SUBSTITUTES OR COMPLEMENTS? A CONFIGURATIONAL EXAMINATION OF CORPORATE GOVERNANCE MECHANISMS

VILMOS F. MISANGYI
The Pennsylvania State University

ABHIJITH G. ACHARYA
Singapore Management University

We conduct an exploratory qualitative comparative case analysis of the S&P 1500 firms with the aim of elaborating theory on how corporate governance mechanisms work together effectively. To do so, we integrate extant theory and research to specify the bundle of mechanisms that operate to mitigate the agency problem among publicly traded corporations and review what previous research has said about how these mechanisms combine. We then use the fuzzy-set approach to qualitative comparitive analysis (QCA) to explore the combinations of governance mechanisms that exist among the S&P 1500 firms that achieve high (and not-high) profitability. Our findings suggest that high profits result when CEO incentive alignment and monitoring mechanisms work together as complements rather than as substitutes. Furthermore, they show that high profits are obtained when both internal and external monitoring mechanisms are present. At the same time, however, monitoring mechanisms evidently combine in complex ways such that there may be simultaneity of substitution and complementarity among and across the various monitoring and control mechanisms. Our findings clearly suggest that the effectiveness of board independence and CEO non-duality—governance mechanisms widely believed to singularly resolve the agency problem—depends on how each combine with the other mechanisms in the governance bundle.

Corporate governance research and practice is largely guided by the foundational arguments of "positive agency theory" (e.g., Demsetz, 1983; Fama, 1980; Fama & Jensen, 1983; Jensen, 1983; Jensen & Meckling, 1976), and thus has been "most concerned with describing the governance mechanisms that solve the agency problem" (Eisenhardt, 1989: 59). That is, the concern is with how to constrain executives of publicly traded corporations to run the firms for the shareholders' benefit. A host of governance mechanisms have been posited to effectively mitigate the agency problem (for reviews, see Dalton, Hitt, Certo, & Dalton, 2007; Eisenhardt, 1989; Shleifer & Vishny, 1997): the alignment of executives' interests with those of shareholders, via either compensation contingent on firm performance (Holmstrom, 1979; Murphy, 1986) or executive stock ownership (Alchian & Demsetz, 1972; Demsetz, 1983; Jensen & Meckling, 1976); internal monitoring by the board of directors (Fama & Jensen, 1983; Mizruchi, 1983) or among managers themselves (Fama, 1980; Lazear & Rosen, 1981); and the external monitoring of large controlling shareholders (e.g., blockholders; Demsetz & Lehn, 1985) or the "market for corporate control" (MCC) (i.e., the threat of takeover; e.g., Alchian & Demsetz, 1972; Fama, 1980).

Existing evidence on the effectiveness of each of the governance mechanisms is not encouraging. For example, Dalton, Daily, Certo, and Roengpitya's (2003: 20) meta-analysis of the relationship between firm ownership structure and firm performance found "relatively low relationships between various categories of equity and multiple indicators

of financial performance." The extant evidence on each of the other governance mechanisms is just as equivocal (for recent reviews see Bebchuk & Fried, 2005; Dalton et al., 2007).

Some scholars have suggested that this lack of evidence is due to a focus in prior corporate governance research on the independent effects of governance mechanisms (Aguilera, Filatotchev, Gospel, & Jackson, 2008; Dalton et al., 2003; Rediker & Seth, 1995). For the most part, research has been concerned almost exclusively with the ability of governance mechanisms "to resolve the shareholder–manager agency problem independent of each other" (Rediker & Seth, 1995: 86). The literature on the relationship between firm ownership and firm performance is again illustrative. Research has sought to demonstrate the value of ownership as a governance mechanism by showing a positive relationship between a particular type of ownership (e.g., blockholdings) and firm performance irrespective of other mechanisms (for reviews, see Dalton et al., 2003; Hunt, 1986; Kang & Sørensen, 1999). Dalton et al.'s (2003: 21) meta-analytic finding of a negligible relationship between ownership (of any type) and firm performance, however, led them to suggest that future research on ownership should investigate the "substitution hypothesis": that "[o]wnership categories may effectively substitute for another."

This proposal to further examine the substitution hypothesis by Dalton et al. (2003) was directly inspired by Rediker and Seth's (1995) treatise "that firm performance depends on the efficiency of a *bundle* of governance mechanisms in controlling the agency problem" (emphasis in original; 1995: 87). Other scholars have recently joined this call for a more "holistic approach" to corporate governance research (Filatotchev & Boyd, 2009: 258) in which the interdependencies of governance mechanisms are examined to understand their effectiveness (Aguilera, Desender, & Kabbach de Castro, 2012; Aguilera et al., 2008; Tosi, 2008). Furthermore, this recent work highlights that although governance mechanisms have been conventionally considered substitutes for one another (e.g., Dalton et al., 2003; Zajac & Westphal, 1994; Rediker & Seth, 1995: 87), it is contended by others that they operate as complements (e.g., Milgrom & Roberts, 1992; Tosi, Katz, & Gomez-Mejia, 1997).

In the current study we directly answer these calls to take a holistic approach to the study of governance mechanisms and conduct an exploratory comparative case analysis of the S&P 1500 firms in 2005 with the aim of elaborating theory (e.g., Golden-Biddle & Locke, 2007; Vaughn, 1992) on how the mechanisms work effectively together. To do so, we first draw upon and integrate existing theory and research to specify the bundle of mechanisms that operate to mitigate the agency problem. We then examine the extant research that has investigated how these mechanisms combine. This past research has focused on CEO incentives and monitoring mechanisms operating as either substitutes or as complements, and we consider how this extends to the substitutability or complementarity among the rest of the governance bundle. We use qualitative comparative analysis (QCA), in particular the fuzzy-set approach (fsQCA; e.g., Crilly, 2011; Fiss, 2011; Ragin, 2008), to explore the combinations of governance mechanisms that exist among S&P 1500 firms that achieve high profitability. Based on our findings, we develop several general propositions on how the mechanisms work together effectively as a governance bundle, and conclude with a discussion of our study's implications for future research and policy.

THE BUNDLE OF GOVERNANCE MECHANISMS

The growing call among scholars that more attention must be paid toward how mechanisms operate together as a governance bundle (Rediker & Seth, 1995) or as a "system of interdependent elements" (Aguilera et al., 2008: 482) flows from the fact that the majority of governance research has been rather disparate in its examination of the (in)effectiveness of one or another governance mechanism. We thus first draw upon and integrate extant theory and research to specify the fundamental mechanisms that make up the governance bundle.

While past research has categorized the mechanisms in different ways, a review of the literature reveals somewhat of a consensus among governance researchers as to what mechanisms are essential for controlling the agency problem. The most general classification involves whether mechanisms are internal (e.g., executive incentives, boards of directors) or external (e.g., shareholders holding large blocks of shares, the MCC) to the firm (Jensen, 1993; Walsh & Seward, 1990). Another distinction is whether the mechanisms serve to monitor (e.g., boards of directors; external blockholders) or align (e.g., performance-contingent compensation; executive equity holdings) executives' decisions and behaviors (Beatty & Zajac, 1994; Tosi & Gomez-Mejia, 1989, 1994; Zajac & Westphal, 1994).

Dalton et al.'s (2007: 2) recent suggestion that there are "three fundamental means of mitigating the agency problem (e.g., independence [of the board], equity [held by current and past executives and directors or blockholders], and the market for corporate control)," adds nothing new in terms of the essential mechanisms involved (as they incorporate the external/internal and monitoring/incentive classifications), but their distinction between the alignment and control properties of equity ownership is noteworthy: "*Alignment* refers to the effects of insider [i.e., managers, directors] ownership, and *control* refers to the effects of outside [i.e., blockholders, institutional investors] ownership" (emphasis in original; Dalton et al., 2007: 15).

Rediker and Seth's (1995) governance bundle treatise—that the effectiveness of governance mechanisms depends on their working together—included each of the foregoing elements: they suggest that internally, "monitoring by boards of directors and mutual monitoring by managers" and the "incentive effects of management share ownership . . . and other elements of compensation packages" substitute for one another, while externally the "the threat of takeover" and "monitoring by large outside shareholders" work to replace each other (: 86).

We draw upon this prior literature to specify the governance bundle as consisting of the following essential mechanisms: internal mechanisms encompass CEO incentive alignment, monitoring by directors, and the alignment of and thus monitoring among the top management team (TMT); external governance involves control and monitoring by large external shareholders and the takeover market. We briefly explain each of these elements in turn.

The first set of internal mechanisms work to align CEO and shareholder interests through CEO compensation contingent on firm performance and through CEO stock ownership. The assumption is that CEOs are "*both* effort- and risk-averse" (emphasis in original; Bloom & Milkovich, 1998: 284), and thus CEO compensation contracts are structured to align CEOs with shareholders on both of these fronts. The non-programmability of managerial behaviors makes monitoring difficult (e.g., Tosi & Gomez-Mejia, 1989), and thus compensation that ties pay to performance is thought to align effort, thereby lessening the agency problem (e.g., Eisenhardt, 1989). Including long-term incentives such as stock options in compensation serves to align the risk preferences of CEOs and shareholders (e.g.,

Devers, McNamara, Wiseman, & Arrfelt, 2008). While CEO ownership has received relatively less attention than CEO compensation, such ownership holdings are nevertheless a quintessential alignment mechanism (Demsetz, 1983; Jensen & Meckling, 1976).

Second, several mechanisms are thought to affect the monitoring effectiveness of the board of directors and thus firm performance: director independence (i.e., outside (non-management) directors who do not have a material relationship with the firm or its management), outside director equity ownership, the presence of non-TMT inside directors (e.g., ex-CEOs, founders, etc.), and CEO duality (i.e., the CEO is also chairperson of the board). Director independence is widely held to be critical for vigilant monitoring—indeed, it seems to be considered somewhat of a "silver bullet" for governance. This is evidenced by the independence requirements of the Sarbanes-Oxley Act of 2002 (SOX) and the related stock exchange guidelines (NYSE; NASDAQ) (Linck, Netter, & Yang, 2009), despite the ongoing academic debate as to whether outside directors can ever be truly independent (see Dalton et al., 2007). Although the merits of director equity ownership have been questioned (as it may create a conflict of interest; Dalton & Daily, 2001), such ownership is generally presumed to align directors with shareholders (Shleifer & Vishny, 1997). Indeed, some scholars have argued that equity stakes are necessary for directors' monitoring vigilance (Hambrick & Jackson, 2000).

While the presence on boards of TMT members other than the CEO (i.e., inside directors) is now much less common since the passage of SOX (e.g., Linck et al., 2009), recent research has suggested another type of inside director whose monitoring may have an impact on firm performance: a past CEO (e.g., Quigley & Hambrick, 2012) or founder (or their family members) (e.g., Villalonga & Amit, 2006). Quigley and Hambrick (2012) suggested and found that former CEOs who stay on boards hamper the successor CEO's ability to deliver performance that deviates from pre-succession performance. Whether the presence of founders (or their family) on boards is beneficial or detrimental is an open question (Villalonga & Amit, 2006), for while such individuals typically hold substantial equity stakes, they may also have "socioemotional" goals beyond firm profitability (for a review, see Gomez-Mejia, Cruz, Berrone, & De Castro, 2011).

The final board mechanism, CEO duality, is commonly deemed to be critical for effective gover-

nance and is rivaled only by board independence and is rivaled only by board independence as a favored mechanism. CEO duality is typically considered detrimental to firm performance because it may allow the CEO to set the agenda of board meetings and influence the recruitment of directors to the board, and in general may protect the CEO's discretion (e.g., Mallette & Fowler, 1992), thereby diminishing the "separation of decision management and decision control" (Fama & Jensen, 1983: 314). This view has its detractors, however, as CEO duality can be considered both functionally and symbolically critical for firm success due to its unity of command (e.g., see Dalton et al., 2007), for which there is some evidence (Finkelstein & D'Aveni, 1994).

The third set of internal mechanisms fundamental to the governance bundle involve aligning the interests of top managers beyond the CEO, thereby enhancing mutual monitoring among the top management (Fama, 1980; Rediker & Seth, 1995). The two primary mechanisms theorized to align top managers with shareholder interests are pay tournaments and managers' equity holdings. Given that monitoring requires being able to observe managerial marginal products, which is difficult at best, pay disparity between the CEO and TMT members is suggested to provide "strong incentives that better align principal-agent interests" (Henderson & Fredrickson, 2001: 99). This is because such disparity creates a "tournament" setting in which pay is based on rank rather than marginal product, and the grand prize (i.e., CEO pay) is inherently motivating (Lazear & Rosen, 1981; Rosen, 1986). Furthermore, while we have already considered the alignment of CEOs via their equity stakes, the alignment properties of ownership held by the other members of the TMT are presumed to be no less important to effective governance (e.g., Dalton et al., 2007; Demsetz & Villalonga, 2001).

Turning to external mechanisms, prior theory suggests two mechanisms as being integral to the governance bundle: large external shareholders and the MCC. Researchers and policy makers alike have long considered the presence of an investor holding a large block of the firm's equity (i.e., blockholder) as being a primary control mechanism (for reviews, see Dalton et al., 2007; Hunt, 1986). Indeed, the central thesis of managerial capitalist theory is that effective governance will not occur when such external ownership is absent (e.g., Gomez-Mejia, Tosi, & Hinkin, 1987; Marris, 1998; Williamson, 1964). To wit, the Securities and Exchange Commission (SEC) requires that investors owning 5% or more of the firm must disclose their holdings. Although the threat of takeover posed by the MCC is believed to have waned somewhat as a constraint (see Dalton et al., 2007; Grossman & Hart, 1980; Jensen, 1993), it has long been held as the fundamental mechanism of last resort in the governance bundle (Alchian & Demsetz, 1972; Fama, 1980; Rediker & Seth, 1995).

GOVERNANCE MECHANISMS AS SUBSTITUTES OR COMPLEMENTS?

While the foregoing clarifies what mechanisms make up the governance bundle, we now consider how these governance mechanisms effectively operate together. The research that has been done in this regard suggests, on the one hand, that they operate as substitutes (Agrawal & Knoeber, 1996; Dalton et al., 2003; Demsetz, 1983; Zajac & Westphal, 1994; Rediker & Seth, 1995: 87), and on the other, that they operate as complements (Aguilera et al., 2008; Milgrom & Roberts, 1992; Tosi et al., 1997; Tosi, 2008).

The substitution perspective posits that governance mechanisms replace one another (e.g., Dalton et al., 2003; Rediker & Seth, 1995), a premise that directly flows from the market equilibrium arguments inherent in agency theory (e.g., see Agrawal & Knoeber, 1996; Jensen & Meckling, 1976). The conceptual drivers of the substitution between mechanisms are efficiency and relative costs; governance structures are presumed to be the outcome of a process "in which various cost advantages and disadvantages are balanced to arrive at an equilibrium organization of the firm" (Demsetz, 1983: 384). In essence, the agency problem is thought to be resolved because decreases in CEO ownership (i.e., as ownership becomes more dispersed) are offset by increases in CEO contingent pay (i.e., performance-based incentives; Jensen & Meckling, 1976) or increases in monitoring (Fama, 1980; Fama & Jensen, 1983).

Thus, that CEO contingent compensation substitutes for CEO equity ownership is pivotal in agency theory (Jensen & Meckling, 1976).[1] It also directly flows from this seminal argument that monitoring

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[1] The subsequent literature has also shown that due to the risk (averse) preferences of CEOs, there are limits to the amount of contingent compensation CEOs are willing to bear and thus typically compensation contracts must also contain a fixed or cash-based element (e.g., Bloom & Milkovich, 1998; Holmstrom, 1979; Zajac & Westphal, 1994).

and CEO incentive alignment mechanisms substitute for one another, for which there is some evidence (Beatty & Zajac, 1994; Rediker & Seth, 1995; Zajac & Westphal, 1994). For example, Beatty and Zajac (1994) lend support to this notion of substitution in their findings that monitoring by both the board and by blockholders was inversely related to both types of CEO incentive alignment (CEO stock ownership; CEO contingent compensation). Moreover, as they succinctly noted, CEO incentives and monitoring are considered to replace one another in an additive but mutually exclusive manner, as the agency perspective holds

> incentive contracting as a first-best solution to the agency problem and emphasize[s] that the optimal level of monitoring would be based on the magnitude of the incentive gap between principal and agent. [. . .] Strong monitoring is therefore particularly appropriate when managerial incentives are only weakly tied to firm performance, and the benefits of monitoring would outweigh the costs (Beatty & Zajac, 1994: 317).

Finally, this perspective suggests that monitoring mechanisms substitute for each other (Agrawal & Knoeber, 1996; Rediker & Seth, 1995). That is, monitoring may occur via the vigilance of boards *or* managers *or* large outside shareholders *or* the MCC. Rediker and Seth (1995) suggested that their finding of an inverse relationship between the outsider ratio and external blockholdings supports this notion. This led Dalton et al. (2003: 21) to posit that in addition to ownership types substituting for each other, "alternative governance mechanisms may [also] substitute for ownership structure."

A somewhat more integrative view of corporate governance has emerged, however, that considers how governance "practices interact and potentially complement each other as related bundles" (Aguilera et al., 2008: 483). For instance, Aguilera et al. (2008: 484) suggested that "performance incentives for executives are more effective when complemented with a high level of board independence and an effective market for corporate control" and thus implied complementarity between CEO incentives and monitoring instead of substitution. Rather than the replacement between mechanisms, what conceptually underlies the complementarity perspective is mutual enhancement (e.g., Milgrom & Roberts, 1992): governance mechanisms are suggested to operate in a complementary manner because their mutual presence increases the effectiveness of each (e.g., Aguilera et al., 2008; Tosi, 2008; Tosi et al., 1997).

Thus, the notion of complementarity here is a synergistic rather than an additive one (cf. Ennen & Richter, 2010)—it builds on the idea that "the gain from increasing every component . . . is more than the sum of gains from the separate individual increases" (Milgrom & Roberts, 1992: 5).

Aguilera et al.'s (2008) recent complementarity treatise notwithstanding, there has been relatively little work on this perspective beyond the national comparative level (e.g., Aguilera et al., 2012), and the focus of extant research has been on the complementarity between monitoring and CEO incentives. In essence, this literature has argued that because there is great difficulty and ambiguity involved in observing executive behaviors as well as in measuring performance outcomes in large corporations (e.g., Eisenhardt, 1989), incentives and monitoring necessarily function as complements: both must be present for effective governance (Milgrom & Roberts, 1992; Tosi et al., 1997). Milgrom and Roberts (1992) first suggested this as they argued that incentives and monitoring can only act as substitutes when effort or its outcomes can be accurately measured. They argued that when such accuracy is not possible, incentives and monitoring are then complementary: when the measurement of either an agent's behavior or its outcomes is difficult, both monitoring and incentives will be chosen because "undertaking either activity makes the other more effective" (Milgrom & Roberts, 1992: 227). Tosi and colleagues (Tosi, 2008; Tosi et al., 1997) echoed and built on this view, as did Aguilera et al. (2008). Studies showing that CEO contingent pay is more strongly linked to firm performance when external blockholders are present (e.g., Gomez-Mejia et al., 1987; Tosi & Gomez-Mejia, 1989) are further suggestive of this notion.

In comparing the substitution and complementarity perspectives, one apparent difference thus involves how monitoring and CEO incentive mechanisms are thought to combine. From the substitution perspective, these types of mechanisms replace each other and are mutually exclusive—only one or the other need be present for effective governance. Complementarity, on the other hand, argues for the co-presence of monitoring and CEO incentives—both types of mechanisms need to be present for effective governance to occur. In other words, although both perspectives consider the co-occurrence of the mechanisms, more of one means less of the other in substitution theory (e.g., Beatty & Zajac, 1994; Zajac & Westphal, 1994), while they are mutually enhancing in com-

plementarity theory (e.g., Aguilera et al., 2008; Milgrom & Roberts, 1992). Simply put, whereas substitution theory suggests that either monitoring *or* CEO incentives can be present for effective governance, complementarity theory posits that monitoring *and* CEO incentives must be present for effective governance. The question for the current inquiry is then: can publicly traded corporations in the United States achieve high profitability when just CEO incentives *or* monitoring mechanisms are present? Or must both CEO incentives *and* monitoring mechanisms be present to obtain high profits?

Beyond this inherent difference with respect to how monitoring and CEO incentive mechanisms combine, extant theory provides very little guidance as to how the rest of the governance bundle works together. For one thing, it is not at all clear whether the mechanisms aimed at enhancing the monitoring of internal actors serve as substitutes or complements. For instance, both the independence of outside directors and such directors' holdings of the firm's equity are suggested as mechanisms that heighten the monitoring of this inside actor. While substitution theory would suggest that these two mechanisms replace each other, the suggestion that equity stakes are required to motivate directors (Hambrick & Jackson, 2000) implies instead that these two mechanisms are mutually enhancing—director independence is not effective unless there are also director ownership stakes present. The question is, then, can outside director equity stakes make up for (i.e., substitute) the lack of independence? Or do these two mechanisms complement each other? Similar questions arise with respect to the other within-actor combinations. Are CEO contingent pay and CEO ownership stakes substitutes or complements? Do TMT tournaments substitute or complement for TMT ownership stakes?

Furthermore, we read the complementarity perspective on governance as taking a somewhat broader view than that of the substitution perspective in that it seems to inherently support both substitution and complementarity. Thus, this raises the question as to whether there is simultaneity of substitution and complementarity across the governance bundle. For instance, it is possible that some form of CEO incentive alignment mechanism *and* some form of monitoring mechanism need to be present for good firm performance (i.e., CEO incentives and monitoring are complements not substitutes), while at the same time the various monitoring mechanisms may be substitutes and/or complements for each other—be this substitution

or complementarity occurring within actors (e.g., TMT tournaments substituting or complementing TMT equity holdings) and/or between internal actors (e.g., outside director mechanisms substituting/complementing TMT mechanisms), between external actors (blockholdings substituting/complementing the MCC), or between internal and external mechanisms (e.g., outside director mechanisms substituting/complementing for blockholdings).

In short, how mechanisms effectively combine as a governance bundle is a complex issue, and thus, as Aguilera et al. (2008) have suggested, it is perhaps not surprising that "these combinations remain to be systematically theorized" (: 484). We now turn to such a theory-building effort by exploring these questions through a comparative case analysis of how the specified bundle of mechanisms operates to generate firm profitability among S&P 1500 firms.

METHOD

In the current study we use the fuzzy-set qualitative comparative approach to case analysis (e.g., fsQCA; Crilly, 2011; Fiss, 2011; Ragin, 2008), and while an in-depth explanation of this method is beyond the purview of the current study, we briefly explain the central features of fsQCA pertinent to our inquiry (see also Greckhamer, Misangyi, Elms, & Lacey, 2008 for a tutorial of the set-theoretic method aimed at management researchers). In brief, fsQCA takes the perspective that cases are constituted by combinations of theoretically relevant attributes (i.e., governance mechanisms), that the relationships between these attributes and the outcome of interest (i.e., firm profits) can be understood through the examination of subset relations (Ragin, 2000, 2008), and thus that the attributes and the outcome are "best understood in terms of *set membership*" (italics in original; Fiss, 2007: 1183). In particular, our exploratory analyses investigate what, if any, combinations of governance mechanisms are sufficient for obtaining high firm profits. While we further explain sufficiency analyses below, the initial methodological steps involve the selection of the theoretically relevant cases and the coding of their set memberships in the outcome and in each governance mechanism.

Sample

The cases under study are the firms that made up the S&P 1500 in 2005. We chose this sample for a

number of reasons. First, it is consistent with previous governance research (e.g., Haynes & Hillman, 2010; Anderson & Reeb, 2004). Second, fsQCA does not involve statistical inference or rely on probability theory, and thus does not lend itself to generalization beyond the sample (see Greckhamer, Misangyi, & Fiss, 2013). Therefore, we chose to study the S&P 1500 firms not only because it means our findings apply to an important population of firms, but also because small, medium and large firms are fairly equally represented (i.e., the S&P 1500 is a composite index made up of the S&P 500 firms, the S&P MidCap firms and the S&P SmallCap firms). Third, we chose this time frame because it is subsequent to the passage of SOX and precedes the financial crisis that began in 2007. Nevertheless, while our study calls for a cross-case comparison of governance mechanisms, we also employed a lagged design: governance mechanisms were measured in 2005, while firm profits were measured in 2006. The Risk Metrics and Compustat Execucomp archival databases essentially cover the S&P 1500 firms, and thus we drew our initial sample from these databases, from which data were available for 1,358 firms. From this initial sample we excluded 160 firms that had a CEO succession event in 2005 or 2006. An additional 63 firms had to be dropped due to missing data, but mean difference tests on key governance attributes for which we had data found no significant differences. Our final sample consisted of 1,135 firms.

Calibration of Set Memberships

The data come from archival data sources—Risk Metrics, the Compustat Annual and Execucomp files, Compact Disclosure, and firms' annual proxy statements—and we followed Ragin (2008) in calibrating fuzzy-set memberships. In general, calibration requires transforming conventional archival measures according to three qualitative thresholds: full membership, the crossover point, and full non-membership. For each calibration, we set these thresholds based on extant theory and substantive knowledge and utilized the direct method of calibration in the fsQCA software to transform the measures into set memberships (e.g., Fiss, 2011; Ragin, 2008). Table 1 summarizes the fuzzy sets and the underlying measures used to capture each of the various governance mechanisms, including the calibration thresholds for each fuzzy set and selected descriptives of the underlying measures.

Outcome: Firm Profits

High firm profits. The outcome of interest in the current study is firm profitability—and in particular, high firm profitability, given that corporate governance is concerned with profit maximization—which we measured via firm return on assets (ROA) for 2006 (calculated as net income divided by total assets). We calibrated membership *in the set of firms with high profitability* using the following thresholds, consistent with Fiss (2011): firms that were at or below the median ROA of their respective industry were coded as "fully out" of the set of high profit firms; firms with ROA in the upper quartile of their industry (i.e., ≥ 75th percentile) were coded as "fully in" the set of high profit firms; and we used the halfway mark between these thresholds as the crossover point (i.e., this point represents "neither in nor out" of the set of high profit firms, or in other words, the demarcation point of a difference in kind with respect to the particular attribute or outcome being assessed; see Ragin, 2008). Industry ROA median and upper quartile scores were calculated based on all firms listed in the Compustat annual file in the same two-digit SIC as the focal company in 2006.

Not-high firm profits. We also sought to understand whether and how the various governance mechanisms combine in the absence of high profits. This is accomplished by taking the converse of the outcome (e.g., see Fiss, 2011), or membership *in the set of firms with not-high profitability*, which is captured by the negation of the high profit fuzzy set described above (so here, fully in ≤ median ROA; fully out ≥ 75th percentile; crossover = halfway point).

Governance Mechanisms

Outside director mechanisms. As discussed above, both the independence and the alignment of outside directors are essential mechanisms of outside director monitoring.

Outside director independence. Outside directors' independence may be compromised when the directors have been appointed during the tenure of the current CEO (i.e., they feel beholden; e.g., Westphal & Zajac, 1995), are currently CEOs of another company themselves (i.e., they will be overly sympathetic to the CEO's suggestions; e.g., Hillman, Nicholson, & Shropshire, 2008), or have some type of material relationship to the firm or its management (SOX; NASDAQ; NYSE; e.g., Linck,

TABLE 1
The Bundle of Governance Mechanisms: Set Memberships and Calibrations/Measures and Sample Descriptives

Mechanism	Fuzzy Set/Measure	Fuzzy Set Calibrations			Measure Descriptives			
		Fully In	Crossover	Fully Out	Mean	SD	Max	Min
Internal Mechanisms								
CEO LT Contingent Pay[a]	*Firms with a CEO whose stock options represent a substantial stake/CEO's accumulated unexercised exercisable + unexercisable options*	*9*	*4.93*	*0.86*	18.79	63.45	1,776.55	0
CEO Equity Ownership[a]	*Firms that have a CEO with a substantial equity stake/CEO's shareholdings + unvested restricted stock grants*	*9*	*4.93*	*0.86*	77.71	385.99	10,183.85	0
Outside Director Independence[b]	*Firms with an independent board/ratio of independent directors on the board*	*.66 or .50*	*.15*	*0*	0.27	0.22	0.89	0
Outside Director Equity Ownership[a,b]	*Firms that have a board with outside director substantial stakes/ratio of outside directors with a substantial stake*	*.66 or .50*	*.15*	*0*	0.41	0.26	1.00	0
TMT Tournament	*Firms that have a high CEO–TMT pay disparity/CEO's total pay divided by average TMT total pay*	*4*	*2.75*	*1.5*	3.01	2.11	38.88	0
TMT Equity Ownership[a]	*Firms in which the TMT member with the most ownership has a substantial stake/TMT member's shareholdings + restricted stock grants*	*0.19*	*0.11*	*0.32*	1.80	8.55	216.58	0
Non-TMT Inside Director Equity Ownership[a]	*Firms that have a non-TMT inside director with a substantial stake/non-TMT inside director's shareholdings*	*9*	*4.93*	*0.86*	104.87	386.76	2,908.70	0
CEO Duality (Duality)	*Firms that have a CEO who is also the chair of the board/CEO duality = 1, otherwise 0*	*CEO is the chair*		*CEO is not the chair*	0.60	0.49	1.00	0
External Mechanisms								
External Blockholders[c]	*Firms that have pressure-resistant external blockholders/external stockholders holding at least 5% of the firm's outstanding shares classified as pressure resistant or sensitive*	*1*	*.66/.33*	*0*	0.68	0.47	1.00	0
Market for Corporate Control	*Firms that face an active acquisition market/probability of acquisition in a firm's industry over the previous 5 years*	*.20*	*.13*	*.11*	0.15	0.08	0.67	0

[a] All stock option and equity holdings are in millions of dollars as of the end of 2005.

[b] For boards with supermajority voting requirement, fully in $\geq$ .66; for boards requiring a simple majority, fully in $\geq$ .50.

[c] We coded external blockholders using a four-value fuzzy set: firms with pressure-resistant blockholders (angel/VC investors, hedge funds/private equity, endowments/foundations) were coded as being fully in this set (= 1), firms with blockholders with investment/asset managers, mutual funds, and investment counselors (i.e., similar to the pressure-indeterminate blockholders of past research) were classified as more in than out (.66), firms with pressure-sensitive blockholders (insurance companies, banks, companies/holding companies, nonbank trusts) were coded as being more out than in this set (.33), and firms with no external blockholders were coded as being fully out (0). The descriptive statistics represent the proportion of firms (68%) in the sample that had at least one blockholder classified as a .66 or 1 on this fuzzy set.

Netter, & Yang, 2009). Thus, we classified each outside director as being independent if they met all three of the following criteria: (1) they are classified as "independent" in the Risk Metrics database, (2) they joined the board before the incumbent CEO's start date, and (3) they are not currently a CEO for another company. We then calculated the proportion of independent directors on the board (the number of independent directors divided by the total board size), and used this measure to assess each firm's membership *in the set of firms with an independent board of directors* based on the following theoretically and substantively derived calibration thresholds. We set the "fully in" threshold based on the voting provisions specified in each company's charter with respect to major governance decisions: the proportion of independent directors on the board $\geq$ .66 for firms requiring a supermajority and $\geq$ .50 for those firms requiring a simple majority. Firms with no independent directors on their board were coded as fully out. In calibrating the crossover point, we followed the groups literature (e.g., Laughlin & Adamopoulos, 1980) which suggests that the presence of two such directors will be enough to give these directors the voice needed to make a difference (i.e., this represents a difference in kind). Given that the average board size of our sample firms was nine ($SD = 2$), we set the crossover point at .15, as this meant that firms with two or more independent directors would be calibrated as being more in than out of this set.

Outside director ownership. Hambrick and Jackson (2000) argued that directors must "hold meaningful amounts of equity" (: 12) to be motivated to monitor management. Moreover, they contended that directors need to have a sizable portion of their *own* wealth invested in the firm in order to have a meaningful stake (rather than the typical referencing of the percentage of the firm's ownership held), accounting for roughly 3–5% of the director's total net wealth (at the time of their study this amounted to $500,000). We followed this research and thus identified those outside directors with a substantial stake, which we defined as $860,000, in the focal firm. This is the 2005 equivalent of Hambrick and Jackson's (2000) specification (and incidentally, very close to the $849,000 median value of equity held by outside directors in our sample).[2] More-

over, this amount of ownership represents approximately 5% of such individuals' net worth: the net worth of the individuals who typically serve as directors (i.e., current or retired business executives) put them among the top 1% of the income distribution in the United States (Bakija, Cole, & Heim, 2010), and the average net worth of those among the top 1% is around $18 million dollars (in 2007; Wolff, 2010). Directors' equity stakes (like all ownership stakes in this study) were calculated by valuing the 2005 fiscal year-end total number of firm shares held by each director using the average of the bid and ask price of the firm's stock at the end of fiscal 2005. We then calculated the proportion of outside directors with substantial stakes on each board and used this to code each firm's membership in *the set of firms with a board comprised of outside directors holding a substantial equity stake in the firm*. Our calibration thresholds for this fuzzy set followed the same logic used in calibrating the independent board set (i.e., fully in $\geq$ .66 (supermajority)/ fully in $\geq$ .50 (simple majority); crossover = .15; fully out = 0).

Non-TMT inside directors. We followed previous research (e.g., Henderson & Fredrickson, 2001) and defined the TMT as the top five highest-paid executives as listed in the companies' proxy statements (as captured by the Execucomp database). We defined non-TMT inside directors, then, as those inside directors that were not a part of this TMT, but were part of either the current or past management of the firm (i.e., ex-CEOs, founders, subsidiary executives, etc.). Among the cases studied, there were a total of 124 cases which had a non-TMT inside director (44 were former CEOs, 24 were founders or family members of the founders, the remaining 60 were company employees who were not part of the TMT; 70 of the 124 non-TMT inside directors were the chair of the board). As with outside directors, we used the firm equity held by non-TMT inside directors as indicative of their monitoring potential, and thus assessed each firm's membership *in the set of firms with a non-TMT inside director with a substantial equity stake in the firm*. We used the same minimum threshold for a substantial stake as in calibrating outside directors' ownership stakes (i.e., fully out

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[2] We deemed this threshold to be applicable across all directors (i.e., across directors of small vs. mid vs. large cap firms) given that through descriptive analyses we

found that (1) a similar proportion of the directors in the sample were currently also CEOs across the three firm size categories (.21, .21, and .23, respectively), and (2) 95% of the directors that sat on multiple boards had their board seats span the different size categories of firms (e.g., they sat on boards of small, mid, and large cap firms).

≤ $860,000)—the individuals typically serving as a non-TMT inside director (e.g., ex-CEOs, founders) are also among the top 1% of the U.S. income distribution (indeed, median equity holdings of non-TMT inside directors in our sample were $8.9 million; see Table 1 for more descriptives). We set the "fully in" threshold at $9 million (i.e., one half of the individual's net worth), as extant evidence suggests that the average "one-percenter" in the United States has about 50% of their net worth invested in stocks (Wolff, 2010). The crossover point was set at $4.93 million (halfway point; e.g., Fiss, 2011).

CEO duality. We assessed each firm's membership in *the set of firms that have a CEO who is also the chairperson of the board* using a crisp set such that firms in which the CEO also held the position of chairperson were coded as fully in and firms where the CEO was not also the chairperson were coded as fully out.

CEO incentive alignment mechanisms. Both CEO contingent compensation and CEO ownership are mechanisms that should work to align CEO interests with those of shareholders.

CEO contingent compensation. CEO contingent compensation comes almost wholly in the form of stock options and restricted stock grants. Although previous governance research has treated these together in measuring CEOs' contingent pay, the findings of a study by Devers et al. (2008) clearly suggest that they incent CEOs differently with respect to risk taking. In essence, CEOs treat unvested restricted stock grants as if they already own these shares—i.e., this form of pay is viewed by CEOs similarly to the equity ownership they already hold. We thus treated restricted stock grants in this study as part of the CEO's ownership position and confined contingent pay to stock options. Furthermore, our concern in the current study was with firm profits and not risk taking; thus, although Devers et al. (2008) made distinctions between the separate effects of exercisable and unexercisable options on risk taking, it is not clear that these would operate differently with respect to firm profitability. Thus, we measured options stakes by summing the dollar value of each CEO's accumulated unexercised exercisable and unexercisable options as of the end of 2005.[3] We then assessed

each firm's membership *in the set of firms with a CEO whose accumulated unexercised stock options represent a substantial stake in the firm.* CEOs of the S&P 1500 firms are among the top 1% of the income distribution in the U.S.A. (Bakija et al., 2010) (see also Table 1) and thus we calibrated this fuzzy set using the same thresholds as just described for non-TMT inside director ownership (fully out ≤ $860,000; crossover = $4.93 million; fully in ≥ $9 million).

CEO equity ownership. The amount of the firms' equity that CEOs hold is the quintessential incentive alignment mechanism (Jensen & Meckling, 1976). Given the findings of Devers et al. (2008) discussed above, we captured each CEO's ownership stake by summing the dollar value of the CEO's share holdings and the dollar value of their unvested restricted stock grants as of the end of 2005. We assessed each firm's membership *in the set of firms that have a CEO with a substantial equity stake in the firm* using the calibration thresholds just described (fully out ≤ $860,000; crossover = $4.93 million; fully in ≥ $9 million).

TMT mechanisms. Two mechanisms have been theorized to align the top managers other than the CEO, thereby enhancing their monitoring: pay tournaments and equity holdings. Again, the TMT was defined as the top five highest-paid managers, not including the CEO.

TMT tournaments. Consistent with previous research (e.g., Henderson & Fredrickson, 2001; Siegel & Hambrick, 2005) we measured the CEO–TMT pay disparity as the CEO's total pay divided by the average TMT total pay (where total pay for both = the TDC1 variable in the Execucomp database). We then assessed each firm's membership *in the set of firms with a high CEO–TMT pay disparity* using the following calibration: we set fully out = 1.5 (i.e., the CEO's pay is approximately 1.5 times higher than the average TMT member) based on the extant empirical evidence which suggests that the normative differential between managerial levels is around 40% (e.g., Carpenter & Sanders, 2002). We set fully in = 4 (CEO pay is 4 times that of average TMT pay), based on extant theory (e.g., Lazear & Rosen (1981) argued that the tripling of salary on promotion of a TMT member to CEO cannot be explained by economic theory, but can be explained by tournament theory) and extant evidence (the mean pay gap found by Siegel & Hambrick

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[3] We also ran the analyses using simply the accumulated unexercised exercisable options as the measure of options—as all CEOs had such options—and our findings

are robust to this alternative measure.

(2005) was 2.83; incidentally, the mean pay gap in the current sample is 3.0). The crossover was set as the halfway point (= 2.75) (e.g., Fiss, 2011).

TMT ownership. While previous research concerned with managerial ownership has typically examined equity held by all managers and directors (e.g., Demsetz & Villalonga, 2001) or inside directors (e.g., Rediker & Seth, 1995), our interest here is with TMT equity holdings (not the CEO). In setting the calibration thresholds, we again followed theory—we sought to capture the amount of the individual's net worth at stake (Hambrick & Jackson, 2000)—as well as extant substantive knowledge. With respect to the latter, this meant that we had to come up with a reasonable estimate of the net worth of the typical TMT member. The median annual pay (i.e., salary plus bonus) for TMT members in our sample was $591,000 ($1.2 million in total pay, i.e., including long-term contingent pay such as stock options), and given that the average savings rate over the decade prior to 2005 was around 3% (U.S. Bureau of Economic Analysis, 2013), we conservatively placed TMT members in the top 20% (i.e., in the range 11–20%) of the income distribution in the United States as the mean net worth of this bracket of the income distribution was around $650,000 (in 2007; Wolff, 2010). Again, following the findings of Devers et al. (2008), we included both the dollar value of the equity held by each TMT and the dollar value of the restricted stock grants held. We used the ownership of the TMT member with the highest ownership stake because approximately two-thirds of TMT members held no ownership stakes and thus, using the average TMT ownership would mask the presence of at least one aligned TMT member, and extant theory would seem to suggest that the presence of even one TMT member with a substantial stake should enhance monitoring (Fama, 1980). We assessed each firm's membership in *the set of firms in which the TMT member holding the most ownership has a substantial stake in the firm*, using the following thresholds: fully out ≤ $32,100 of equity held (5% of their net worth); fully in = $190,000 of equity held (median holdings of sample); and crossover = $111,000 (halfway point; e.g., Fiss, 2011).

External blockholders. Theory clearly suggests that large blockholdings should serve as an external control mechanism, but scholarship focusing on institutional investors suggests an additional factor to be considered beyond block ownership in the firm, namely whether such external investors are "resistant" or "sensitive" to the pressures from firms' management to go along with managerial objectives and wishes (e.g., Brickley, Lease, & Smith, 1988; David, Kochhar, & Levitas, 1998; Kochhar & David, 1996). This latter research allowed us to capture how actively blockholders would monitor and exercise control. First we identified the presence of external blockholders at each firm (i.e., any non-management/non-director stockholders holding at least 5% of the firm's outstanding common shares), and then assessed each firm's membership *in the set of firms which have pressure-resistant external* blockholders using a four-value fuzzy set (see Ragin, 2008) in which firms with blockholders considered pressure resistant (angel/VC investors, hedge funds/private equity, endowments/foundations) were coded as being fully in this set (= 1), firms with blockholders that were investment/asset managers, mutual funds, and investment counselors (i.e., similar to the pressure-indeterminate investors of past research)[4] were classified as more in than out (.66), firms with pressure-sensitive blockholders (insurance companies, banks, companies/holding companies, non-bank trusts) were coded as being more out than in (.33), and firms with no external blockholders were coded as being fully out (0).

Market for corporate control. The potential threat of being taken over if management grossly underperforms stands as a mechanism of last resort in the governance bundle. We thus assessed each firm's membership *in the set of firms that face an active acquisition market*. First, following Agrawal and Knoeber (1996), we measured the threat of takeover facing each firm as the probability of acquisition in a firm's industry (two-digit SIC), calculated as the ratio of de-listed firms due to a merger during the period January 1, 2001 to December 31, 2005 to the number of firms that existed in the firm's industry as of December 29, 2000. We then calibrated membership in this fuzzy set by the distribution of the threat posed across the 67 industries in the study sample:

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[4] Note that past research has classified firms as being pressure resistant (public pension funds, mutual funds, endowments/foundations), pressure sensitive (insurance companies, banks, non-trust banks), or pressure indeterminate (corporate pension funds, brokerage houses, investment counselors). We followed this classification scheme, but adjusted it to better reflect the time period of our study, which included not classifying mutual funds as being fully resistant due to their wide variety and the many scandals that have come to light among them.

firms in an industry with a proportion ≥ .20 (75th percentile) were coded as fully in, those in an industry with a proportion ≤ .11 (25th percentile) were coded as fully out, and the median was used as the crossover point (proportion = .13).

Fuzzy-Set Analyses

When a governance mechanism or combination of mechanisms is sufficient for high firm profits, the occurrence of the mechanism(s) is always accompanied by high firm profits (see Ragin, 2000). Sufficiency thus implies that the governance mechanism(s) are a subset of high firm profits. Technically speaking, the sufficiency of a combination of mechanisms for observing high firm profits is shown if membership scores in the proposed combination of mechanisms are consistently less than or equal to the membership in high firm profits, where consistency "indicates how closely a perfect subset relation is approximated" (Ragin, 2008: 44). With respect to sufficiency, consistency is calculated as (Ragin, 2006a):

$$\text{Consistency } (X_i \le Y_i) = \Sigma \ (\min(X_i, \ Y_i))/\Sigma(X_i)$$

where X_i is the membership score of firm i in the particular combination of mechanisms and Y_i is the membership score of firm i in the set of high firm profits. Although a perfectly consistent subset relation is desirable (i.e., consistency = 1), a minimum consistency of .80 is typically needed to establish that a consistent subset relation exists (e.g., see Greckhamer et al., 2013).

Sufficiency analyses are conducted by making use of a truth table algorithm, which, in short, maps the logically possible and empirically occurring combinations of fuzzy sets under study (see Greckhamer et al., 2008; Ragin, 2000, 2008). This algorithm requires the researcher to set *a priori* minimum thresholds for consistency and the frequency of cases per configuration. First, following Fiss (2011), we set the minimum acceptable frequency to three cases per configuration, but also sought to maximize this number while still ensuring that we had at least 80% of the cases included in the analysis (see Ragin, 2008; Rihoux & Ragin, 2009). With respect to consistency, our analytical procedure was as follows: (1) we first identified all configurations (with three or more cases) that had a minimum raw consistency > .80; (2) from those configurations we eliminated any that had a PRI consistency < .75 (Ragin, 2006b);[5]

and (3) we then used the natural break in raw consistency scores as the threshold consistency (e.g., Crilly, 2011; Fiss, 2011). We report the actual raw and PRI consistencies, and frequency (and case inclusion rate) used for each analysis in the footnotes of each table. Finally, we used a minimum acceptable overall solution consistency of .80 (e.g., Crilly, 2011; Fiss, 2011).

Before discussing the sufficiency results, it is appropriate to make two additional explanatory points. First, we report the intermediate solution produced by the fsQCA software in configuration tables and denote the presence and absence of governance mechanisms within each configuration as follows (e.g., Crilly, 2011; Fiss, 2011): central conditions are denoted by ● (present) and ⊗ (absent) while contributing conditions are represented by ● (present) and ⊗ (absent). Briefly, whether conditions are considered central or peripheral is determined by a counterfactual analysis facilitated by the three different "solutions" produced in fsQCA (i.e., the "complex," "parsimonious," and "intermediate" solutions; for more detailed discussions, see Fiss, 2011; Ragin, 2008). While the complex solution shows the configuration(s) that are sufficient for observing the outcome in the studied sample without any counterfactual analysis, the parsimonious and intermediate solutions show the configurations that are sufficient for the outcome based on the application of a counterfactual analysis—an analysis incorporating the logically possible configurations for which no cases exist (these configurations are called "remainders" in QCA terminology). In short, those conditions in the parsimonious solution are denoted as core conditions (as they withstand both "easy" and "difficult" counterfactuals), while the intermediate solution is simplified based on what the researcher would assume or expect to occur if the remainders were

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[5] In addition to the raw consistency measure in the truth table analysis, the fsQCA software reports a measure of PRI ("proportional reduction in inconsistency"), which in essence is the consistency of the evidence for the subset relation after eliminating the cases that are consistent for both the presence and absence of the outcome. Although the convention to date among QCA researchers has been to simply rely on raw consistency in conducting fuzzy set analyses, incorporating PRI consistency into the analysis provides a more stringent approach (Ragin, 2006b). Thus, we do so here, and in setting the minimum consistency thresholds for the current study we follow the norms of extant research with respect to raw consistency (0.80) and Ragin's (2006b) suggestions for PRI consistency (0.75).

populated with cases (easy counterfactuals). It is thus called "intermediate" because it stands between the parsimonious (both easy and hard counterfactuals) and complex (no counterfactuals) solutions, and is thus used to identify those "contributing" (Ragin, 2008) or "peripheral" (Fiss, 2011) (contributing, hereafter) explanatory conditions that could be removed from the solution but only by applying "difficult" counterfactuals.

The key issue here then is that the researcher must specify *a priori* the assumptions on which the easy counterfactual analysis will be based. Given that our analyses were exploratory in nature, we conservatively made assumptions only for those mechanisms for which extant theory is rather clear that their presence should lead to high firm profits: outside director independence, CEO ownership, pressure-resistant external blockholdings, and an active MCC. Existing theory for the remaining mechanisms—outside director ownership (e.g., Dalton & Daily, 2001), CEO–TMT pay disparity (e.g., Henderson & Fredrickson, 2001), TMT ownership (e.g., Demsetz & Villalonga, 2001), non-TMT inside director ownership (e.g., Villalonga & Amit, 2006), CEO duality (e.g., Finkelstein & D'Aveni, 1994), CEO stock options (e.g., O'Connor, Priem, Coombs, & Gilley, 2006)—suggests that no such strong assumption should be made.

Second, we report the consistencies and coverages for the overall solutions as well as for each configuration (e.g., Fiss, 2011; Crilly, 2011). Solutions contain several configurations (i.e., configuration 1 *or* 2 *or* . . .) and raw coverage shows the proportion of memberships in high firm profits that are accounted for by each particular combination of mechanisms. Raw coverage includes the overlap among cases—cases may display multiple configurations—and so unique coverage is the proportion of membership in the outcome that is attributable only to the particular configuration (Ragin, 2006a). In short, coverage is a measure of empirical relevance and unique coverage shows the relative importance of each particular configuration (Fiss, 2011).

Our exploratory analyses proceeded as follows. We first analyzed the sufficiency of the mechanisms for high firm profits. Based on these initial findings (this baseline solution is shown in Table 2), we then further examined the substitutability and complementarity of the various mechanisms by exploring how they combine within actors as well as across actors (and within and across the various categories). These analyses involved comparing a vast number of different com-binations, and to do so we used the following three criteria to assess model fit: empirical relevance (i.e., higher solution coverage is better), parsimony (i.e., fewer configurations are better), and content (i.e., we had an eye toward capturing all of the empirically relevant, qualitatively different configurations that emerged across all of the analyses). Given the enormity of the analyses and the limited space to report them, rather than provide configuration tables for each of the analyses we highlight our key findings in the text and then report the overall best-fitting solution of all of the analyses (Table 3). Finally, we examined the governance bundle sufficient for the absence of high firm profits (i.e., not-high profits).

RESULTS

The Sufficiency of the Governance Bundle for High Firm Profits

Table 2 presents the configurations of governance mechanisms found to be sufficient for high firm profits. In interpreting the solutions throughout our analyses, we sought to understand: (1) the qualitatively different configurations of governance mechanisms that result in high firm profits among the cases; and (2) how the various mechanisms combine as substitutes and/or complements in constituting these configurations. While both of these aspects of the interpretation were integrally tied together, our focus in unpacking the analyses and results is heavily on the latter. Thus, we simply note at this point that a total of six qualitatively different configurations of empirical relevance emerged across all of the analyses, four of which comprise the baseline solution presented in Table 2, and we sum up at the end with an explanation of all six different configurations that emerged from our analyses (which are captured in Table 3).

Several insights into the substitutability and complementarity of the mechanisms can be gleaned by examining the patterns of mechanisms across the configurations in Table 2. One is that CEO incentive alignment mechanisms complement rather than substitute for one another. At least one form of CEO alignment mechanism is present in all of the configurations, and in all but one (configuration 3) the CEO has both substantial ownership stakes (CEOown) and stock options (CEOoptions). Furthermore, this complementary relationship appears to differ with CEO

TABLE 2
Governance Mechanisms Sufficient for Firm Profits[a,b,c]

	High Profit Solution						Not-High Profit Solution	
	1a	1b	2a	2b	3	4	1	2
Internal Mechanisms								
CEO Ownership (CEOown)	●	●	●	●	●	•	⊗	⊗
CEO Stock Options (CEOoptions)	●	●	●	●	●	●	⊗	⊗
Outside Director Independence (ODind)	●	●	●	●	●	⊗	●	•
Outside Director Ownership (ODown)	•	•	•	•	•	•	⊗	⊗
TMT Tournament (TMTtourn)	•		⊗	⊗	⊗	●	⊗	⊗
TMT Ownership (TMTown)	⊗	⊗	•		⊗	⊗	⊗	●
Non-TMT Inside Director Ownership (nonTMT IDown)	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
CEO Duality	⊗	⊗	⊗	⊗	●	•	⊗	●
External Mechanisms								
Blockholder (Blockhold)	•	•	●	●	⊗	⊗	⊗	⊗
Market for Corporate Control (MCC)		•		•	●	●		⊗
Consistency	.87	.85	.84	.85	.89	.86	.80	.87
Raw Coverage	.03	.03	.03	.04	.02	.02	.02	.01
Unique Coverage	.01	0	.01	0	.01	.01	.02	.01
Overall Solution Consistency	**.86**						**.82**	
Overall Solution Coverage	**.10**						**.04**	

ᵃ *Note:* Central conditions are represented by ● (presence) and ⊗ (absence); contributing conditions by • (presence) and ⊗ (absence).

ᵇ Configurations 1a and 1b and 2a and 2b in the High Profits Solution are "neutral permutations," respectively, in that they share the same central conditions and only differ in their contributing conditions (see Fiss, 2011).

ᶜ Analyses minimum thresholds for the High Profit and Not-High Profit Solutions, respectively: raw consistency = .84, .82; PRI consistency = .75, .76; frequency = 3 cases/configuration (71% of sample on each).

duality: when a non-dual CEO is at the helm (configurations 1a/1b, 2a/2b)[6] both CEOown and CEOoptions are central conditions when high profits are obtained. Configurations 3 and 4 show, in contrast, that when there is a dual CEO, CEOoptions are a central condition, with CEOown playing a contributing role.

The configurations in Table 2 also show that all the configurations involve some type of monitoring. Several patterns with respect to how these various monitoring mechanisms combine are evident. First, with respect to the monitoring by outside directors, independence (ODind) and substantial ownership (ODown) generally complement each other as their presence co-occurs (configurations 1a/1b, 2a/2b, 3) in all but one scenario (configuration 4). ODind clearly plays the central role here, as ODown always appears as a contributing

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[6] Configurations 1a/1b and 2a/2b in Table 1 are "neutral permutations" of each other, respectively, in that they share the same central conditions and only differ in their contributing conditions (e.g., Fiss, 2011: 398). Note also that, not surprisingly, the "b" (1b/2b) configurations add no unique coverage beyond the "a" (1a/2a) configurations.

condition. Second, the two TMT mechanisms (TMTtourn, TMTown), in contrast, appear as substitutes for one another as the presence of one is generally accompanied by the absence of the other (configurations 1a/1b, 2a/2b, 4), with their absence only co-occurring in one scenario (configuration 3). Third, there also seems to be some type of combinatorial relationship between ODind and TMTtourn, as the one configuration in which ODind is absent is also the one situation in which the presence of TMTtourn appears as a central condition (configuration 4).

Finally, the two external mechanisms also evidently combine with each other, but they do so in different ways when there is a non-dual CEO versus a dual CEO. These two mechanisms complement when there is a non-dual CEO: the presence of pressure-resistant external blockholder(s) (Blockhold) is the primary external mechanism that helps to steer non-dual CEOs toward high firm profits, and the MCC plays a contributing role (configurations 1a/1b and 2a/2b). In contrast, it is the presence of an active MCC and the clear absence of Blockhold that helps govern dual CEOs (configurations 3 and 4).

Analyses of the Substitution and Complementarity within Actors

Next, we further examined how the within-actor mechanisms combined, by constructing meta-sets (see Ragin, 2008) out of the two forms of CEO incentives (CEOown, CEOoptions), the two outside director mechanisms (ODown, ODind), and the two TMT mechanisms (TMTown, TMTtourn). More specifically, we combined each of these pairs of mechanisms via the "fuzzy or" and the "fuzzy and" operations. "Fuzzy or" uses the maximum value for each case on the combined sets (i.e., the union), and thus allowed us to examine whether the mechanisms serve as substitutes. For example, if ODind and ODown substitute for one another, then either one *or* the other only need be present for high firm profits (ODown_or_ODind), and therefore it is only the better score of the two that matters (i.e., one could be in force while the other is absent).[7] In contrast, when mechanisms complement each

other, both mechanisms need to be present. This can be captured via the "fuzzy and" operation (e.g., ODown_and_ODind), which takes the minimum value (i.e., intersection) of the sets. While this does not capture synergistic effects, it is nevertheless conceptually consistent with complementarity: both mechanisms need to be present when they are complements, and thus the effect is subject to the minimum of the two.

As noted above, in conducting these analyses we used the baseline solution (see Table 2) to identify those subsequent solutions that best fit the data (i.e., solution coverage ≥ .10; and whether subsequent analyses captured any empirically relevant configurations beyond the four found in the baseline solution). Rather than report the solutions in table form we simply discuss the key findings in the text.

We first examined a model in which all of the within-actor combinations were entered as substitutes (CEOown_or_CEOoptions, ODown_or_ODind, TMTown_or_TMTtourn) and found no configurations sufficient for high firm profits. The specified model in which all of the mechanisms were complements (CEOown_and_CEOoptions, ODown_and_ODind, TMTown_ and_TMTtourn) did yield a solution, but its fit was inferior to the baseline (coverage = .08).

We then examined model specifications in which each of the particular pairs was entered separately as substitutes and then as complements. The results confirmed that CEO incentives combine as complements (coverage = .15) and not as substitutes (coverage = .07).

With respect to outside directors, while model fit exceeded the baseline both when ODind and ODown were treated as complements and when they were treated as substitutes (coverage = .13 for both), the results continued to show that it was only in the one scenario already found in the baseline solution (configuration 4, Table 2) that the absence of ODind (as a central condition) co-occurred with the presence of ODown (as a contributing condition). In short, that ODind and ODown serve as complements to each other remained evident after these analyses. Moreover, these results suggest that ODown seems to operate as somewhat of a necessity: its presence was found in every configuration of every solution as a contributing condition.

We also found that TMT mechanisms substitute (coverage = .13) rather than complement (coverage = .08) each other, and that it is the presence and ab-

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[7] In terms of notation, the "_or_" signifies that we combined these mechanism via the "fuzzy or" operation, i.e., fuzzyor(CEOown, CEOoptions) in fsQCA; we use "_and_" to denote the "fuzzy and" operation.

sence of TMTtourn that varies across configurations. Indeed, the results showed that when TMTown plays a role, it is its absence as a core condition that leads to the obtainment of high profits.

Analyses of the Substitution and Complementarity between Actors

The exploration of between-actor combinations involved our examining how internal mechanisms combine (OD mechanisms with TMT mechanisms), how external mechanisms combine (Blockhold with MCC), how internal and external mechanisms combine (OD mechanisms with Blockhold and with MCC; TMT mechanisms with Blockhold and with MCC), and how the CEO incentive alignment mechanisms combine with each of the respective internal and external monitoring mechanisms. We analyzed all of the possible combinations for each of these pairings, examining individual mechanisms as well as building on our previous findings. That is, in comparing OD to TMT mechanisms, we examined the combinations of each of the individual mechanisms (i.e., ODind and/or TMTtourn, ODind and/or TMTown, ODown and/or TMTtourn, etc.) as well as how they combined with the within-actor combinations (i.e., ODind and/or TMTown_or_TMTtourn, ODown and/or TMTown_or_TMTtourn, ODind_or_ODown and/or TMTown_or_TMTtourn, etc.). Again, our analytical procedure was guided by fit (i.e., coverage/parsimony/content) and we report here the key findings.

The analyses showed that the best fit with respect to the OD mechanisms and TMT mechanisms involves ODind and TMTtourn combining with each other, and that they can either substitute (coverage of .15) or complement (coverage of .12) each other.

When it comes to the external mechanisms, while the model fit met or exceeded the baseline when Blockhold and MCC were treated as complements and as substitutes (coverages of .13 and .11, respectively), the results continued to show that they are complements in non-dual CEO situations (Blockhold central; MCC contributing) and that the absence of Blockhold and presence of MCC (both as central conditions) govern dual CEOs.

With respect to how internal and external mechanisms combine, ODind combines with both Blockhold and MCC: ODind can serve as either a substitute for, or complement to, Blockhold (coverages of .12 and .14, respectively), and combines similarly

with MCC: ODind can complement MCC (coverage of .15) as well as substitute for it (coverage of .11).

As to TMT and external mechanisms, TMTtourn only combines with MCC: we found that TMTtourn can either complement (coverage of .14) or substitute (coverage of .13) MCC. TMT mechanisms do not, however, combine with Blockhold (all coverages < .10).

The remaining comparisons involved examining how the CEO incentive mechanisms combine with the various internal and external mechanisms. With regard to the latter, we found that CEO incentives can serve in a complementary fashion to either Blockhold or MCC (coverages of .12 and .13, respectively) and do not substitute with either (coverages of .06 and .03). Moreover, and following from our findings with respect to the external mechanisms already described above, the results showed that this complementarity between CEO incentives and external control is a function of CEO duality. CEO incentives complement Blockhold when there is a non-dual CEO, while they complement MCC when there is a dual CEO. Internally, we found that the CEO incentive mechanisms combined only with OD mechanisms and not with the TMT mechanisms. In particular, the best-fitting model involved CEO incentives and ODown as complements (CEOown_and_CEOoptions_and_ODown; coverage of .16).

The solution for this modeling is shown in Table 3, which comprehensively captures the six distinctive empirically relevant configurations sufficient for high firm profits that emerged from the entirety of the analyses. In particular, configurations 1a/1b and 2 of Table 3 correspond to the two non-dual CEO scenarios shown in configurations 1a/1b and 2a/2b in Table 2, while configurations 4 and 5 in Table 3 represent the two dual CEO scenarios found in configurations 3 and 4 of Table 2. We thus focus here on interpreting the two additional scenarios (configurations 3 and 6 of Table 3) beyond the four already described in the baseline analysis.

Configuration 3 (Table 3) shows a third way in which non-dual CEOs are effectively governed: by the presence of a non-TMT inside director with a substantial stake (nonTMT IDown) along with a compliant TMT (~TMTtourn;[8] ~TMTown) but-

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[8] There are two things to note here. First, in Boolean notation, the ~ signifies the absence of a condition, and will be used hereafter. Second, while ~TMTtourn ap-

TABLE 3
Governance Mechanisms Sufficient for High Firm Profits: Best-Fitting Solution[a,b]

	High Profit Solution						
	1a	**1b**	**2**	**3**	**4**	**5**	**6**
Internal Mechanisms							
CEOown_and_CEOoptions_and_ODown	●	●	●		●	●	●
Outside Director Independence (ODind)		●	●	●		⊗	●
TMT Tournament (TMTtourn)	⊗		⊗	⊗	⊗	●	●
TMT Ownership (TMTown)	⊗	⊗		⊗	⊗	⊗	⊗
Non-TMT Inside Director Ownership (nonTMT IDown)	⊗	⊗	⊗	●	⊗	⊗	⊗
CEO Duality	⊗	⊗	⊗	⊗	●	●	
External Mechanisms							
Blockholder (Blockhold)	●	●	●	●	⊗		●
Market for Corporate Control (MCC)				●	●	●	⊗
Consistency	.83	.85	.84	.81	.84	.82	.84
Raw Coverage	.04	.04	.05	.01	.03	.05	.04
Unique Coverage	.01	.00	.03	.01	.01	.02	.01
Overall Solution Consistency	**.83**						
Overall Solution Coverage	**.16**						

[a] Central conditions are represented by ● (presence) and ⊗ (absence); contributing conditions by ● (presence) and ⊗ (absence).
[b] Analysis actual thresholds: raw consistency = .82; PRI consistency = .75; cases/configuration frequency = 7 (87% of sample).

tressed by CEO ownership, a vigilant board, and both external control mechanisms. There are at least two points worth noting with respect to this configuration. First, while empirically relevant, this scenario is a somewhat unusual governance arrangement. As reported in the methods section, only 124 of the 1,135 S&P 1500 firms under study have a non-TMT inside director present on their boards (and it is to this fact that the occurrence of ~non-TMT IDown as a contributing condition in all of the other configurations can be attributed). Moreover, our analyses revealed that only seven of these 124 firms are effectively governed by the combination in configuration 3 of Table 3 (two are large-cap firms, two mid-cap, three small-cap; all seven non-TMT inside directors are the chairperson of the

pears in configuration 3 of Table 3 as a contributing condition, its absence also appears as a central condition to this particular scenario in the other analyses.

board, six are ex-CEOs, two are founders, and one a founder family member). Second, while the complementary combination of CEO incentives and ODown is shown in this particular configuration to play no role, the analyses overall revealed that this particular governance scenario involves the absence of CEOoptions and the presence of CEOown and ODown (all as contributing conditions; thus, they offset each other when combined here).

Configuration 6 of Table 3, then, shows a governance scenario that applies to both non-dual and dual CEOs alike. High profits are achieved when CEOs are fully aligned (CEOown_and_CEOoptions), along with ODind, ~TMTown, and ~MCC as central conditions, and with ODown and ~nonTMT IDown as contributing conditions. We also found that the presence of TMTtourn and Blockhold can serve as contributing or central conditions, depending on the other combinations. Given this latter result, we further investigated all cases that make up the con-

figurations in which TMTtourn appears—i.e., the first non-dual CEO scenario (configuration 1a, Table 2), the second dual CEO scenario (e.g., configuration 5, Table 3), and the scenario just described (e.g., configuration 6, Table 3)—and found a rather complex relationship between ODind, TMTtourn, Blockhold, and MCC, one that is contingent on the duality of the CEO. TMTtourn combines with ODind, Blockhold, and MCC only among non-dual CEOs. In contrast, TMTtourn combines with ~ODind, ~Blockhold, and MCC only when there is a dual CEO. The following combination then applies to both non-dual and dual CEOs alike: TMTtourn, ODind, Blockhold, and ~MCC (all involved CEOown_and_CEOoptions and ~TMTown as central conditions, with ODown and ~nonTMT IDown contributing).

Summary of Findings for High Profits

While Table 3 provides an overview of the six different configurations sufficient for high profits—which, in short, entail three non-dual CEO scenarios, two dual CEO scenarios, and one scenario which applies regardless of CEO duality—Table 4 summarizes our findings with respect to the substitutability and complementarity of the mechanisms among these scenarios.

Our within-actor analyses found that the two CEO incentive mechanisms (CEOown, CEOoptions) complement each other, that the two outside director mechanisms (ODind, ODown) tend to complement each other, and that if anything, the two TMT mechanisms (TMTtourn, TMTown) substitute rather than complement one another. Moreover, the analyses show that the presence of ODown is constant across all of the configurations in which high firm profits are obtained, while the absence of TMTown (as a core condition) occurs in five of the six scenarios that lead to high firm profits, and in the sixth scenario it plays a diminished role at best.

The between-actor analyses found that, externally, the presence of pressure-resistant blockholders (Blockhold) works together with the threat of a takeover (MCC), Moreover, the results clearly show that how these external mechanisms combine is related to CEO duality: they complement each other in governing a non-dual CEO, whereas the presence of MCC and the absence of Blockhold help to govern a dual CEO for high profits to result.

Internally, board independence (ODind) appears to work together with TMT tournament situations (TMTtourn), but a full understanding of how they

TABLE 4
Summary of Findings: Mechanisms as Substitutes or Complements?[a,b]

Within-Actor Findings	
CEO Incentive Alignment	
CEO LT Contingent Pay (CEOoptions)	Complements
CEO Ownership (CEOown)	
Outside Directors	
Independence (ODind)	Complements
Equity Ownership (ODown)	
TMT	
Tournament (TMTtourn)	Substitutes
Equity Ownership (TMTown)	
Between-Actor Findings	
Internal Monitoring Mechanism Combinations:	
ODind/TMTtourn	Substitutes and Complements[c]
External Monitoring Mechanism Combinations:	
Blockholders (Blockhold)/Market for Corporate Control (MCC)	Complements[d]
Internal/External Monitoring Mechanism Combinations	
ODind/TMTtourn/Blockhold/MCC	Substitutes and Complements[e]
CEO Incentives/Monitoring Mechanism Combinations:	
CEOown/CEOoptions/ODown	Complements[f]
CEOown/CEOoptions/Blockhold	Complements[g]
CEOown/CEOoptions/MCC	Complements[h]

[a] When mechanisms can serve as both substitutes and complements, the better-fitting solution is listed first.

[b] The summary here captures the general relationships found.

[c] See note (e) below.

[d] Note, however, that their relationship is a function of CEO duality: they only complement each other when a non-dual CEO is present. It is the presence of MCC and the absence of Blockhold that governs dual CEOs.

[e] The relationship between ODind and TMTtourn is a complex one that is a function of Blockhold, MCC, and CEO duality. ODind and TMTtourn complement each other when there is also the presence of Blockhold as well as either (1) a non-dual CEO and an active MCC, or (2) the clear absence of MCC. Otherwise, ODind and TMTtourn tend to substitute for one another.

[f] This combination yielded the best-fitting solution (see Table 3).

[g] These serve as complements when there is a non-dual CEO.

[h] These serve as complements when there is a dual CEO.

combine when high profits are obtained requires the external mechanisms as well as CEO duality to be taken into account. In short, ODind and TMTtourn complement each other when there is also the presence of pressure-resistant Blockholdings to govern non-dual CEOs (regardless of the presence or absence of an active MCC) as well as to effectively govern dual CEOs (only when there is a clear absence of an active MCC). Otherwise, ODind and TMTtourn substitute for one another.

Finally, the findings clearly suggest that CEO incentives and monitoring mechanisms combine as complements and not as substitutes. While CEO incentives may be complemented by either external mechanism, this complementarity is based on the duality of the CEO: in the presence of a non-dual CEO, CEO incentives and Blockholdings primarily

enhance each other, whereas for dual CEOs, it is an active MCC that complements CEO incentives (as Blockholders are clearly absent). When it comes to internal mechanisms, CEO incentives do not combine with either TMT mechanism. CEO incentives are complemented, however, by ODown. Indeed, this simultaneity of CEO and outside director alignment yields the best-fitting solution.

The Sufficiency of the Governance Bundle for Not-High Firm Profits

Qualitative comparative analysis typically involves the examination of the sufficiency of the explanatory conditions for the absence of the outcome (e.g., Greckhamer et al., 2008; Ragin, 2008; Rihoux & Ragin, 2009), which for the current study meant that we also examined how the governance mechanisms were sufficient for not-high firm profits (i.e., the absence of high firm profits, or ~high-ROA). The results of this analysis are shown in the right panel of Table 2.[9] There are two configurations sufficient for not-high firm profits, one involving non-dual CEOs (configuration 1) and the other dual CEOs (configuration 2). Configuration 1 clearly shows that below-average firm profits result when non-dual CEOs are governed only by the presence of an independent board (all other mechanisms are clearly absent). Configuration 2 shows another recipe for poor performance: a dual CEO, an independent board, and a TMT member with a substantial equity stake in the firm (and the clear absence of all other mechanisms).

These findings with respect to not-high profits further make it clear that *monitoring without CEO incentives does not work* (at least, if high profits are the goal). Moreover, in terms of monitoring, these results clearly imply that *simply having a non-dual CEO and an independent board is not enough*: comparing the not-high profit configuration 1 to the other non-dual CEO scenarios that lead to high profits (i.e., Tables 2–3), it appears that an independent board must also be buttressed by substantial stakes among the outside directors, as well as a pressure-resistant external blockholder (and in relatively rare cases, a well-staked non-TMT inside

director). Furthermore, configuration 2 of the not-high profits solution shows that *TMT ownership can be toxic*: an independent board with no other monitoring (or CEO incentive alignment) is no match for a dual CEO along with a TMT member with large equity stakes.

DISCUSSION

Prior research has typically treated corporate governance mechanisms individually, and the evidence to date on the effectiveness of any one mechanism is not encouraging. Some scholars have suggested that understanding the effectiveness of governance mechanisms requires delving into their interdependencies in operating as a governance bundle (Aguilera et al., 2008; Rediker & Seth, 1995). Yet despite these and other calls for corporate governance research to take a more holistic approach (Dalton et al., 2003; Filatotchev & Boyd, 2009: 258; Tosi, 2008), we still know little of how governance mechanisms operate together to afford firm profitability. In the current study, we integrated the extant governance literature to specify the main mechanisms that constitute the governance bundle, and then used a qualitative comparative approach to case analysis to examine whether the various mechanisms substitute or complement each other, as well as to distill the different combinations of governance mechanisms sufficient for the presence and absence of high profits. While our findings provide a number of implications for researchers interested in any one of the particular mechanisms, our focus is decidedly on understanding how the mechanisms work effectively together. Thus, while in the following we touch on the key implications of our findings with respect to individual mechanisms, our aim here is to further elaborate theory on combinations of governance mechanisms, both between CEO incentive and monitoring mechanisms, and across internal and external monitoring mechanisms.

One of the main findings of our study is that CEO incentives and monitoring mechanisms act as complements. Past research has theorized that CEO incentives and monitoring either substitute for one another (e.g., Beatty & Zajac, 1994; Rediker & Seth, 1995; Zajac & Westphal, 1994) or complement each other (e.g., Aguilera et al., 2008; Milgrom & Roberts, 1992; Tosi, 2008); our findings suggest that they are complements rather than substitutes. While our analytical approach did not allow us to examine the synergistic effects involved in complementarity *per*

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[9] We also conducted a similar analytical process with not-high profits as the one described for high profits—i.e., we examined different combinations of the various mechanisms as either substitutes or complements—and found no additional configurations beyond the ones shown in Table 2.

se, it nevertheless permitted an examination of whether the relationships across mechanisms were congruent with the notion of substitution (i.e., only one *or* the other need be present for high firm profits) or with complementarity (i.e., one *and* the other need to be present). All six of the different configurations leading to high profits found here include at least one of the CEO alignment mechanisms and at least one each of the internal and external monitoring mechanisms. Indeed, our analyses suggest that CEO incentives have a complementary relationship with outside director ownership and with both of the external mechanisms, and moreover, that these relationships are not substitutive. Furthermore, there is a clear absence of the co-occurrence of CEO incentives and monitoring when high profits are absent. Our findings therefore lead us to formally posit that:

Proposition 1. The effectiveness of the governance bundle requires the presence of both CEO incentive alignment and monitoring mechanisms.

A second important contribution of our study is that it clearly shows the fundamental role played by the alignment of the other internal actors beyond the CEO in the effectiveness of the governance bundle. While prior research has primarily focused on the alignment of CEOs, our study shows that the firm equity stakes held by directors and the TMT are consequential to governance effectiveness. With respect to outside directors, our findings indicate that outside directors' ownership stakes act much as a necessary condition for effective governance: their presence is a constant factor across all of the different configurations sufficient for high firm profits. Moreover, our analyses reveal that board substantial ownership stakes complement both CEO incentives and board independence when high firm profits are obtained. Furthermore, they show that such ownership stakes are clearly absent when high profits are absent. Thus, our findings extend prior research that has suggested outside directors' ownership to be an important factor in motivating them to perform their monitoring duties effectively (e.g., Hambrick & Jackson, 2000): while board independence is an important quality of directors' monitoring effectiveness, evidently it is when such directors have substantial ownership stakes in the firm that they fully exercise that quality. We propose therefore that:

Proposition 2. Outside directors holding a substantial investment of their own net worth in the firm's equity play an essential complementary role in the effectiveness of the governance bundle: such ownership enhances the effectiveness of director independence and of CEO incentive alignment mechanisms.

Our findings make clear that TMT alignment mechanisms also have a major effect on governance effectiveness, but unlike with outside director ownership, the *absence* of TMT ownership stakes plays a central role in our findings. Indeed, our findings suggest that TMT tournament situations (i.e., when there is a large pay disparity between CEO and TMT members) can play a beneficial role in the governance bundle—both the presence and the absence of a TMT tournament can lead to high profits—and that not having anyone on the TMT with a substantial ownership stake is of importance for effective governance. Moreover, when the TMT ownership stakes combine with a dual CEO and an independent board but no other governance mechanisms, this can be quite toxic, as this combination was sufficient for observing the absence of high profits. Our results therefore contribute to the long-running debate on whether or not a pay disparity between the CEO and the top executives is beneficial to firm performance (e.g., Henderson & Fredrickson, 2001)—it evidently can be beneficial—but also suggest that future research is very much needed to develop an understanding of why TMT ownership stakes are so detrimental to the obtainment of high firm profits. Nevertheless, our findings suggest that TMT alignment mechanisms play a fundamental role in the governance bundle, and more specifically, lead to the following proposition:

Proposition 3. TMT tournaments may lend to the effectiveness of the governance bundle, while TMT members (other than the CEO) holding substantial equity stakes lend to the ineffectiveness of the governance bundle.

Another set of major implications come from our findings with respect to how the multiple internal and external mechanisms that comprise the governance bundle operate together. Internally, we found that monitoring by boards combines with mutual monitoring among managers: board independence is complementary to a TMT tournament in some situations, while in others these two mechanisms substitute for one another for high profits. Externally, we found that the relationship between

pressure-resistant blockholders and the threat of a takeover (MCC) is a function of CEO duality when high profits are obtained: these external control mechanisms tend to complement each other in the absence of CEO duality, yet dual CEOs tend to be governed effectively by the threat of a takeover and the absence of pressure-resistant blockholders. With respect to how internal and external mechanisms combine, our analyses reveal that a rather complex relationship exists between board independence, TMT tournaments, blockholders, and the MCC, and show, moreover, that CEO duality plays a role in the way these four mechanisms combine when high profits are obtained. Very simply put, while board independence and TMT tournaments can either complement or substitute for one another in governing both dual and non-dual CEOs, effective governance of non-dual CEOs requires the additional presence of a pressure-resistant external blockholder (with the MCC playing back-up), whereas dual CEOs tend to be governed by an active MCC and the absence of pressure-resistant external blockholdings. Additionally, our findings suggest that when there is a non-TMT inside director (e.g., ex-CEO, founder) with a substantial equity stake present (along with a vigilant board, compliant TMT, and both external mechanisms contributing support), effective governance involves a non-dual rather than a dual CEO. In short, our findings suggest that at least one of the internal mechanisms and one of the external mechanisms are part of effective governance, as well as that monitoring mechanisms within each of these broad categories (i.e., internal, external) can combine in the simultaneity of substitution and complementarity. Thus, we offer the following two general propositions:

Proposition 4. The effectiveness of the governance bundle involves internal and external monitoring mechanisms working together as complements.

Proposition 5. The effectiveness of the governance bundle involves the simultaneity of substitution and complementarity among the various monitoring mechanisms.

A final major implication of our study is that having a non-dual CEO does not guarantee success; that is, we found that the effectiveness of the governance bundle can occur either when the CEO is also the chairperson of the board (CEO duality) or when these roles are separated (non-dual CEO). Across the six qualitatively different configurations

sufficient for high profits revealed by our analyses, three involve a non-dual CEO, two of them a dual CEO, and one configuration applies regardless of CEO duality. In addition to the general pattern across dual and non-dual CEOs described above—that pressure-resistant blockholders or a non-TMT inside director owner are part of the governance bundle when there is a non-dual CEO, but such ownership control is not part of the mix when there is a dual CEO—the two configurations found to be sufficient for the absence of high profits included one involving CEO duality and the other a non-dual CEO. These latter results clearly suggest that simply combining a non-dual CEO with an independent board (i.e., with all other incentive and monitoring mechanisms absent) is not the recipe for governance success. Low profits also occur when a dual CEO is accompanied by a TMT member holding substantial equity stakes and is otherwise confronted only by an independent board (i.e., all of the other incentive and monitoring mechanisms are absent). In short, our findings make it quite clear that separating the CEO and chairperson roles as a simple recipe for governance success, a key notion of agency theory, is not an adequate prescription. Furthermore, while our findings extend organizational theory suggestions that CEO duality is beneficial, things are not quite so straightforward on this account either. In short, our findings show that effective (and ineffective) governance can result under the leadership of either a dual or a non-dual CEO, and the result depends on how this leadership structure combines with the other governance mechanisms.

Proposition 6. The separation of the CEO and board chairperson roles does not lend to the effectiveness of the governance bundle, per se. Instead governance effectiveness rests on how CEO (non)duality combines with the other mechanisms comprising the bundle.

Of course, our findings, and thus the relationships we have proposed here, are subject to the limitations of our study. First, our conceptual specification of the essential mechanisms of the governance bundle is based on the extant literature, and we have judiciously attempted to capture each of these elements, including incentive and monitoring, and internal and external, mechanisms. Nevertheless, future research that probes more deeply into particular elements of the bundle is certainly warranted. For instance, it would be interesting to delve more fully into board structural arrange-

ments, i.e., combinations of the qualities (independence, ownership) of the directors or chairs comprising the various committees (nominating, compensation, audit) that have been deemed to be critical to board functioning in recent legislation (e.g., SOX). More nuanced research could also examine the workings of external mechanisms, such as how firm entrenchment practices (e.g., "poison pills") thwart the market for corporate control. It is worth noting, however, that any such research—our study included—is constrained by the fact that the complexity of configurational analysis puts a limit on the number of explanatory conditions that can be included in any one set of analyses (see Greckhamer et al., 2013).

A second limitation of our study is that we did not incorporate any of the firm-level (e.g., firm size; Rediker & Seth, 1995) or industry-level (e.g., dynamism; Bloom & Milkovich, 1998) contingencies that have previously been suggested to affect the operation of governance mechanisms, nor did we consider the national systems within which the governance bundle operates (e.g., Aguilera et al., 2012). Therefore, future research that examines how such contingency conditions, and others, influence the workings of governance mechanisms should prove fruitful. Furthermore, while we purposely studied the S&P 1500 firms due to their prominence in the U.S. economy and their range in terms of size, future research will have to determine how the governance bundle operates among other populations of firms (i.e., smaller firms, IPOs, international firms, etc.).

Third, given the in-depth exploration of our case analytical approach, we focused on one indicator of firm performance—firm profits as captured by ROA—as such accounting-based measures are more objective than are market-based measures (i.e., shareholder returns) or hybrid measures (i.e., Tobin's Q). Market-based measures (and thus hybrid measures) capture profits as well as market perceptions and future-oriented growth (see Fryxell & Barton, 1990). Indeed, though Tobin's Q is often used as a measure of performance in governance studies, it is also widely used as a measure of growth opportunities rather than performance (e.g., Gaver & Gaver, 1995; Rajan, Servaes, & Zingales, 2000). Furthermore, because accounting- and market-based measures differ in their orientation (the former are historical/objective, the latter future/perceptual; again, see Fryxell & Barton, 1990), it is very likely that different combinations of mechanisms will yield high (and not-high) market-based

performance. Thus, future research that examines such performance outcomes is clearly warranted.

A final caveat has to do with the issues of causality and endogeneity. Although conceptually our arguments assume causality (i.e., that governance mechanisms lead to high profits), our cross-sectional inquiry, and configurational approach more generally, do not allow for claims of causality, nor do they help to rule out any potential reverse causality among the relationships. For instance, Demsetz and colleagues (e.g., Demsetz & Lehn, 1985; Demsetz & Villalonga, 2001) have suggested that the relationship between ownership structure and performance is an endogenous one. Furthermore, prior research is also suggestive of the possible endogeneity between firm performance and CEO duality (Finkelstein & D'Aveni, 1994). Although we used a lagged design, the set-theoretic methodology is not yet equipped to resolve these issues, and thus future configurational research that addresses this issue is needed.

Despite these limitations, our configurational approach to examining the bundle of governance mechanisms that operates to constrain managers effectively to the pursuit of profits helps advance theory on corporate governance as a bundle of mechanisms. Overall, our findings suggest that the governance bundle is not simply driven by equilibrium and efficiency tradeoffs, as surmised by the substitution perspective. Instead, effectiveness appears to be heavily reliant on the mechanisms mutually enhancing each other in a complementary manner. Our study suggests that CEO incentive alignment and monitoring mechanisms work together as complements rather than as substitutes. Furthermore, our findings show that some form of internal and external monitoring mechanisms must be present. At the same time, however, monitoring mechanisms combine in complex ways such that there may be simultaneity of substitution and complementarity among and across the various monitoring and control mechanisms. Finally, our findings make evident that the two mechanisms largely held as "silver bullets" for the governance problem—board independence and CEO non-duality—are not in and of themselves solutions. Their effectiveness lies in how they combine with the other mechanisms that constitute the governance bundle. Indeed, our findings clearly show that CEO duality may be just as beneficial to firm profitability as is the separation of the CEO and chairperson roles.

In conclusion, future researchers and policy makers would do well to take a more configurational approach, in terms of how they think about,

design, and study corporate governance. To truly understand governance effectiveness, we must stop thinking about the mechanisms in isolation, give up the search for the end-all mechanism(s), and instead direct attention to how the various governance mechanisms combine effectively with each other for the particular outcomes desired.

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Vilmos F. Misangyi (vfm10@psu.edu) is an associate professor of management in the M&O Department of the Smeal College of Business, The Pennsylvania State University. He holds a PhD from the University of Florida. His research focuses on the means by which organizations and their top managers influence, and are influenced by, their external environments and stakeholders.

Abhijith G. Acharya (agacharya@smu.edu.sg) is an assistant professor at the Lee Kong Chian School of Business at Singapore Management University. He earned his PhD from The Pennsylvania State University. His current research interests include micro-foundations of corporate governance and strategic leadership in entrepreneurial firms.

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