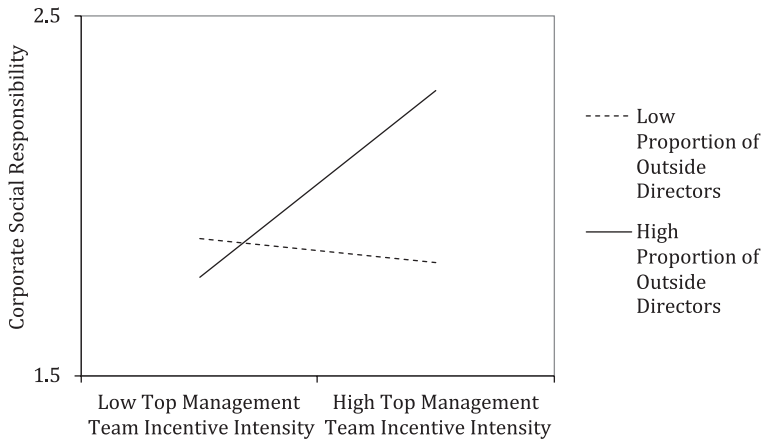


Figure 4
Substitutive Effect of Board Independence and Top Management Team Ownership on Corporate Social Responsibility



to control for industry effects. The results are similar to what we reported in this study. Third, we conducted sensitivity analyses using fixed-effects panel regression models[2] because the Hausman test ($p < .001$) suggests that the fixed-effects model is more appropriate than the random-effects model. We also conducted population average models, based on the generalized estimating equation approach. Our empirical findings are all confirmed across these alternative models with slightly different coefficients and levels of significance.[3]

Figure 5
Complementary Effect of Top Management Team Incentive Intensity and Board Independence on Corporate Social Responsibility



Discussion

Our study theorized and tested the interactive effects of various governance mechanisms in order to examine whether they complement or substitute for each other to promote CSR. Our findings suggest several conclusions. Overall, our results provide support for the substitutive effect hypothesis. Specifically, the two monitoring mechanisms (i.e., PO and BO) and the two incentive alignments (i.e., TO and TI) act as substitutes, respectively, to encourage CSR. When blockholders own a larger portion of a firm, nominating a greater number of outside directors is not necessary to promote CSR, even though outside directors are known as key resources in effective stakeholder management (e.g., Chang et al., 2012; Johnson & Greening, 1999). Likewise, when executives own a substantial amount of shares, offering them long-term incentive pay does not necessarily encourage firms to commit more to CSR.

In a similar vein, BO and TI, and PO and TO, also substitute for each other to promote CSR, respectively. When blockholders own a larger portion of a firm, an intense TMT incentive compensation does not further contribute to promoting CSR. Likewise, excessive TMT stock ownership does not promote CSR substantially when there is a high level of board independence. In sum, we concluded that corporate governance mechanisms substitute for (rather than complement) each other to promote CSR.

However, it should be noted that we found an exception in one case of a complementary effect. PO and TI synergistically promoted CSR, which supports the complementary view. This is presumably because there may be a mutual enhancement effect between an independent board and executives' incentive pay. When executives' compensation is based on long-term incentive pay, the agency problem is less severe (Walsh & Seward, 1990) and executives are more likely to support CSR (Deckop et al., 2006). As such, outside directors can be more committed to effective stakeholder management (Johnson & Greening, 1999) with less concern about their vigilance in monitoring managerial opportunism. In fact, this result seems to

Table 3
Summary of Results: Complements Versus Substitutes

Interactive Effects	Result	Hypothesis
BO and PO	Substitutes (Model 2)	Hypothesis 2 supported
TO and TI	Substitutes (Model 3)	Hypothesis 2 supported
BO and TO	Nonsignificant (Model 4)	—
BO and TI	Substitutes (Model 5)	Hypothesis 2 supported
PO and TO	Substitutes (Model 6)	Hypothesis 2 supported
PO and TI	Complements (Model 7)	Hypothesis 1 supported

Note: BO = blockholder ownership; PO = proportion of outside directors; TO = top management team ownership; TI = top management team incentive intensity.

be endorsed by the conventional approach to the bundle of governance that one governance mechanism complements the other governance mechanism if the two practices themselves are positively correlated (Hoskisson et al., 2009; Randøya & Goel, 2003; Rutherford et al., 2007; Schepker & Oh, 2013; Zajac & Westphal, 1994). In our study, PO and TI had a highly positive and significant correlation ($r = .22$, $p < .001$).

Furthermore, while we did not hypothesize the main effect of each governance practice on CSR, our results show an interesting pattern. An independent board and TMT incentives lead to greater CSR, but the effect of BO on CSR is negative. This may imply that governance entities tend to be cautious in encouraging CSR when their own investment is directly coupled with organizational outcomes but more favorable when their economic wealth is more loosely tied to the outcomes. BO and PO are good examples. While both practices serve as monitoring mechanisms to reduce agency costs, blockholders discourage CSR, whereas an independent board encourages it. It may be possible that blockholders tend to be reluctant to encourage CSR because their "own" money is at stake, but outside directors tend to be more positive toward CSR engagement because "other people's money" (Werner & Tosi, 1995) is at stake. In short, even though good governance practices share a common goal to minimize agency problems through effective monitoring and incentive alignment, they may have different strategic implications for CSR. The overall results are summarized in Table 3.

Theoretical and Practical Implications

Our findings point to some important theoretical implications for corporate governance and CSR research and suggest a number of opportunities for future research. First, our findings suggest that the *independence* assumption for corporate governance mechanisms should be revisited; instead, researchers need to consider the *interdependence* among multiple governance mechanisms, as delineated clearly in the notion of "bundle of governance mechanisms." For instance, firms may want to reinforce long-term incentive compensation for top managers as a way to promote CSR. This decision may not be as effective as expected if top managers already own a significant amount of equity (see Model 3 results displayed in Fig. 2) or if blockholders own a considerable amount of shareholdings (see Model 5 results shown in Figure 3). However, this decision can become more effective in promoting CSR if more outside directors are assigned to the board (see Model 7 results displayed in Figure 5). As

such, this study theoretically extends the validity of corporate governance's "bundle approach" to the context of a firm's social responsibility and offers important implications for organizations in designing their corporate governance instruments.

Second, our findings can provide some insights into why previous findings on the relationship between governance mechanisms and CSR have been mixed. For instance, previous studies that reported a nonsignificant relationship between board independence and CSR might have been conducted under conditions of top managers owning high levels of shareholding (as shown with a solid line in Figure 4), whereas those reporting a positive relationship might have been conducted under conditions of top managers owning low levels of shareholding (as shown with a dotted line in Figure 4). Similarly, previous research might have reported a nonsignificant effect of TMT incentive on CSR because it had been tested unobtrusively under conditions of a low level of board independence (as shown with a dotted line in Figure 5), whereas a positive effect might have been reported when tested under conditions of a high level of board independence (as shown with a solid line in Figure 5). Therefore, future research should investigate various "interactions" between governance mechanisms associated with organizational outcomes in order to generate more accurate interpretations and implications.

Third, our results provide overall support for the substitutive view of governance mechanisms. For instance, if blockholders own substantial shares, additional board independence has a limited marginal benefit to encouraging CSR engagement (see Model 2 results displayed in Figure 1). Similarly, if an effective incentive alignment for TMTs already exists, then another incentive mechanism may not be necessary (see Model 3 results shown in Figure 2). These results suggest that for firms to promote CSR, they do not necessarily have to adopt as many monitoring mechanisms or incentive alignments as possible.

Finally, our findings imply that what economists would call an "equifinality" (Gresov & Drazin, 1997; Rediker & Seth, 1995: 98) of governance bundles exists, such that different combinations of governance practices can yield similar social outcomes. In particular, as a result of the structural constraints and limited resources in organizations, most firms may not be able to adopt as many effective governance practices as possible simultaneously. As such, firms should be strategic in considering trade-offs among different types of governance mechanisms and should take a bundle approach in designing an effective governance mechanism to promote CSR. If the use of specific governance practices is constrained, firms can adjust other governance practices to reach equifinality, which suggests that organizations have strategic choice or flexibility in designing a bundle of governance practices. For example, when there is a lack of blockholders due to a large market cap (i.e., it is difficult for any single investor to own more than 5% of shares of a firm with a large market cap), firms may strategically strengthen the executives' compensation as an alternative solution to promoting CSR with equal effectiveness.

In addition to its theoretical contributions, our study provides some practical implications. Our findings suggest that key decision makers need to better understand how multiple governance mechanisms interact with one another to enhance a firm's social performance. For instance, firms can reach their CSR goals by assigning a sufficient number of outside directors without issuing significant stocks to top managers. Increasing the number of outside directors, however, could be effective only when the level of blockholder ownership is low. Likewise, firms do not have to offer higher levels of incentives to top managers if the top

managers already own considerable equity. Thus, to better manage all arrangements, firms should conduct a *strategic* cost-benefit analysis because adopting or changing governance practice is not without cost. Nonetheless, firms need to make efforts to achieve a synergistic effect in implementing governance mechanisms to maximize CSR, even though various stakeholders may have different views on the preferred level of CSR. For example, we found that firms can enhance the effectiveness of TMT incentive pay on CSR by assigning more outside directors. Taken together, in order to maximize CSR, firms should find an "optimal" balance between monitoring and incentives by specifying how each unique bundle of governance mechanisms works for CSR engagement.

Limitations and Future Research

This study has a number of limitations. First, our study used proxy measurements for corporate governance mechanisms. For instance, we assume that the proportion of independent outside directors reflects the level of a board's vigilance, and the amount of executive equity ownership indicates the degree of incentive alignment, which is a conventional approach in corporate governance research. However, given that the actual agency costs, the degrees of monitoring roles, and incentive alignment are not easily observable (Godfrey & Hill, 1995), future studies could examine the black box of the characteristics that make organizations more effective in monitoring managerial behaviors and incentivizing executives.

Second, we focused on BO and PO as monitoring mechanisms and on TO and TI as incentive alignments. However, future research could examine how other corporate governance mechanisms, such as the existence of certain board committees, board member diversity (e.g., proportion of female directors), shareholder activism, and antitakeover provisions interactively influence CSR activities, thus providing more comprehensive insights into the effects of corporate governance on firms' social performance. Also, while our results found strong support for the substitutive effect, we acknowledge that specific instruments (or specific ways of demarcating instruments) may deviate from the basic logic that multiple instruments may have similar objectives. For example, incentive alignment mechanisms can be separated for CEOs from TMT members, and TMT incentives can possibly complement the effects of CEO incentives on organizational outcomes (Carpenter & Sanders, 2002). Furthermore, future research should recognize that not all outside blockholders have the same motivation to monitor CSR decisions (Borokhovich, Brunarski, Harman, & Parrino, 2006).

Third, while the KLD data used in our study have been widely employed and accepted in CSR research (Deckop et al., 2006), previous studies (e.g., Chatterji, Levine, & Toffel, 2009; Hart & Sharfman, 2015) have noted that they are not without limitations. We encourage future studies to consider other variables to measure a firm's social responsibility, such as a survey of executives and pressure group ratings. This could enhance the validity of our findings, as well as strengthen the argument on the relationship between corporate governance and CSR.

Finally, future studies can benefit from considering a broad range of other important factors that drive CSR. For example, by limiting our sample to U.S. firms, we did not consider the role of institutional influence on CSR (Campbell, 2007). In addition, future studies can investigate firms' stakeholder influence capacity, which may moderate the relationship between governance mechanisms and CSR, as prior studies suggested (e.g., Barnett, 2007).

Also, we did not measure satisfaction with a firm's past performance (Arora & Dharwadkar, 2011), which may be a factor that persuades owners, directors, and top managers that their firm can afford to be more philanthropic. Furthermore, future studies need to consider pressure from various stakeholder groups (Aguilera, Rupp, Williams, & Ganapathi, 2007). Future studies that rule out the roles of these other critical forces in determining CSR may provide a more rigorous test of our model.

Conclusion

The present study provides important implications for understanding the complex set of governance mechanisms that interactively influence firms' social performance. Our theoretical model and empirical results imply that firms should avoid the misperception that "more is better" when it comes to governance mechanisms; instead, multiple governance mechanisms mainly act as substitutes for each other to promote CSR. In this regard, our findings indicate the notion of equifinality that a similar level of CSR can be achieved with different combinations of governance mechanisms. Therefore, firms should be committed to strategic flexibility in designing a bundle of governance practices in order to maximize corporate social outcomes. We encourage future research to develop a better and more responsive theory that will shed light on how multiple governance mechanisms interactively affect organizational outcomes. Such research efforts will broaden our explanatory frameworks for the effects of governance mechanisms on various organizational decisions and subsequent outcomes. At the same time, these efforts will provide practical guidelines to firms on how to selectively implement governance practices to achieve their optimal outcomes.

Notes

1. Previous literature argued for the long-term payoff nature of CSR. Burke and Logsdon noted that "although CSR might entail short-term costs, it paid off for the firm in the long run" (1996: 496). Similarly, T. Wang and Bansal posited that "firms with a long-term orientation can draw value from stakeholder relationships" (2012: 1139).

2. The fixed-effects estimation evens out all effects that are fixed (e.g., time-invariant factors), including all unobserved effects. Thus, it also addresses the endogeneity from unobservable factors, and all model parameters could be unit specific.

3. All unreported results of supplemental analyses are available from the authors upon request.

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