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Are Boards Designed to Fail? The Implausibility of Effective Board Monitoring

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Abstract

In this review, we challenge the idea that directors are well positioned to be effective monitors of management. Moving beyond the logic of incentives and ability, we conceptualize a model based on the premise of boards as groups of individuals obtaining, processing and sharing information and explain how variation in information-processing demands at the director,

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board and firm level may challenge effective monitoring. We draw on multiple theoretical perspectives to identify these barriers to effective board monitoring. Our goal in reviewing these barriers is to help us take stock of existing research in corporate governance and to better explain board behavior beyond traditional agency and resource dependency accounts. We also aim to uncover gaps in the conceptual and empirical research and suggest areas of fruitful future research.

... the corporate board of directors is a largely useless, if mostly harmless, institution carried on out of inertia. (Gillespie & Zweig, 2010)

Nothing is more important to the well being of a corporation than its board of directors. (Leblanc & Gillies, 2005, p. 6)

In the modern corporation, the board of directors sits at the apex of the firm, representing the highest legal authority in the organization. Yet, as highlighted by the quotes above, there is continued controversy about the practical relevance of the board. For many years, boards were viewed largely as groups packed with close friends of the CEO that simply acted as rubber stamps for management proposals (Lorsch & MacIver, 1989; Mace, 1986). However, corporate scandals in the past decade have thrust the board back into the forefront of discussions about corporate governance and prompted outcries for boards to take a more active role (Withers, Hillman, & Cannella, 2012). Inevitably, after each of the high profile scandals, there were headlines in the press asking “where was the board?” and accusing directors of being “asleep” at the wheel. These public outcries are directly in line with the taken-for-granted perception that corporate scandals are the result of boards not trying hard enough to effectively oversee managers.

This oversight role is at the heart of an increasingly large body of work that has focused on the board as a critical governance control mechanism (for reviews see Adams, Licht, & Sagiv, 2011; Campbell, Campbell, Sirmon, Bierman, & Tuggle, 2012; Daily, Dalton, & Cannella, 2003; Finkelstein, Hambrick, & Cannella, 2009). Much of this work draws primarily on agency theory suggesting that the board of directors serves a key role as a monitor of managerial action and acts as an important control mechanism to curb managerial self-interest which should in turn increase firm performance (Fama & Jensen, 1983). In this view, effective board monitoring encompasses a number of actions, but essentially the argument is that the board will protect shareholder interests by hiring the right managers, compensating them properly, and overseeing managerial choices. In fact, most academic research, popular press accounts, and even U.S. legislation all echo the sentiment and deeply held belief that boards should be able to actively monitor and control

management. One of the primary questions from this field of research is: What board structures are most effective at governing the firm and monitoring its top managers? Power, resource dependence, and other perspectives have then been introduced to show the conditions under which the board vigilance mechanisms inherent in the agency theory view are supported or undermined. Prior literature in this area has generally focused on board effectiveness by either suggesting that boards need more properly motivated directors (e.g. the independence approach) (Dalton, Hitt, Certo, & Dalton, 2007), or that boards should have directors with greater qualifications and ability, evidenced by the human and social capital that they bring to the firm (e.g. the resource dependence approach) (Hillman & Dalziel, 2003).

Indeed, most corporate governance research from agency, power, resource dependence, and other perspectives all rest on the primary assumption that it is plausible for outside independent directors to effectively monitor executives (Baysinger & Hoskisson, 1990; Westphal & Fredrickson, 2001). In the corporate world, the presumed positive effect of outside directors has also become so prevalent that some parties now equate good governance with having independent outside directors (Coombes & Watson, 2000). Based on this widespread assumption that properly structured boards should lead to greater board effectiveness, much of the research in this area seeks to establish what combination of board characteristics will lead to greater firm financial performance or other specific firm outcomes. However, despite such strong theoretical and practical reasoning, the empirical findings linking structural board characteristics, (typically associated with independence) with important firm outcomes (especially firm performance) have been decidedly mixed at best (Bhagat & Black, 2002; Dalton, Daily, Ellstrand, & Johnson, 1998; Dalton, Daily, Johnson, & Ellstrand, 1999).

A number of factors might help to explain the current disconnect between what theory predicts and what has been uncovered empirically. First, there could be a mismatch between the theoretical concepts and the empirical constructs. For example, the proposed structural board characteristics that have historically been used in the governance literature may not capture the full essence of board monitoring. If this is the case, we need to find better measures to operationalize board monitoring that get closer to measuring what directors actually do. Not only is there potential mismatch between theory and measures with regards to monitoring, there also seems to have been little consistency in how firm performance is conceptualized and measured in the literature. This idea is consistent with other theorizing that suggests that often there is a mismatch between our theory and our empirical measures of firm performance (Miller, Washburn, & Glick, 2013). Second, it could also be the case that either existing theory falls short or we are asking the wrong questions. For instance, Desender, Aguilera, Crespi, and García-Cestona (2013) argue that the relationship between board characteristics and firm performance is too

complex and indirect, and propose that in order to find consistent relationships we should focus on intermediate mechanisms and outcomes such as discrete decisions taken by the board which, when aggregated, will influence firm performance (Desender et al., 2013). Recent theoretical work questions whether most directors even have the ability to accomplish their duties and has suggested that focusing simultaneously on several director characteristics (i.e. independence, expertise, bandwidth, and motivation) may yield better predictions of board and firm outcomes than traditional models and measures that tend to examine such factors in isolation (Hambrick, Misangyi, & Park, 2015). Against this backdrop, we suggest that our existing assumptions about board monitoring and what directors are expected to do in this role might not be realistic. Thus, the lack of consistent empirical findings in this literature could be because there are just too many inherent barriers for directors to monitor managers effectively on an ongoing basis, at least in the way that we typically conceptualize monitoring.

To bring some clarity to this unresolved question and assess its boundary conditions, we critically review literature that allows us to identify and discuss some of the key challenges to effective board monitoring. We begin by discussing existing research that has examined the relationship between monitoring and firm performance but we diverge from this conventional view by focusing on some of the basic assumptions in the literature about the board's ability to monitor. We go back to the literature on boards of directors in order to assess the challenges that boards face to effectively monitor managers. We shed light on factors that may help explain why there has been a lack of empirical support for the link between traditional proxies for board monitoring (e.g. board independence, CEO duality, etc.) and firm performance. Our review of the literature related to board monitoring suggests that perhaps there are just too many obstacles for boards to overcome in order to effectively monitor management.

Our review focuses on literature that directly or indirectly explores one of the core assumptions of governance research—that a correctly designed and staffed board will be able to properly fulfill its primary function of effectively monitoring managerial action. The fundamental question that we hope to shed light on is the following: *Is it reasonable to expect that boards can offer effective ongoing monitoring of firms, even if we assume that directors are sufficiently qualified and motivated?* To begin to address this question, we conceptualize the board as an information-processing group (Hinsz, Tindale, & Vollrath, 1997). Specifically, we outline a number of barriers stemming from information-processing challenges that ultimately inhibit directors from providing effective oversight on an ongoing basis. Drawing upon a long history of organizational research on information processing, we bundle these barriers into three broad multi-level categories: barriers that arise due to *individual* factors (e.g. the limited information-processing capacity of individual

directors) (Taylor, 1975), barriers that arise from *group* factors (e.g. the relational dynamics that emerge in board interactions) (Hinsz et al., 1997), and barriers that arise because of *firm* contextual factors (e.g. the characteristics of the focal firm) (Henderson & Fredrickson, 1996). Our review and assessment of the literature suggests that effective, ongoing monitoring of managerial action is unlikely in most large corporations due in large part to these varied barriers.

While all boards experience these barriers to some extent, we claim that the intensity of these barriers may differ substantially across firms. Thus, we assert that boards vary in their abilities to influence the strategic behaviors (and consequent outcomes) of firms. More specifically, we explain how a number of individual, board, and firm-level barriers work together to constrain director action and necessarily limit the overall impact of the board on important strategic outcomes. If the factors constraining boards are better recognized, then boards may adopt different strategic practices, such as improving due diligence during the CEO selection process, or trying to influence intermediate firm outcomes like acquisition spending (Davis, 2005). An understanding of these barriers may also be helpful for practitioners who can implement measures to overcome the constraints imposed by these barriers, and for policy-makers who may need to identify and address the fundamental limitations of boards of directors. And ultimately, a better understanding of the barriers that boards face may also change our perceptions of what we can reasonably expect directors to accomplish.

Boards as Information-Processing Groups

To explore the extent to which a properly designed and staffed board can effectively fulfill its monitoring role, we conceptualize the board as an information-processing group and use this lens to review the literature on board monitoring. Our main assumption is that in order to effectively monitor management, directors need to be able to obtain, process and then share information. Yet, multiple studies from within the governance literature and from related social science disciplines demonstrate the existence of barriers that inhibit the effectiveness of information processing by groups such as boards.

Research from the groups literature suggests that one of the primary functions of a group is that of information processing (Ellis, 2006; Hinsz et al., 1997). Information processing has been defined as a set of related processes that occur when information is taken in, transformed, and then used to produce output of some kind (Hinsz et al., 1997). Information processing has been studied at multiple levels of analysis including the individual (Elsbach & Barr, 1999; Grant & Berry, 2011; Taylor, 1975), the group (Ellis, 2006; Hinsz et al., 1997; Kerr & Tindale, 2004), and the organization (Galbraith, 1974; Huber, 1991; Tushman & Nadler, 1978). Boards are usefully viewed as multi-level information-processing structures (Dalton & Dalton,

2011) because to function properly, directors on the board must individually collect information regarding the actions undertaken by the CEO and the top management team (TMT), process that information to decide whether it is in the best interests of the firm, share that decision with other directors as a group, and then decide how the results of that group decision-process should be implemented in the firm. Consequently, a board of directors will only add value to the firm to the extent that the board is able to effectively acquire the right information, process it based upon their individual and shared expertise, and then share it as a group with the relevant interested parties (i.e. CEO, TMT, employees, potential target firm, SEC, etc.). However, this information-processing task is challenging because of a number of factors at the individual, group and firm levels that place limitations on directors' ability to effectively process information. We call these multi-level limitations, board barriers.

We define board barriers as the factors that constrain or limit the ability of the board to function as an effective information-processing group or team. Board barriers that affect the group's ability to obtain, process, and share information may arise from factors at the individual, firm, and group level. As Hinsz et al. (1997) state:

All information processing in groups occurs in specific contexts. By their nature, groups are context sensitive and context situated. The cognitive and group processes involved in information processing are generally particular to that specific context, so an analysis of contexts is needed to understand the impact of contexts for information processing in groups. (p. 45)

Consequently, we examine the unique context surrounding the board as a group. Because of regulatory and normative requirements, today most boards of directors, particularly in the Anglo-American legal domain, are comprised primarily of outside directors (Adams, Hermalin, & Weisbach, 2010). In many large firms, the CEO is the only executive who also sits on the board. Consequently, our theorizing of board barriers is primarily concerned with the factors that confine boards populated by mostly outside directors.

We organize our review around these multi-level barriers, which have independently received significant attention in the literature but have not been systematically integrated through the information-processing/board barriers lens. One of the areas we will explore in our review is how the contextual differences arising from the structure and nature of the modern corporation make boards of directors different from other decision-making teams that researchers have considered such as top-management teams or cross-functional work teams. The roles and structures of the board create different incentives, functions, and structural barriers. Given their position of ultimate authority and responsibility in the firm, their behaviors and decisions are especially consequential

for shareholders. There are three additional boundary conditions that are relevant in this context. First, boards can experience high degrees of information asymmetry, which is exacerbated by many of the barriers that we outline in this review. Second, board members do not meet very frequently which can exacerbate group related issues. Third, the dual nature of the board's tasks, to both monitor upper management and provide support to them, can be difficult to balance (Sundaramurthy & Lewis, 2003). Thus, in addition to the many challenges that all groups face, the board faces contextual differences that create a unique set of barriers that it must overcome in order to effectively perform its roles.

The Functions and Duties of the Board

In this review, we focus on the contextual factors that should limit boards' ability to effectively monitor managers because of reduced information-processing capabilities. While our attention is on ongoing monitoring, researchers also discuss two other important functions of the board, specifically resource provision and participation in punctuated events. It is through the engagement in these three roles (i.e. ongoing monitoring, resource provision, and intervention in punctuated events) that boards are typically thought to influence relevant firm outcomes such as firm strategy, management selection, and financial performance. The monitoring role involves exercising oversight over the choices that top management makes in the running of the firm (Jensen & Meckling, 1976), usually through aligning executive interests (Bhagat, Brickley, & Lease, 1985), or through direct ratification of decisions (Baysinger & Hoskisson, 1990). In contrast, resource provision entails granting access to valuable resources including offering advice and counsel on strategic issues to executives and participating in the decision-making process about how to effectively manage the firm (Hillman & Dalziel, 2003; Westphal, 1999). Participating in punctuated events includes engaging in relatively infrequent but consequential decisions such as executive dismissal (Mizruchi, 1983), bankruptcies, earnings restatements, acquisition attempts, and more that tend to have a discrete beginning and end. Each of these roles are discussed in more detail below, along with an overview of how boards may face barriers in fulfilling each of these roles.

Monitoring Role

The first area that we will consider is how boards provide ongoing monitoring of the firm and its leaders (e.g. approving strategic actions, assessing managerial effort and performance, etc.). Agency theory perspectives on corporate governance suggest that monitoring by the board can help mitigate the potential problems that can arise because of the separation of ownership and

control in the modern firm (Berle & Means, 1932). In the modern firm, shareholders delegate “decision management” to top executives and rely on directors to exercise “decision control” over these top executives to protect their interests (Fama & Jensen, 1983). Directors monitor executives to protect shareholders from the risk of moral hazard that can arise when the interests of an agent are not perfectly aligned with the interests of the principal. Fama and Jensen argued that the board of directors was to be comprised of experts who would “ratify and monitor major policy initiatives and . . . hire, fire, and set the compensation of top level decision managers” (1983, p. 313).

However, even in this early work, the authors recognized the difficulty inherent in the monitoring role of the board. Specifically, they argue that the knowledge necessary to monitor policy initiatives was costly to acquire, and that this made internal directors valuable and influential (Fama & Jensen, 1983). This work alludes to the idea that because directors are boundedly rational, the information-processing requirements to effectively monitor management may simply be too great in some cases. More recent work suggests that group decision-making biases can also hinder the ability of the board to effectively monitor management decisions (Westphal & Bednar, 2005).

Prompted by the work of Mace (1986) and others who argued that in practice boards offered very little monitoring, other agency theorists have recognized that proper internal control may be difficult (Mizruchi, 1983; Walsh & Seward, 1990). For instance, Walsh and Seward (1990) suggest internal control is difficult because of (a) attribution problems (i.e. it is difficult for boards to figure out if poor performance is the result of poor management or a poor environment) and (b) managerial entrenchment practices (i.e. tactics that managers may use to weaken the connection between poor performance and the likelihood of them being fired).

Agency theorists have also generally assumed that despite the difficulties of internal control, the board would still be able to properly fulfill its function by virtue of its ability to exercise “ultimate decision control” which comes from the ability to hire (and fire) managers, and to set manager’s compensation (Mizruchi, 1983; Walsh & Seward, 1990). However, research has generally found weak to no effects on average for the effect of various board attributes like size and independence, on the overall performance of the firm (Dalton et al., 1998; Dalton et al., 1999). Taken together, the theory and findings discussed suggest that board barriers will have a strong negative impact on the quality of ongoing monitoring activities. Boards that face barriers caused by external job demands, information asymmetry, and unfavorable group dynamics will be less able to effectively monitor the actions of top managers.

Resource Provision Role

Another major role of the board is that of providing access to resources like advice, counsel, knowledge of external events, and/or influence with external stakeholders. Much of this resource provision occurs outside of the formal setting of board meetings and can take the form of providing informal advice and counsel, guiding strategic change, enhancing the status and reputation of the firm, and increasing communication with the firm's environment, and providing access to external resources (Deutsch & Ross, 2003; Haynes & Hillman, 2010; Johnson, Daily, & Ellstrand, 1996; Zahra & Pearce, 1989; Zona, Gomez-Mejia, & Withers, 2015). Advice and counsel interactions between directors and top managers are important because they allow managers to draw upon a wealth of knowledge and information that can be useful when making strategic decisions (Johnson et al., 1996; Lorsch & MacIver, 1989). Advice from outside directors may also help managers see new strategic opportunities (Judge & Zeithaml, 1992).

The provision of resources by directors is less likely to be constrained by the same barriers that restrict monitoring. This is due to the relatively latent nature of these activities. Providing advice, reputation, access to external resources, and improving communication with the external environment typically requires less of a cognitive burden for directors because they can primarily rely on their past experience and relationships. Directors are hired for the human and board capital they have, not for their potential to gain it. Consequently, where monitoring activities require consistent effort from the directors, resource provision is something they can do as they feel appropriate.

Punctuated Events Role

Besides ongoing monitoring of regular strategic actions, the board is also required to participate in events that occur with less frequency such as acquisitions, replacing the CEO (both because of firings and retirements), as well as coping with turbulent events such as financial restatements or other internal and external shocks that increase the uncertainty in which a firm operates. We define punctuated events as any occurrence coming from the actions of the firm or those within the firm that result in a significant increase in uncertainty for the firm over a short period of time (typically less than a year). In other words, punctuated events are those that are significantly different than other events the firm is typically subject to on an ongoing basis. Because these events result in a significant rise in uncertainty for the firm, they have the ability to clearly impact firm outcomes.

In fact, according to early theory in corporate governance, it is these types of punctuated events that truly allow the board to exercise control (Mizruchi, 1983). Early corporate governance researchers, recognized that direct control

over ongoing strategic actions by the firm could be difficult for the board to achieve (Mace, 1986; Pfeffer, 1972), but that instead the board exercised ultimate control through its ability to replace the CEO (Mizruchi, 1983). Although replacing the CEO is generally viewed as just part of the monitoring function, we think it may be more appropriate to view it as a punctuated event, because of its infrequent nature. The infrequent nature of these events reduces the effect of the barriers boards face. Much of the difficulty of monitoring occurs because directors are faced with a continuous cognitive cost, and directors with high cognitive loads are much more likely to use heuristics that lead to biases and imperfections in decision quality (Tversky & Kahneman, 1974). In contrast, punctuated events significantly increase the uncertainty (perceived or real) surrounding a firm, which generally results in a greater level of scrutiny from external observers such as stockholders, regulators, and institutional investors. This increased scrutiny can threaten the legitimacy and reputation of the board, which provides incentive for directors to focus on the task at hand and to do their best to make optimal decisions. Further, these events are temporary in nature and relatively rare, so even constrained boards should be better able and more willing to temporarily marshal their limited time and cognitive resources in order to make an optimal decision that is in the firm's best interest.

In this review, we are primarily focused on unpacking how the barriers discussed below constrain boards' ability to effectively fulfill their monitoring role. We focus on monitoring for three main reasons. First, we focus on monitoring because, as we discuss in more detail below, monitoring is at the heart of the legal duty and obligation of the board. Second, the vast majority of corporate governance research on boards has examined boards in regards to their monitoring role. This is especially true of research from finance, accounting, and economics, but monitoring is also the primary function of most management research into proper board functioning. Third, monitoring is the primary duty of boards in the eyes of external stakeholders such as the press and legislators. Legislation such as Sarbanes–Oxley was almost entirely focused on improving the monitoring function of the board. We also believe that these board barriers should have a significantly smaller effect on the other two roles of boards. As we argue in more detail in the discussion section, one of our fundamental insights is that given the inherent limitations to the board's ability to monitor, perhaps we need to change our perspective on what we expect boards to be able to do well.

Effective Ongoing Monitoring

As mentioned, the agency theory perspective claims that effective monitoring by boards can help mitigate problems that arise in firms do to the different interests of managers and shareholders. But monitoring is also central to the legal definition and responsibility of the board. Although several legal

provisions grant directors some flexibility when it comes to making decisions under their fiduciary duty (Black, 1998; Lan & Heracleous, 2010), the board “has the legal right of control over (strategic decisions), as well as the legal obligation as a fiduciary to review those decisions and ensure that they are in the best interests of the corporation” (Lan & Heracleous, 2010, p. 300). What this means is that monitoring executive decision-making is at the core of a board’s legal responsibility to exercise fiduciary care. However, despite the theoretical and legal responsibility to do so, researchers have long recognized the difficulty inherent in the monitoring role of the board.

Agency theorists generally assume that despite the difficulties of internal control, the board would still be able to effectively monitor by virtue of its ability to exercise “ultimate decision control” which comes from the ability to hire (and fire) managers, and to set managers’ compensation (Walsh & Seward, 1990). However, research has generally found that executives are mostly able to thwart boards efforts to rein in their compensation (Westphal & Zajac, 1995) and also surprisingly weak links between poor performance and CEO dismissal (Boeker, 1992). Furthermore, researchers have found weak to no effects on average for various board attributes like size and independence, on the overall performance of the firm (Dalton et al., 1998; Dalton et al., 1999).

There are multiple possible reasons for the apparent disconnect between studies of boards and firm performance, some of which we discussed above. The underlying idea behind studies that examine board structure and try to connect those structures with improved firm performance is that board structure is a proxy for independence or incentives, and that incentives will lead to increased monitoring which will then lead to improved performance. However, in general, monitoring is not actually measured but is instead assumed. Consequently, when studies fail to find a relationship there are multiple possible failure points. First, a lack of findings could be because monitoring does not lead to improved firm performance. Second, the lack of findings could occur because board structure (like more outsiders) does not actually lead to increased monitoring. Third, non-findings could be the result of incorrect measures or under-specified models. Indeed, scholars have recently noted that research often theorizes about firm performance in general, even abstract terms that often do not match the more narrow and specific empirical measures, which makes it difficult to interpret our research findings, or non-findings (Miller et al., 2013).

While each of these reasons could explain the unclear link between boards and firm performance, this review focuses on one specific factor. Namely, we look at the proposed link between board structure or characteristics and increased monitoring. We challenge the assumption that monitoring automatically occurs if boards are independent and properly incentivized. Instead, we base our arguments on an organizing framework that helps to explain why

we believe the true agentic view of boards as effective monitors is unlikely due to a number of barriers that are largely created by information-processing demands on directors. Boards who are constrained by information-processing barriers caused by external job demands, information asymmetry, and unfavorable group dynamics will be less able to effectively monitor the actions of top managers.

Barriers to Effective Board Monitoring

We now examine factors that should prevent boards from providing effective monitoring. We argue that these barriers to adequate information processing by boards will arise from individual factors (e.g. those from individual directors' overall portfolio of professional duties), group factors (e.g. the relational dynamics among fellow directors in the board), and firm factors (e.g. characteristics of the boards' firm). We discuss how each of these antecedents creates a barrier to effective monitoring. [Figures 1 and 2](#) summarize our organizing framework. [Figure 1](#) illustrates how barriers at different levels may hinder effective obtaining, processing, and sharing of information, which will in turn, lower the quality or effectiveness of ongoing monitoring. [Figure 2](#) illustrates how board barriers hinder monitoring, even in the presence of directors who are both qualified (i.e. have sufficient board capital) and motivated (i.e. proper board incentives) to do their jobs. While we do not presume that these barriers are exhaustive, we believe they capture the main factors constraining boards' ability to provide effective monitoring. The factors discussed below are consistent with the logic of boards being information-processing groups that are affected by attributes of individual directors, the interactions between those directors, and characteristics of the firm that they serve (Dalton & Dalton, 2011).

We have also performed an extensive literature review of research in finance, accounting, and management that applies to board monitoring. [Table 1](#) (which because of its length is included at the end of the paper) includes a summary of relevant studies that apply to the issues we are discussing here. It also lists the major theories each study draws on, as well as the level (e.g. individual, group, and firm) that each study addresses.

Individual Factors

Outside job demands. We begin by examining how the amount and nature of individual directors' outside job demands may create barriers to effective monitoring. The information-processing limitations of the individual directors combine to create a significant barrier to effective information processing in the board. Like all human beings, top managers and directors are boundedly rational in their ability to process large amounts of complex information.

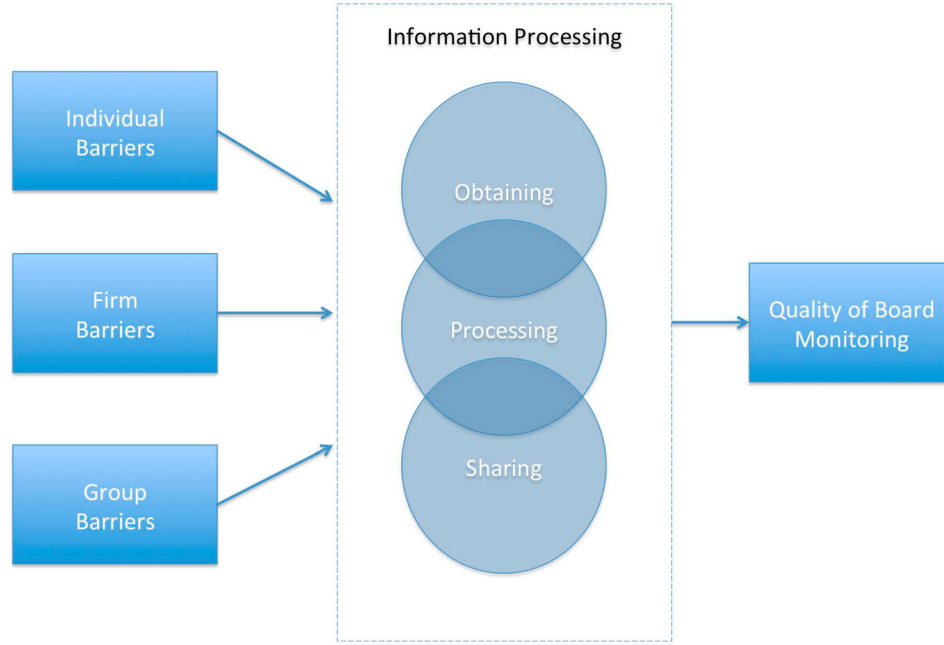


Figure 1 The Effect of Board Barriers on Board Monitoring.

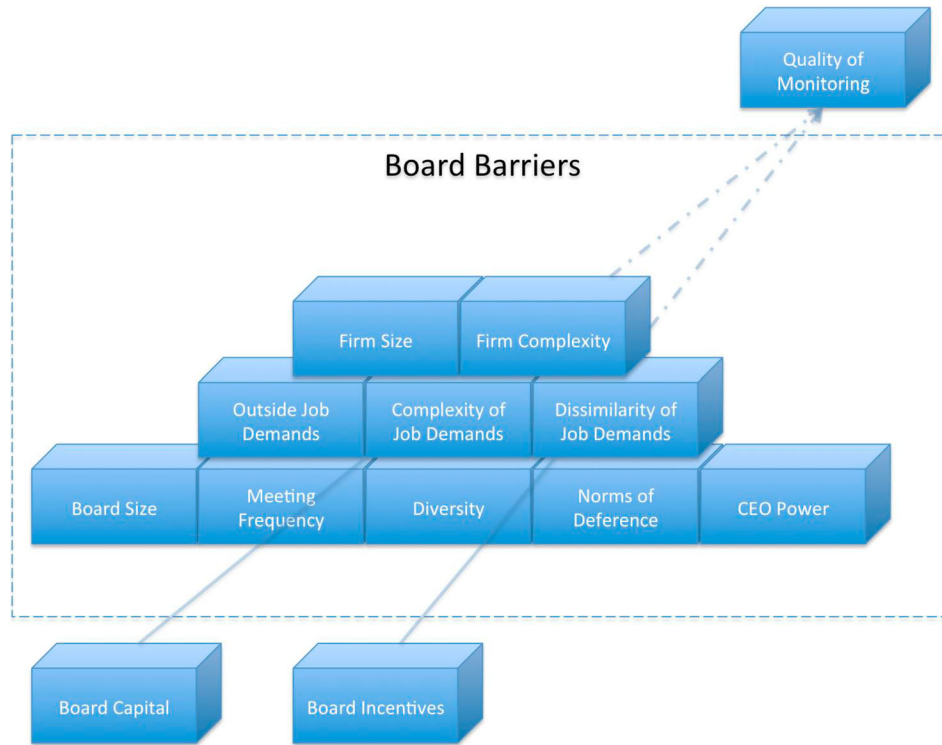


Figure 2 The Effect of Board Barriers on the Link Between Board Capital and Incentives on Monitoring.

Because of managers' bounded rationality, strategic decision-making often suffers from cognitive biases which is further exacerbated by the fact that strategic decision-making is characterized by ambiguities, uncertainty and lack of structure (March, 1999; Schwenk, 1984; Walsh, 1995). A number of empirical studies support this notion that strategic decision-making is particularly subject to cognitive biases (e.g. Barnes, 1984; Bateman & Zeithaml, 1989; Bukszar & Connolly, 1988; Golden, 1992; Lant, Milliken, & Batra, 1992).

Directors are often required to make judgments about highly complex issues (Forbes & Milliken, 1999; Zajac & Westphal, 1996). In order to make the best decisions for the firm, directors must fully understand both the focal firm and its environment (Makri, Lane, & Gomez-Mejia, 2006). However, a complete understanding of complex issues is often beyond the individual and combined capacity of directors. According to the information-processing perspective, board monitoring is "most effective when available information processing capacity equals or exceeds information processing demands" (Khanna, Jones, & Boivie, 2013, p. 563) (see also Galbraith, 1974; Tushman & Nadler, 1978). This logic is consistent with the busy board hypothesis from the finance literature, which argues that the number of directors' other board appointments at both the individual and board levels can weaken the performance at the focal firm (Ferris, Jagannathan, & Pritchard, 2003; Fich & Shivdasani, 2006; Perry & Peyer, 2005). One reason for this reduced performance could be that busyness generates cognitive barriers that hinder directors. Boards filled with directors who are too busy because of multiple directorships may be constrained in their ability to effectively fulfill their roles at the focal firm. Similarly, research on executive job demands from a management perspective (Hambrick, Finkelstein, & Mooney, 2005) acknowledges that some managerial situations are inherently more complex and demanding than others due to firm differences in their external environment, or in their internal structure and strategy.

Drawing on the above research, it seems that the effectiveness with which outside directors are able to perform their duties is especially likely to be constrained by their bounded rationality and the complexity of the information-processing demands they face from their responsibilities outside the focal firm. Most outside directors have full-time jobs, sometimes as CEOs of other companies, and many also have multiple board appointments. The time and cognitive attention that they give to these outside demands will reduce their overall ability to be effective at the focal firm. At the same time, to be effective at monitoring the focal firm's management, individual directors need to have a fairly high degree of understanding of the focal firm's business and its environment, which requires the acquisition and processing of a large amount of information pertaining to the focal firm (Hambrick et al., 2015; Khanna et al., 2013). However, prior research has argued that the ability to process large volumes of information varies across individuals (Dollinger, 1984; Henderson &

Fredrickson, 1996). For example, extremely prominent individuals (e.g. “stars”) with large networks, who may initially seem likely to have substantial information-processing capability, are actually quite susceptible to being overloaded with information, resulting in cognitive overload and decreased performance (Oldroyd & Morris, 2012). Given that directors often fall into a similar category as prominent individuals with large networks, such information overload would seem likely in the boardroom. In the context of barriers that constrain effective monitoring, one factor that may influence directors’ abilities to process information pertaining to the focal firm is the level of information-processing demands they face from their outside job demands, including their responsibilities at their home firm and their other board appointments. The amount and nature of directors’ outside job demands will likely affect the boards’ information-processing capability because it will limit individual directors’ ability to obtain and process relevant information. Individual directors will thus often be unable to effectively parse which information is most important and relevant to this particular context.

Similarity of outside job demands. Although the number of outside job demands may create barriers that constrain a board, to fully understand what may prevent effective monitoring, we must also consider that all outside job demands are not equal in the level of information processing required. Another factor that can affect the information-processing load of individual directors is the degree to which their outside job demands are similar or dissimilar to the focal firm (Carpenter & Westphal, 2001). Research in finance has shown that CEOs are most likely to serve as directors at firms with similar financial, investment, and governance characteristics to their home firm, perhaps in part because such similarity reduces the cognitive burden on the CEO-director (Fahlenbrach, Low, & Stulz, 2010). Research in management has shown that the degree to which directors’ external job demands are similar or dissimilar to the focal firm affects directors’ perceptions of how much they are able to contribute during board meetings (Carpenter & Westphal, 2001). For example, a director who has related industry experience or who sits on the board of companies that engage in similar strategies to that of the focal firm will likely be able to more readily process larger amounts of information and as a result will have a lighter cognitive load (Khanna et al., 2013; Kor & Misangyi, 2008). In addition, directors that have experience with specific issues or decisions facing the focal firm may be better equipped to help guide similar decisions at the focal firm. For example, research has shown that in some circumstances, director experience with acquisitions can lead to more favorable acquisition outcomes for the focal firm (McDonald, Westphal, & Graebner, 2008).

Complexity of outside job demands. In addition to considering strategic similarity in the director's other jobs, firms also engage in activities that can affect the information-processing demands on its managers and directors. Prior research suggests that the level of complexity in a particular firm is directly related to the information-processing demands placed on managers (Henderson & Fredrickson, 1996). Outside firms that have high diversification, that engage in unrelated diversification, and/or operate in many geographic areas will require increased levels of information processing from their managers and directors, which can then limit a director's ability to fulfill their monitoring role at the focal firm.

The level of diversification for each outside firm is one of the main factors that can affect the overall complexity of a director's outside job demands. Past research has typically focused on how diversification affects managers of focal firms, although the findings can easily be applied to outside directors, which we do here. For example, research has found that the information load placed on executives and directors should increase as a firm becomes more diversified (Henderson & Fredrickson, 1996). Increased levels of diversification indicate that the firm has a broader range and complexity of information that must be dealt with in order to make strategic decisions (Thompson, 1967).

Research has also shown that both related and unrelated diversification may amplify information load (Henderson & Fredrickson, 1996). Increases in the amount of related diversification adds complexity beyond that of undiversified businesses because of the need to understand and manage interdependencies between business units (Hill & Hoskisson, 1987; Jones & Hill, 1988). Similarly, unrelated diversification introduces additional complexities beyond related diversification as the firm's leaders are no longer able to draw on a common pool of knowledge and resources (Lubatkin & O'Neill, 1987). The number of unrelated businesses further increases the information-processing load because of the need to maintain efficient internal capital markets (Henderson & Fredrickson, 1996; Jones & Hill, 1988). This increased demand on firm resources from unrelated diversification has been linked to decreased firm performance as compared to firms engaged in related diversification (Palich, Cardinal, & Miller, 2000). In addition, relatively few diversified companies now treat their portfolio of businesses as an internal capital market. Rather, top management is typically expected to engage in some non-financial control of divisions in their portfolio, whether related or not. Consequently, the degree of unrelated diversification as well as the number of unique businesses should directly relate to the overall individual information-processing load of top managers, as well as directors.

Beyond product diversification, outside firms can also be diversified geographically. For example, internationalization through geographic diversification also raises cognitive complexity because directors will have to understand and deal with different legal systems, customer preferences, and

numerous other issues that arise when firms operate across national boundaries (Hitt, Hoskisson, & Kim, 1997). Research has found that the internationalization of firms increases the informational processing demands on managers and that such demands are subsequently reflected in executive compensation arrangements and the structure of the board (Sanders & Carpenter, 1998).

The research summarized here illustrates ways in which the complexity of a director's outside job demands can limit their ability to effectively monitor at the focal firm. When a director is involved with outside firms that are highly diversified, who engage in high levels of unrelated diversification, and/or that operate in many different geographic areas, the director's information-processing demands will be increased, reducing their ability to adequately monitor at the focal firm. Thus, all else equal, boards with directors whose outside job demands are complex in nature will experience decreased ability to effectively monitor.

Group Factors

While the prior section focused on how individual factors may create barriers that inhibit the board's information-processing ability, we now turn our attention to group-level factors. Specifically, we are interested in focusing on characteristics of the board and the resulting group dynamics that are likely to affect the board's ability to effectively monitor. From a group information-processing perspective, it is very important to understand the contextual factors that are unique to a particular group (Hinsz et al., 1997). Because boards function as a group, they face the inherent challenges of group decision-making that other groups face. At the same time, certain characteristics of boards suggest that some of these challenges are likely to be exacerbated. Past research has noted that boards are "large, elite, and episodic decision-making groups that face complex tasks pertaining to strategic-issue processing" (Forbes & Milliken, 1999, p. 492). The size, frequency of meeting, and composition of boards, along with interpersonal and power dynamics among directors are likely to affect the social cohesion and subsequent information-processing capability of the board. Below, we outline how each of these group-level factors limits the board's ability to effectively monitor by hampering the processing and sharing of information and ultimately reduces the board's substantive effect on firm outcomes.

Board size. Board size is a characteristic that is especially likely to affect relational dynamics between group members and their ability to process information effectively. While some have argued that larger boards may help firms gain access to critical resources, research finds that large boards may have several negative effects on firm outcomes. For example, firms with smaller

boards have higher firm valuations, which is attributed to less effective monitoring by larger boards (Yermack, 1996). Similarly, larger boards tend to be less involved in strategic decision-making (Judge & Zeithaml, 1992) and are less likely to initiate strategic change (Goodstein, Gautam, & Boeker, 1994). Larger boards have also been linked to a greater likelihood of failure for firms in financial distress (Dowell, Shackell, & Stuart, 2011). One explanation for these empirical results is that the size of the board may create barriers that limit how effectively boards are able to share and coordinate information. Specifically, as boards become larger, the resulting process losses caused by the need to coordinate the actions of so many individuals may make it more difficult for the board to effectively fulfill its roles of monitoring and providing valuable resources to firms. We know that large groups are less cohesive (Shaw, 1981), have lower participation from group members, and are more difficult to coordinate because of the many potential interactions that must be managed (Gladstein, 1984). In addition, larger groups are more likely to develop factions, fostering the likelihood of conflict and hence increasing the difficulty of making decisions in a timely manner (O'Reilly, Caldwell, & Barnett, 1989). Another potential drawback of large board size is that it can raise the risk of social loafing (George, 1992), which occurs when individuals working as a group exert less effort than individuals working alone. As board size increases, it becomes much harder to attribute specific responsibility to individual board members and so directors may exert less effort. In summary, given the inherent challenges associated with large decision-making bodies, theory and evidence suggests that larger boards are likely to present a barrier that generally makes boards more constrained (Dalton et al., 1999; Goodstein et al., 1994; Pfeffer, 1972; Yermack, 1996).

Meeting frequency. A second characteristic that is likely to affect relations among group members is the frequency with which boards meet. In some cases, board-meeting frequency has been used in the governance literature as a proxy for increased board monitoring (Carcello, Hermanson, Neal, & Riley, 2002; Linck, Netter, & Yang, 2009). Studies have actually shown a negative relationship between board-meeting frequency and firm performance, but this is driven by the fact that boards increase their meeting frequency after significant share price declines (Vafeas, 1999). Most boards meet together relatively infrequently and infrequent interaction may inhibit the ability of the board to develop into a cohesive decision-making body. According to the contact hypothesis, groups or individuals that have more frequent interaction are more likely to develop positive sentiment toward one another and reduce conflict (Allport, 1954). In the case of boards, directors who meet together only a few times per year are unlikely to develop a high level of social cohesion and trust.

It may be useful to think of boards as distributed groups given the dispersed nature of directors. Research suggests that dispersed groups encounter increased conflict, and conflict arising in dispersed groups lingers for longer periods of time without being resolved (Hinds & Bailey, 2003). In addition, distributed groups frequently suffer from a lack of mutual knowledge, which is knowledge that a group shares and knows that they share (Cramton, 2001). This lack of mutual knowledge can interfere with a group's ability to share information and make timely, quality decisions. Finally, dispersed groups typically have lower levels of familiarity and friendship (Hinds & Bailey, 2003). In summary, the existing literature suggest that boards which meet less frequently may be less cohesive as a decision-making body, which may act as a barrier to effective monitoring.

Diversity. While much of the governance literature has focused on board structural characteristics, other director characteristics have also received substantial attention in the board literature (for a review see Johnson, Schnatterly, & Hill, 2013). One area that has important implications for how a board functions is the diversity of the directors. Diversity is typically separated into two areas within extant board literature: demographic and functional, although there are others such as cognitive diversity (Miller, Burke, & Glick, 1998) that have been used in the broader literature on groups and teams, but have not been used in board research. Demographic diversity includes characteristics that are more visible to observers (e.g. age, gender, ethnicity, race, education, etc.). Demographic diversity is often the focus of diversity studies by governance researchers (Carpenter, Geletkanycz, & Sanders, 2004) because it is visible and amenable to data collection efforts. Functional diversity includes less visible characteristics that are harder to measure and is thus less common in research. Functional diversity is essentially the variety of human and social capital that directors possess, and is known in some literature as job-related diversity (see e.g. Carpenter & Westphal, 2001). It includes characteristics such as industry and functional background, specific experiences, knowledge, reputation, and beliefs.

Research has linked diversity among directors to a number of important benefits including increased firm reputation, greater corporate social responsibility, enhanced firm performance, and more disciplined CEO compensation, among others (Bear, Rahman, & Post, 2010; Erhardt, Werbel, & Shrader, 2003; Zhu, 2014). Research on the benefits of diversity also argues that diverse groups are able to generate better solutions during problem solving because of their ability to consider a greater range of possible solutions (McLeod & Lobel, 1992; Watson, Kumar, & Michaelsen, 1993). Increased diversity of directors can yield different perspectives (Farrell & Hersch, 2005) and allow the firm to access a wider array of resources (Arfken, Bellar, & Helms, 2004).

While there are benefits to board diversity, there is a significant amount of research showing that board diversity can also have a negative impact on firm outcomes. For example, there is evidence that having more female directors is associated with greater board monitoring but also with decreased firm performance (Adams & Ferreira, 2009b). Directors with past experience in acquisitions can polarize board discussion of potential acquisitions, leading to the firm paying higher premiums (Zhu, 2013). In the top-management team literature, there is evidence to suggest that differences amongst group members can decrease performance through increased conflict and decreased levels of trust and communication. Diversity may hinder group information-processing capabilities because diversity can make communication among group members more difficult (Ibarra, 1992) as individuals with different backgrounds and life experiences may experience increased difficulty understanding each other. Communication difficulties may also decrease the social integration of the group. Diversity may also lead to relational conflict (Jehn, 1995; Jehn & Mannix, 2001; Pelled, Eisenhardt, & Xin, 1999). There is empirical evidence that diversity in boardroom settings is associated with group decision-making biases such as pluralistic ignorance, which in turn can lead to strategic persistence (Westphal & Bednar, 2005).

This is not to say that diversity may not have some benefits, such as the ones discussed above, but it does suggest that diversity increases certain challenges for group interactions within boards. Individual characteristics, backgrounds, experiences, cultures, and beliefs shape the way individuals approach tasks, and mixing these approaches in a group-level setting can lead to challenges as the group works to find a consensus. In summary, diversity may make it more difficult for the group to work together thereby creating barriers that affect boards' ability to be effective information processors. To the extent that board diversity limits directors' information-processing capabilities, it should also diminish the board's ability to effectively monitor on an ongoing basis.

Norms of deference. The group factors discussed to this point can facilitate the perpetuation of dysfunctional group norms on boards. Directors add value to a focal firm to the extent that they are able and willing to share knowledge and resources. Many times, this means being willing to be candid with and even critical of management in discussing tough issues about the current direction of the firm (Sonnenfeld, 2002). Research has demonstrated the value of criticism in helping groups to create knowledge (Lee & Cole, 2003). However, the social norms on many boards may prevent such candid discussions from taking place. Social norms are the "rules and standards that are understood by members of a group and that guide and/or constrain social behavior without the force of laws" (Cialdini & Trost, 1998, p. 151). On boards,

norms about appropriate behavior develop and in many cases may act to constrain directors from fulfilling their roles. Qualitative research suggests that on many boards, norms of deference to the CEO may exist (Lorsch & MacIver, 1989). Such norms of deference are more likely to occur when the CEO is powerful relative to the board (Belliveau, O'Reilly, & Wade, 1996; Westphal & Zajac, 1995) or when directors are appointed by the CEO and therefore feel an obligation to support management initiatives (Wade, O'Reilly, & Chandratat, 1990).

Norms against speaking up in board meetings are especially likely to stifle candid discussion regarding proposals that are considered contrary to the interests of management. For example, research has shown that directors who implement corporate governance reforms subsequently experience social distancing at their other board appointments meaning that they are less likely to have their opinion sought after and less likely to be included in informal meetings (Westphal & Khanna, 2003). Directors who experience social distancing are less likely to speak up in the future, further strengthening norms of deference to the CEO. Research also indicates that directors may be hesitant to speak up in board meetings because of potential social risks involved with voicing minority opinions. Directors often join boards to make favorable impressions and to build their own social capital (Lorsch & MacIver, 1989) and may be reluctant to voice what is perceived to be a minority opinion for fear of appearing foolish. Research shows that individuals who raise minority opinions are more likely to be viewed negatively by their peers (Moscovici & Doise, 1994). This social dynamic can lead to what is known as pluralistic ignorance, a situation where individuals systematically underestimate the extent to which other members of the group share their own opinion (Miller & McFarland, 1987). Survey evidence shows that boards of poorly performing firms often experience pluralistic ignorance, wherein individual directors have concerns about a firm's strategy, yet perceive that other directors are less concerned about strategic issues and so directors are subsequently less likely to voice their concerns in board meetings (Westphal & Bednar, 2005). Failure to voice concerns in the boardroom strengthens the norm of deference to the CEO and further limits boards' ability to be effective information processors.

CEO power. Another aspect of the dynamics of the group is the degree to which the CEO has power, both formal and informal, to influence the actions of the board (Finkelstein, 1992). CEO power should create a barrier to effective monitoring for a number of reasons. Powerful CEOs are better able to control the agenda and procedures of board meetings (Campbell et al., 2012; Cannella & Lubatkin, 1993; Ellstrand, Tihanyi, & Johnson, 2002; Finkelstein & Hambrick, 1996). Powerful CEOs are also likely to influence board committee

composition and the recruitment of new directors (Westphal & Zajac, 1995). To the extent that powerful CEOs appoint directors with ties to the CEO, board monitoring decreases and ultimately, firm performance suffers (Fracassi & Tate, 2012). Furthermore, CEOs who have more power are able to exert an influence on both the total amount of compensation they receive as well as the pay-performance relationship of that compensation (van Essen, Otten, & Carberry, 2015). This body of work indicates that powerful CEOs are largely able to neutralize the monitoring ability of the board, which allows executives to work towards promoting their own self-interest.

Firm-Level Factors

Finally, we propose that the characteristics of the focal firm are another key set of factors that determine the effectiveness of board monitoring. Drawing on the logic of information-processing demands and structural inertia, we suggest that both the size and complexity of the focal firm are two firm-level characteristics that can act as critical board barriers. As with the individual factors discussed above, it is likely that firm size and firm complexity will reduce effective information processing by decreasing boards' ability to take in and process relevant information.

Firm size. The size of the focal firm will likely create a barrier to effective monitoring by the board of directors. Similar to the arguments above regarding external job demands, firm size contributes to the complexity of the firm and increases the subsequent information-processing demands associated with the firm (Henderson & Fredrickson, 1996). As a firm grows in size, so does the scope and variety of the firm's customers and suppliers. This will result in a demand for more strategic initiatives and more complex structures. Larger firms are also likely to encompass a larger range and heterogeneity of factors that need to be considered when making strategic decisions. This requires both greater quantities and variety of information to be processed. Because directors are part-time employees who typically meet only a few times each year, directors of large firms will face more difficulty in fully comprehending all of the issues necessary to be properly informed and fulfill their duties. The sheer volume of information will make it more difficult for directors to obtain the information that is most relevant.

Firm size should also constrain the board's ability to effectively process information because larger firms tend to be more inertial and difficult to change. Larger firms are more likely to have established organizational strategies, policies, procedures, and routines (Cooper, Willard, & Woo, 1986) that make it more challenging for boards to offer meaningful advice or to advocate for strategic change. Structural inertia can thus create a barrier with

regards to the sharing and using of the correct information. Consequently, firm size can create a barrier that makes it difficult for the board to influence the firm through ongoing monitoring.

Firm complexity. Similar to the complexity of directors' outside job demands, the complexity of the focal firm should create a barrier that hinders the board's ability to effectively process information. Directors of firms that are more complex will be faced with a higher cognitive load in order for them to fully understand the firm and all of its activities. There is evidence that complex firms have greater monitoring requirements than more simple firms and structure their boards accordingly (Coles, Daniel, & Naveen, 2008). Other factors that increase firm complexity, such as greater foreign ownership, also result in greater monitoring needs (Desender, Aguilera, Lópezpuertas-Lamy, & Crespi, 2014). As we discussed above, firms become more complex as they participate in multiple product and geographic markets (Henderson & Fredrickson, 1996). Product-related diversification increases firm complexity because it requires the firm to deal with a broader range of information technologies, products, and markets when making strategic decisions. Geographic diversification raises complexity because it requires the firm to deal with a greater variety of cultural and regulatory environments. However, complexity will not only present a barrier to boards because of an enlarged informational burden, but also because of higher information asymmetry between the board and top managers. As mentioned above, directors are part-time employees while firm executives deal with the day to day challenges. The additional time and effort spent by firm executives working in the firm makes them a lot more knowledgeable about the firm than outside directors. Consequently, boards of highly complex firms will have a more difficult time monitoring management because of the significant disparities in their knowledge of the firm and its activities.

Discussion

In this review, we conceptualized the board of directors as an information-processing group, and suggested that viewing the board from this perspective can help us to better understand the challenges that face directors and boards. Our review identified a number of factors constraining boards from acting as effective monitors and discussed relevant research around each of these barriers. Specifically, we examined a total of ten barriers stemming from multiple levels of analysis including individual cognitive limitations, group dynamics, and firm characteristics. We believe that our perspective can contribute to and extend existing literature on boards. Prior work on board effectiveness has mostly focused either on directors' incentives or motivation (e.g. the

agency perspective) (Eisenhardt, 1989; Fama & Jensen, 1983) or the ability of directors (e.g. the resource dependence perspective) (Haynes & Hillman, 2010; Hillman & Dalziel, 2003; McDonald et al., 2008). Our conceptualization of board barriers connects with both of these perspectives. Specifically, we agree with prior research and theory that the motivation of directors as well as their individual knowledge, skills, and abilities should influence board outcomes. However, we believe that the structural barriers that we have outlined above should make it difficult for even the most motivated and most skilled board to monitor effectively (see Figure 2).

For instance, virtually all of the research that examines the effects of board independence on firm outcomes does so from an agency perspective. Yet one of the limitations of this prior research is that it focuses primarily on characteristics of boards like structural independence, which is often used as a proxy for incentives (Eisenhardt, 1989). The argument is that non-independent boards will fail to effectively monitor managers because they lack the incentives to act contrary the interests of their peers. It is clear that in order to effectively monitor executive action or to provide advice and counsel on strategic firm issues, a director must choose to do so. However, in this review we have discussed literature and put forth a perspective to suggest that in many cases even the most motivated directors will be unable to effectively monitor executives because of the many barriers that limit the acquisition, processing and sharing of adequate information. Thus, part of what this review suggests is that board independence alone will not be sufficient to ensure effective monitoring. While independent boards may be effective monitors if there are few or relatively weak barriers to their information processing, in practice, we think the likelihood of few barriers is rare.

To the extent that these barriers are better recognized and understood, then the ideas presented here may help boards by allowing them to adopt different strategic practices, such as improving due diligence during the CEO selection process, or trying to influence intermediate firm outcomes like acquisition spending (Davis, 2005). An understanding of these board barriers to effective monitoring may also be helpful for practitioners who can implement measures to overcome constraints, and for policy-makers who may need to identify and address the fundamental limitations of boards of directors. And ultimately, shedding light into the barriers that boards face when monitoring may fundamentally change our perceptions of what we can reasonably expect a director to accomplish.

Furthermore, recognizing the inherent barriers that boards face in effectively processing information and ultimately in providing effective oversight and monitoring has a number of important implications for future research and public policy. Our review suggests that scholars, practitioners and policy makers may be well served by having a more nuanced and realistic view of the board's ability to monitor. Given the research reviewed in this article, we are

pessimistic about the possibility of boards being able to effectively monitor managers on an ongoing basis in many circumstances. For monitoring to be effective, it requires proper incentives (such as structural independence), adequate skill (such as director human and social capital), reduced information asymmetry, and lower barriers to information processing. Further, most prior research has focused primarily on the issue of incentives, but we identify and review literature surrounding ten of the most salient information-processing barriers that even properly incentivized boards must overcome.

Given the size and complexity of many modern firms, we believe some firms may effectively be “too big to monitor”, and that successful monitoring by boards may be highly unlikely in many large public firms. It might be time to concede that our conception of boards as all-encompassing monitors is doubtful, and instead turn to broader models of board effectiveness that examine more than just board monitoring when determining the success of the board. After many of the corporate scandals over the past several years, the initial reaction has often seemed to be “where was the board?” Our review calls into question whether boards are really equipped to catch or stop misbehavior. Governance failures are likely to often be the result of the many barriers that we have outlined in this review, rather than directors who are shirking their duty as is often assumed. One of the implications of this review is that we may need to take more caution in vilifying directors when things go wrong and instead hold the existing organizational actors, such as managers and auditors, accountable for lack of performance.

While this review paints a somewhat pessimistic picture of board monitoring, we do not necessarily think that research on monitoring should cease. Our article does suggest that scholars should examine sources of monitoring beyond the board, including a number of external control mechanisms such as corporate law, the media, analysts, and other stakeholder groups that can put pressure on firms (Aguilera, Desender, Bednar, & Lee, 2015). However, we also see a clear need for far more contextualized theories about when successful monitoring by boards may be able to occur. This will require better measures of board monitoring but also a better conceptualization of what types of performance measures we can realistically expect the board to influence and less reliance on the broad performance measures that have typically been used in this line of work. Future research on monitoring by boards should more explicitly acknowledge the barriers outlined in this review. Furthermore, there could be great advances in our understanding of board effectiveness by examining how these barriers may work together and act as substitutes or complements with other practices. Recent work in corporate governance has pointed out that governance mechanisms can potentially act as substitutes and/or complements to one another although they tend to be highly context

driven (e.g. Aguilera et al., 2015; Boivie, Lange, McDonald, & Westphal, 2011; Desender et al., 2013; Misangyi & Acharya, 2014; Rediker & Seth, 1995; Rutherford, Buchholtz, & Brown, 2007; Tosi, Katz, & GomezMejia, 1997; Ward, Brown, & Rodriguez, 2009; Zajac & Westphal, 1994). For example, Desender et al. (2014) demonstrate that board independence in Japan becomes effective with a strong presence of foreign ownership. In this case, these governance practices are complementary but only under a certain condition. Alternatively, Bell et al. (2013) show that companies coming from an institutional environment with strong laws that pursue an initial public offering (IPO) in the U.S. can choose between governance practices such as board independence or contingent pay in order to be successful because these practices act as substitutes in this case. This stream of research argues and finds support for the claim that, under certain conditions, some governance control mechanisms may act as replacements for other governance control mechanisms while in other cases “the presence or addition of one mechanism strengthens the other and leads to more effective governance” (Ward et al., 2009, p. 648). Such research seems much more likely to yield productive insights rather than looking for direct effects of board monitoring on firm-level outcomes like financial performance.

In a similar way, we believe that the factors that inhibit board information processing may not have to all be present to produce a highly constrained board. These factors may reinforce one another, or may substitute for one another, such that, only a few conditions may be necessary to produce board constraint. For example, dysfunctional group dynamics could exacerbate the constraint caused by cognitively overloaded directors. Thus, in cases where there are high norms of deference to the CEO, directors with demanding outside job demands may be even less likely to bring up concerns or to actively explore strategic options other than those proposed by management. In other cases, the characteristics of the firm may be enough to cause high levels of board constraint, even in cases when the board functions well as a group. Thus, even a board that communicates effectively and openly, meets regularly, and avoids common group-level decision biases, may simply not be able to exert much influence in a very large organization. Examining potential interactions between various board barriers would seem to be a fruitful area of future research. Empirical work in this area could help us to discover which barriers are the biggest hindrances to board effectiveness, and which are relatively benign.

Similarly, although our review paints a pessimistic picture regarding the role of boards with regards to monitoring specifically, we want to stress the fact that we are not pessimistic about directors individually or boards more broadly. First, as we highlight above, our review of the literature suggests that many observed failures of monitoring are likely the result of barriers to effective monitoring and not because of directors who are lazy or do not care about their firms. In practice,

our personal experience with directors suggests that individual directors tend to be quite conscientious about their responsibilities and appear to be capable. Instead, our review suggests that future research can focus more heavily on a broader set of board roles such as the board's job of providing resources or being involved in punctuated events. Despite the fact that research often acknowledges that the board has multiple roles (Hillman & Dalziel, 2003), the dominance of agency theory in governance work has led to an inordinate focus on the monitoring role of the board. Given the many inherent barriers to effective monitoring that are outlined in this review, perhaps more focus should be given to the resource-providing and advice-giving role of the board. Much of this resource provision often occurs outside of the formal setting of board meetings and can take the form of informal advice. Advice and counsel interactions between directors and top managers are important because they allow managers to draw upon a wealth of knowledge and information that can be useful when making strategic decisions (Johnson et al., 1996; Lorsch & MacIver, 1989). Advice from outside directors may also help managers see new strategic opportunities (Judge & Zeithaml, 1992).

We believe that the provision of resources and advice by directors is less likely to be negatively impacted by board constraints. Providing advice requires less of a cognitive burden for directors because they can rely on their primary experience. Many of the social dynamics that constrain boards will have less of an impact on the provision of advice, because advice giving is seen as less threatening than monitoring or decision control. Furthermore, there is also evidence that director-advice giving can have positive performance effects (Westphal, 1999).

Similar to our discussion of the resource-providing role, we also believe that the board barriers discussed here should have a weaker impact on the board's involvement in punctuated events. The ongoing nature of monitoring can incur a significant cognitive cost that can result in directors using heuristics to reduce the cognitive load (Tversky & Kahneman, 1974). In contrast, punctuated events such as replacing the CEO, or discussing the merits of an acquisition, are temporary and relatively rare and so even boards with high barriers should be better able and more willing to temporarily marshal their cognitive resources in order to make an optimal decision.

In addition, because these events are rarer, they also generally face a greater level of scrutiny from external observers such as stockholders and institutional investors. The increased scrutiny will also provide additional incentive for directors to focus on the task at hand and to do their best to make optimal decisions. Consequently, we believe that future research and theorizing needs to focus on boards as advice-giving bodies, or bodies that get involved in punctuated events, and look to other corporate governance mechanisms to secure monitoring.

Recently, other theorists have recognized the reality of some of these individual barriers to director monitoring. Hambrick and colleagues have proposed a model that argues that directors need to have a combination of four unique qualities that they label as independence, expertise, bandwidth, and motivation (Hambrick et al., 2015). We would agree with their basic premise, and indeed their categories show a high degree of overlap with the individual level characteristics we identify in this review. What we think this review adds to this discussion, is that we also demonstrate the existence of a significant body of research on factors at both the firm and group level that are likely to impede monitoring. In our view, effective theorizing about boards must include these dynamics and multiple levels of analysis if we hope to provide realistic prescriptions about what boards can be expected to do.

Specifically, our review highlights the idea that ineffective or dysfunctional group dynamics are a major barrier to effective information processing by boards. If boards want to improve their information-processing ability, future research into board effectiveness should strongly consider drawing more heavily upon the literature on groups and teams. For instance, there is evidence indicating that increased time working together (i.e. shared tenure) can enhance the functioning of groups as trust, cooperation, and communication tend to improve over time (O'Reilly, Snyder, & Boothe, 1993; Zenger & Lawrence, 1989). Shared tenure may also enrich functioning through increased pooling of unique information (Gruenfeld, Mannix, Williams, & Neale, 1996) and by reducing the negative consequences of diversity on group cohesion (Harrison, Price, & Bell, 1998; Harrison, Price, Gavin, & Florey, 2002; Pelled et al., 1999). Research should explore whether shared tenure improves board performance. Research could also explore if boards are able to overcome barriers by creating norms of openness where critical views can be expressed without fear of retribution. Perhaps the focus on structural characteristics of the board has caused us to overlook the need for boards to function as groups. Because boards do not meet together often and are typically located in geographically dispersed areas, there may be opportunities to apply key findings from the literature on virtual teams to better understand board functioning. In general, we believe there is great potential for future research to examine ways to incorporate insights from the groups and teams' literature to the unique context of boards to reduce the barriers we have discussed.

Future research should also explore other ways that boards can overcome the barriers we outlined. For example, boards may also be able to reduce the information-processing barriers faced by the board through more strategic recruiting of directors. Our organizing framework suggests that some directors are less likely to make a substantive impact than others. For instance, individuals who are directors of many other large and complex firms or who have very dissimilar experience may face more barriers to effective information processing (Khanna

et al., 2013; Oldroyd & Morris, 2012). Consequently, when recruiting new directors, firms should take the directors' outside job demands into consideration. The board capital perspective suggests that CEOs may be considered the most sought-after directors because of their relevant experience. However, our theory of board barriers argues that a board comprised mainly of CEOs of large, complex organizations may be less effective.

Finally, information technology may also afford opportunities to decrease board barriers. Communication technology makes it easier for directors and executives to communicate outside of board meetings. The use of email, videoconferencing, virtual meetings and other technologies could greatly enhance the amount and quality of communication that directors engage in. This increased communication may have a number of positive benefits. First, it could spread the cognitive information load associated with understanding the firm over more iterations, making it easier for directors to research issues related to large complex firms. Second, it may decrease some of the negative effects of CEO power by increasing trust and communication between the CEO and directors (Westphal, 1999). Third, it may help stimulate greater shared team experience by increasing the communication level between the directors themselves.

Conclusion

The organizing framework of boards as information processors developed in this review gives corporate governance researchers another lens through which to consider board effectiveness. Over the past 20 years, there has been a tremendous amount of research on corporate governance, and yet it is still difficult to find solid prescriptions for effective boards. The conceptual model developed here may help provide an answer for why it is so difficult for boards to be effective monitors and gives some tools to current and future directors. Beyond factors of motivation and ability, boards face numerous barriers that reduce their ability to effectively process information and subsequently provide effective ongoing monitoring. Ultimately, we believe that the ideas put forth in this review could help research on boards to move beyond the general "one size fits all" prescriptions that are common in much of the literature. Recognizing the inherent barriers to board effectiveness will promote research that focuses more on the specific conditions where boards actually may be able to effectively monitor and perform their other roles in a way that does lead to substantive outcomes for the firm. By conceding that boards may not make much of a difference in many cases, researchers could put more focus on uncovering the contexts where they do. This manuscript seeks to speak to these challenges and influence future director selection processes as well as temper shareholder and stakeholder expectations on board monitoring.

Table 1 Monitoring Literature Summary

Author(s)	Article type	Analysis level	Theoretical framework				Key finding related to monitoring
			Agency	Resource dependence	Stewardship	Power Other	
Abdullah, Ku Ismail, and Nachum (2015)	Empirical	Individual				✓	Female directors positively impact accounting performance and negatively impact market performance.
Ararat, Aksu, and Cetin (2015)	Empirical	Group	✓			✓	They find a positive and non-linear relationship between demographic diversity and performance, mediated by the board's monitoring efforts. The effect of monitoring is found to be contingent upon (moderated by) the controlling shareholders' propensity to expropriate, measured by the deviation of control rights from cash flow rights.
Banerjee, Humphery-Jenner, and Nanda (2015)	Empirical	Group	✓				After the passage of the Sarbanes–Oxley Act and changes to the NYSE/NASDAQ listing rules (collectively, SOX), increased board independence improves decision-making by overconfident CEOs.
Biggerstaff, Cicero, and Puckett (2015)	Empirical	Group	✓				Firms with Chief Executive Officers (CEOs) who personally benefit from options backdating are more likely to engage in other corporate misbehaviors.
Brandes, Dharwadkar, and Suh (2015)	Empirical	Individual				✓	Board committee overlap associated with linking pin directors (i.e. those serving simultaneously on the audit and compensation committees) improve monitoring effectiveness.
Cao, Dhaliwal, Li, and Yang (2015)	Empirical	Individual	✓				Find that independent directors socially connected to their firms' senior executives earn significantly higher returns than unconnected independent directors in stock sales transactions.
Davidson, Dey, and Smith (2015)	Empirical	Group	✓			✓	Unfrugal CEO's will cause cultural changes that lead to an increase in fraud risk, partly as the result of a decrease in board monitoring intensity.

Table 1 (Continued)

Author(s)	Article type	Analysis level	Theoretical framework				Key finding related to monitoring
			Agency	Resource dependence	Stewardship	Power Other	
Flickinger, Wrage, Tuschke, and Bresser (2015)	Empirical	Group				✓ ✓	High status CEOs with respect to the board chairperson are less likely to be dismissed. However, the presence of outside board members counters this effect.
Lel and Miller (2015)	Empirical	Individual				✓	CEOs favor new directors who are similar in narcissistic tendency or have prior experience with other similarly narcissistic CEOs. Looks at the impact the CEOs personality has on director selection. Assumes that CEOs have full control over director selection indicating no monitoring during director selection.
Levit and Malenko (2015)	Empirical	Group	✓				Directors affect their firms' governance, and governance in turn affects firms' demand for new directors. Thus the labor market only rewards directors for good governance if corporate governance in most firms is strong.
Mccann and Ackrill (2015)	Empirical	Group				✓	Board independence is not an effective solution for monitoring. Substitution and complementarity effects are context dependent.
Melkumov, Breit, and Khoreva (2015)	Empirical	Group	✓			✓	Different social identifications of the directors with the organization, its shareholders, and customers have different explanatory power towards the subsets of resource provision and monitoring tasks.
Pepper and Gore (2015)	Empirical	Group	✓				Behavioral agency theory places agent performance at the center of the agency model, and is better suited to understand how the interests of shareholders and their agents will be aligned if executives are motivated to perform to the best of their abilities.

Zhu and Yoshikawa (2015)	Empirical	Individual		✓	Chinese government directors who strongly identify with the focal firm or with the government are highly motivated to monitor. The combination of the two identifications offers a further boost to monitoring in non-SOEs, and to resource provision in both SOEs and non-SOEs, but it acts as a disincentive to monitoring in SOEs.
Abernethy, Kuang, and Qin (2014)	Empirical	Group	✓	✓	Find that firms with powerful CEOs attach less challenging targets in the initial performance-vested stock option (PVSO) plans granted to their CEOs.
Armstrong, Core, and Guay (2014)	Empirical	Group	✓		Find that firm transparency increases with increasing the # of independent board members after a regulatory event requiring more outside board members. This suggests that independent board members reduce information asymmetry.
Baldenius, Melumad, and Meng (2014)	Empirical	Group	✓		Assumes that boards are either monitors or advisors and that this is partially determined by CEO power. Powerful CEO's are more likely to choose monitoring boards over advisory boards whereas shareholders are more likely to choose advisory boards.
Bednar, Love, and Kraatz (2014)	Empirical	Group	✓	✓	Explained how and when stock analysts and peer executives applied reputational penalties to managers when firms used a poison pill. Find that the reputational penalties associated with poison pills differed substantially between these two groups. Reputational penalties for questionable behaviors may be more contingent and harder to sustain than previously thought.

Table 1 (Continued)

Author(s)	Article type	Analysis level	Theoretical framework				Key finding related to monitoring
			Agency	Resource dependence	Stewardship	Power Other	
Belot, Ginglinger, Sloyin, and Sushka (2014)	Empirical	Group	✓				French firms with severe asymmetric information tend to opt for unitary boards; firms with a potential for private benefits extraction tend to adopt two-tier boards. Chief executive officer turnover is higher at low performing firms with two-tier boards, indicating greater monitoring.
Bertoni, Meoli, and Vismara (2014)	Empirical	Group	✓	✓			Find that advisory boards for firms pursuing IPO are important for young and innovative firms while monitoring boards are more valued for older firms.
Brochet and Srinivasan (2014)	Empirical	Individual	✓				Shareholders use litigation along with director elections and director retention to hold some independent directors more accountable than others when firms experience financial fraud.
Bosse and Phillips (2014)	Theory	Group	✓				Self-interest is bounded by norms of reciprocity and fairness. Thus, boards that apply these arguments improve social welfare by initiating positive reciprocity and avoiding revenge behaviors.
Bruynseels and Cardinaels (2014)	Empirical	Individual	✓				Social connections with CEO may hamper the functioning of the audit committee. Suggests that social ties formed through the CEO's friendship network reduce oversight quality.
Chen, Luo, Tang, and Tong (2014)	Empirical	Group				✓	Board expertise, independence and busyness mitigate the relationship between earnings management and likelihood of interim CEO promotion.
Coles, Daniel, and Naveen (2014)	Empirical	Group	✓				Develop Co-opted and Non-Co-opted Independence measures which have more explanatory power for monitoring than traditional measures.

Consuelo Pucheta-Martinez and Garcia-Meca (2014)	Empirical	Individual	✓		Institutional directors are effective monitors, which leads to higher quality financial reporting.
Desender et al. (2014)	Empirical	Group	✓	✓	Monitoring behavior of independent directors will be contingent on the degree of foreign ownership. Higher foreign ownership leads to higher monitoring. Used a sample from Japan.
Erkens, Subramanyam, and Zhang (2014)	Empirical	Individual	✓		Monitoring by lenders who have board representation reduces lenders' demand for conservatism-facilitated control transfers through debt covenants by reducing the information asymmetry that underlies the agency problem of debt.
Falato, Kadyrzhanova, and Lel (2014)	Empirical	Group	✓	✓	Directors' busyness is detrimental to board monitoring quality and shareholder value.
Fich, Starks, and Yore (2014)	Empirical	Group	✓		Boards that compensate CEOs for deal volume instead of core value creation provide weak monitoring. Thus boards compensate for deal volume because of their inability to perfectly monitor outputs.
Hambrick et al. (2015)	Theory	Individual, Group	✓		Proposed that directors individually need to have four types of qualities to be effective monitors
Han, Lee, and Song (2014)	Empirical	Group	✓		The main motivation for frequent stock repurchases is likely to be false signaling, and that board independence can mitigate false signaling.
Joseph, Ocasio, and McDonnell (2014)	Empirical	Group		✓	CEO-only structure is more likely to occur in firms in which a higher proportion of insiders predate the CEO, and in which the CEO has greater formal power and agenda control. Also find that powerful CEOs are more likely to realize the structural change after opportunities.
Kang and Kroll (2014)	Empirical	Group	✓		Independent noncore directors influence the level of CEO entrenchment in the firms they oversee.
Khanna et al. (2013)	Empirical	Individual		✓	The benefit of outside directors' human capital is contingent upon the information-processing load placed upon them from their other board appointments.

Table 1 (Continued)

Author(s)	Article type	Analysis level	Theoretical framework				Key finding related to monitoring
			Agency	Resource dependence	Stewardship	Power Other	
Krause and Bruton (2014)	Theory	Group	✓				This was a response to Garg (2013). The main point was that Garg did not consider who did the monitoring.
Lim and Mccann (2014)	Empirical	Individual	✓			✓	Outside director stock option grants help increase monitoring of the CEO.
Masulis and Mobbs (2014)	Empirical	Firm	✓			✓	Find that directors with multiple directorships distribute their effort unequally based on the directorship's relative prestige. More monitoring occurs when directors value the directorship for reputation.
Misangyi and Acharya (2014)	Empirical	Group	✓				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.
Post and Byron (2014)	Empirical	Individual				✓	The cognitive frames that female board members bring to boards promote monitoring activities. This was particularly significant in contexts of strong shareholder protection.
Reuer, Klijn, and Lioukas (2014)	Empirical	Group	✓				Geographic and cultural differences can increase the cost of board involvement in international joint ventures, resulting in increased reliance on local management.
Rose, Rose, Norman, and Mazza (2014)	Empirical	Individual	✓			✓	Friendship ties between the CEO and board members can impair the directors' independence and objectivity, and that disclosure of the relationships can worsen this effect.
Sauerwald, Lin, and Peng (2014)	Empirical	Group	✓			✓	Show that powerful CEOs and institutional investors may facilitate or constrain the normative pressures existing in the boards social network and alter the effects of board social capital on excess CEO returns.

Schnatterly and Johnson (2014)	Empirical	Group	✓			✓	Says that institutional investors prefer independent board members with mutual fund companies not because they monitor better, but because it's institutionalized.
Zhu and Chen (2015)	Empirical	Group	✓				Following the passage of takeover laws, poorly performing firms experience more frequent takeovers; the propensity to replace poorly performing CEOs and directors of targeted firms increases following corporate-control events.
Castaner and Kavadis (2013)	Empirical	Group	✓				French study finding that independent directors increase financial diversification at low values of free cash flow.
Chiu, Teoh, and Tian (2013)	Empirical	Group	✓				Find that earnings management spreads between firms through common directors.
Cornelli, Kominek, and Ljungqvist (2013)	Empirical	Group	✓				Boards collect both "hard" (i.e. verifiable) information in the form of the firm's performance relative to agreed targets and "soft" (i.e. nonverifiable) information about the firm's operations and the CEO's competence.
Desender et al. (2013)	Empirical	Group	✓	✓			Ownership concentration and board composition become substitutes in terms of monitoring management.
Faulkender and Yang (2013)	Empirical	Group, Individual	✓				Strategic peer selection increased after 2006 in firms with low institutional ownership, low director ownership, low CEO ownership, busy boards, large boards, and non-intensive monitoring boards, and at firms with shareholders complaining about compensation practices.
Field, Lowry, and Mkrtyan (2013)	Empirical	Individual	✓				Find that busy directors perform better in advisory role for less established firms. However, firms in Forbes 500 need more monitoring.
Garg (2013)	Theory	Group	✓	✓	✓		Clarifies the monitoring function of boards for VC's. Suggests that boards will more closely monitor financially aligned CEO's and that outside directors will be less likely to monitor. Says agency theory is limited in it's ability to describe ventures.

Table 1 (Continued)

Author(s)	Article type	Analysis level	Theoretical framework				Key finding related to monitoring
			Agency	Resource dependence	Stewardship	Power Other	
Johnson et al. (2013)	Review	Individual, Group				✓	Reviews the literature dealing with board human and social capital and their ability to affect firm outcomes.
Klijn, Reuer, Van den Bosch, and Volberda (2013)	Empirical	Group, Firm	✓				Directors in international joint ventures help coordinate and negotiate actions between firms.
Knyazeva, Knyazeva, and Masulis (2013)	Empirical	Group	✓				Show that proximity to larger pools of local director talent leads to more independent boards. Board independence has a positive effect on firm value, operating performance, fraction of CEO incentive-based pay, and CEO turnover.
Krause, Semadeni, and Cannella (2013)	Empirical	Individual	✓	✓			Suggests that the value of having external executives on board is dependent on context and the experience of the executive. Introduces the service role of directors.
Liao and Hsu (2013)	Empirical	Group	✓				Find that board membership on both audit and compensation committees can put the effectiveness of audit and compensation committees at risk.
Lin, Officer, Wang, and Zou (2013)	Empirical	Group	✓			✓	Find that higher levels of D&O insurance coverage are associated with higher loan spreads and that this relation depends on loan characteristics. The relationship is attenuated by monitoring mechanisms.
Raelin and Bondy (2013)	Conceptual	Group	✓				Detail how inefficiencies in first layer mechanisms (market regulation, monitoring, and contracts) impact agency theory's second layer and present the new mechanisms of oversight boards and expanded founding firm documents to reintegrate a societal orientation.

Schwartz-Ziv and Weisbach (2013)	Empirical	Group	✓		Reviewed board-meeting minutes of eight companies in which Israeli government holds a substantial equity interest and found that boards spent most of their time in monitoring activities.
Campbell et al. (2012)	Empirical	Group	✓		When shareholders gain greater influence in the nomination of directors, thereby limiting top management's influence over the board, additional value is created, and shareholder influence in nomination is most valuable when effective governance is challenged.
Chancharat, Krishnamurti, and Tian (2012)	Empirical	Group	✓		Find that board independence is associated with an increase in the likelihood of corporate survival for Australian firms.
Cohen, Frazzini, and Malloy (2012)	Empirical	Individual	✓		Says that firms appoint independent directors (former analysts) who are overly sympathetic to management, while still technically independent according to regulatory definitions.
Ertimur, Ferri, and Maber (2012)	Empirical	Individual	✓		Found that director reputation penalties for poor monitoring of executive compensation did not extend to firm not associated with option backdating.
Fracassi and Tate (2012)	Empirical	Individual, Group	✓	✓	Find that firms with more powerful CEOs are more likely to appoint directors with ties to the CEO, which lead to reduced firm value and board monitoring.
Guthrie, Sokolowsky, and Wan (2012)	Empirical	Group	✓	✓	Found that CEO compensation increased with board independence, particularly with effective shareholder monitoring.
Oldroyd and Morris (2012)	Theory	Individual		✓	Says that star employees will face an information overload due to their amount of social capital. While this doesn't specifically address boards and monitoring, it lays an applicable framework for board members.
Van Essen, Otten, and Carberry (2012)	Empirical	Group		✓	Meta-Analysis for CEO compensation. Finds that CEO power is a good predictor of compensation. Where it is low and board power is high, CEO compensation is more related to firm performance.

Table 1 (Continued)

Author(s)	Article type	Analysis level	Theoretical framework				Key finding related to monitoring
			Agency	Resource dependence	Stewardship	Power Other	
Wintoki, Linck, and Netter (2012)	Empirical	Group				✓	Shows that there is no relationship between board structure and firm performance. Also finds that board independence is negatively related to firm performance. Reviews other board structure papers.
Withers et al. (2012)	Review	Individual, Group, Firm	✓				Review on director selection antecedents and outcomes.
Adams et al. (2011)	Empirical	Individual			✓		Using data from court cases, they look at how director make decisions using their personal values. Says that directors with entrepreneurial values are more pro-shareholder, and directors with employee focused values are less pro-shareholder.
Capezio, Shields, and O'Donnell (2011)	Empirical	Group	✓			✓	Find that Australian boards exhibiting best practice structural arrangements—those chaired by non-executives and dominated by non-executive directors at the full board and compensation committee levels—are no more adept at enforcing CEO pay-for-firm-performance than are executive-dominated boards.
Chen and Huang (2011)	Empirical	Group	✓				This study shows that fund performance is associated with manager incentives contemporaneously, while board quality predicts fund performance in the long haul.
Chen (2011)	Empirical	Group	✓			✓	Says that a firm should include more independent directors on the board to improve board effectiveness and the quality of corporate governance.
Dalton and Dalton (2011)	Review	Group	✓				Says that board composition and board chair leadership do not predict firm performance. Says that we need more multi-level studies.

de Villiers, Naiker, and van Staden (2011)	Empirical	Group	✓	✓		Find evidence of higher environmental performance in firms with higher board independence and lower concentration of directors appointed after the CEO on the board of directors. They also show that environmental performance is higher in firms that have larger boards, larger representation of active CEOs and more legal experts on the board.
Dowell et al. (2011)	Empirical	Group	✓		✓	Find that more independent and smaller boards become more valuable in distressed firms. Also that CEO power becomes more beneficial to allow firms to rapidly respond in a crisis.
Faley, Hoitash, and Hoitash (2011)	Empirical	Group	✓			Find that monitoring quality improves when a majority of independent directors serve on at least two of the three principal monitoring committees. However, there are negative consequences in the form of reduced advisory roles.
Ferreira, Ferreira, and Raposo (2011)	Empirical	Group	✓			Provide evidence of a negative relation between stock-price informativeness and board independence.
Hillman, Shropshire, Certo, Dalton, and Dalton (2011)	Empirical	Group, Individual	✓			At the firm level, they find that CEO compensation level and board size are positively related to the withholding of shareholder votes in director elections, a behavior indicative of shareholder discontent. At the director level, they find that affiliated director status, tenure, and number of outside directorships are positively related, and director block ownership is negatively related to shareholder discontent with director monitoring.
Knapp, Dalziel, and Lewis (2011)	Empirical	Individual	✓		✓	Find that increased board monitoring leads to breakdown in board-management cooperation.
Masulis and Mobbs (2011)	Empirical	Individual	✓		✓	Firms with inside directors holding outside directorships have better operating performance and market-to-book ratios, especially when monitoring is more difficult.

Table 1 (Continued)

Author(s)	Article type	Analysis level	Theoretical framework				Key finding related to monitoring
			Agency	Resource dependence	Stewardship	Power Other	
Zhang, Ji, Tao, and Wang (2011)	Empirical	Group				✓	CEO's may have power struggles with non-CEO executives in China. As a result, the board should closely monitor.
Adams et al. (2010)	Review	Group	✓				Basically a review of the literature on boards of directors (selection and performance) since their piece in 2003.
Allcock and Filatotchev (2010)	Empirical	Group	✓				Find that board independence is weakly associated with CEO compensation and that board power is negatively associated with conditional incentive schemes for UK IPO companies from 1998 to 2002.
Bebchuk, Grinstein, and Peyer (2010)	Empirical	Group	✓			✓	Looks at timing of option grants for executives and directors and finds that "lucky grants" are deliberate choices to make the grants more profitable. These lucky grants are indicative of CEO power.
Chen and Nowland (2010)	Empirical	Group	✓				Optimal monitoring levels vary depending on firm size and ownership. Results from family owned companies show that more monitoring is not always in the best interests of minority shareholders and that family owned companies show low levels of board monitoring.
Chiang and He (2010)	Empirical	Group	✓				Focuses on the capacity, compensation, and structure of boards of directors and how they relate to company transparency.
Duchin, Matsusaka, and Ozbas (2010)	Empirical	Group	✓				Efficacy of outside directors is high when cost of acquiring information is low. It's low when costs are high, suggesting that board independence matters.
Eminet and Guedri (2010)	Empirical	Individual	✓			✓	A directors reputation for increasing control over management in French companies doesn't affect the number of new board appointments.

Evans, Nagarajan, and Schloetzer (2010)	Empirical	Group	✓	✓	Prior firm performance predicts future levels of ex-CEO decision rights—full (Retention), limited (Retention Light), and none (Exit). They also connect firm performance and CEO age in determining the CEO's decision rights.
Fahlenbrach et al. (2010)	Empirical	Individual, Group	✓		Outside CEO-directors do not affect focal firm performance, decision-making or executive compensation.
Fredrickson, Davis-Blake, and Sanders (2010)	Empirical	Group		✓	Says that TMT similarity impacts board pay setting process, which then affects pay dispersion and firm performance. Boards allow less pay dispersion in TMT when members are similar. Found that pay dispersion was negatively related to firm performance.
Gillespie and Zweig (2010)	Book	Group	✓		Book suggesting that boards have no power over CEOs.
Hagendorff, Collins, and Keasey (2010)	Empirical	Group	✓		Only under strict banking regulation regimes, do board independence and diversity improve acquisition performance. In less strict regulatory environments, corporate governance is virtually irrelevant in improving the performance outcomes of merger activities.
Haynes and Hillman (2010)	Empirical	Group		✓	✓ Board capital breadth leads to more strategic change, while board capital depth leads to less. This suggests an effective advisory role. However, CEO power is a moderator of this relationship.
Lan and Heracleous (2010)	Theory	Group, Firm	✓		Theory piece suggesting that boards are less monitors and more mediating hierarchs. See Table 2 on p. 298.
Nyberg, Fulmer, Gerhart, and Carpenter (2010)	Empirical	Group	✓		Suggests that CEO is a significant co-investor, and that this affects financial alignment with shareholder interests. Argues that, properly used, financial alignment through compensation and stock ownership does not relieve corporate boards of monitoring responsibilities; instead, it alters the nature of the monitoring that is required.

Table 1 (Continued)

Author(s)	Article type	Analysis level	Theoretical framework				Key finding related to monitoring	
			Agency	Resource dependence	Stewardship	Power		Other
Tuggle, Sirmon, Reutzler, and Bierman (2010)	Empirical	Group				✓	✓	Find that board members do not consistently monitor management in order to protect shareholder value. Results demonstrate that board members' monitoring behaviors are contextually, dependent on CEO duality.
Westphal and Graebner (2010)	Empirical	Group	✓					Negative stock analyst appraisals prompt corporate leaders to increase externally visible dimensions of board independence without actually increasing board control of management.
Adams and Ferreira (2009a)	Empirical	Group	✓					Found that more gender diverse boards are more likely to hold CEOs accountable for poor stock-price performance; and CEO turnover is more sensitive to stock return performance in firms with relatively more women on boards.
Adams and Ferreira (2009b)	Empirical	Individual, Group	✓					Results suggest that gender diverse boards allocate more effort to monitoring. Results also suggest that mandating gender quotas for directors can reduce firm value.
Anderson, Duru, and Reeb (2009)	Empirical	Individual	✓				✓	Authors argue that founders' and heirs' unique and dominant control positions provide particularly strong incentives to diminish corporate transparency. Thus boards should be more vigilant in these settings.
Bodolica and Spraggon (2009)	Empirical	Group	✓					Findings show that boards of directors are able to exert a sizeable control over the executive compensation design, but they are willing to do so only when the need for such control arises. They show that boards are reactive rather than proactive in dealing with agency problems.
Brenner and Schwalbach (2009)	Empirical	Group	✓					Found that the more likely boards were to be held liable for disregarding their legal oversight duties, the smaller CEO pay was.

Chowdhury and Wang (2009)	Empirical	Group	✓	Find that the effect of institutional activism on board monitoring, especially proxy based, is stronger on contingent CEO compensation.
Datta, Musteen, and Herrmann (2009)	Empirical	Group	✓	Firms with boards characterized by a higher proportion of outside directors and independent leadership structures (i.e. the absence of duality) are more inclined to favor acquisitions over joint ventures in foreign market entry.
Finkelstein et al. (2009)	Book			Book on corporate governance that reviews the role of boards in monitoring management.
Hoskisson, Castleton, and Withers (2009)	Theory	Group, Firm	✓	Monitoring leads to increased pay, which in turn leads to increased monitoring.
Huang, Lobo, and Zhou (2009)	Empirical	Group	✓	Finds that firms with a larger, more independent, and more active board, higher agency costs (as indicated by lower managerial ownership and lower takeover vulnerability), and past occurrence of class-action lawsuits are more likely to voluntarily form a governance committee.
Hwang and Kim (2009)	Empirical	Group	✓	Firms whose boards are both conventionally independent and socially independent are better monitors.
Laux and Laux (2009)	Empirical	Group	✓	Show that an increase in CEO equity incentives does not necessarily increase earnings management because directors adjust their oversight effort in response to a change in CEO incentives.
Linck et al. (2009)	Empirical	Group	✓	Sarbanes – Oxley effects on directors and boards. Showed that it reduced the supply of directors and increased demand. Boards meet more often and insurance premiums have doubled. Boards are larger and more independent.
Santalo and Joachim Kock (2009)	Empirical	Group	✓	Compared CEO's undiversified firms to division directors within larger corporations to show that CEO's should receive more pay because of the additional complexity of their job.

Table 1 (Continued)

Author(s)	Article type	Analysis level	Theoretical framework				Key finding related to monitoring
			Agency	Resource dependence	Stewardship	Power Other	
Schiehl and Bellavance (2009)	Empirical	Group	✓				Boards choose performance measures that best reflect the CEO's contribution to firm value, taking into account the firm's monitoring environment.
Ward et al. (2009)	Empirical	Group	✓		✓		Analyze firm performance to determine how monitoring and incentive alignment serve as complements or substitutes in addressing agency issues.
Aguilera, Filatotchev, Gospel, and Jackson (2008)	Theory	Group		✓		✓	Suggests that an open-systems perspective be used to understand how the effectiveness of governance practices is mediated by their context.
Arthurs, Hoskisson, Busenitz, and Johnson (2008)	Empirical	Individual	✓				Monitoring by board insiders and board experience decrease underpricing. Furthermore, underpricing increases when venture capitalists have prior ties with underwriters.
Boyer and Ortiz-Molina (2008)	Empirical	Individual				✓	Managerial ownership plays a role in resolving asymmetric information problems between top managers and the board of directors in the context of CEO succession.
Chen, Goldstein, and Jiang (2008)	Empirical	Individual	✓				Ownership is positively and significantly correlated with most variables that are predicted to indicate greater value from directors' monitoring.
Coles et al. (2008)	Empirical	Group, Firm	✓				Find that complex firms, which have greater advising requirements than simple firms, have larger boards with more outside directors. Findings challenge the notion that restrictions on board size and management representation on the board necessarily enhance firm value.

Dahya, Dimitrov, and McConnell (2008)	Empirical	Group	✓	Looks at the relation between firm value and board independence to show that a “strong” board can offset the market value discount in firms domiciled in countries with weak legal protection for shareholders.
Donnelly and Mulcahy (2008)	Empirical	Group	✓	Using an Irish dataset, they found that information asymmetry between owners and managers decreased with increased non-executive (independent) boards.
Hay, Knechel, and Ling (2008)	Empirical	Group	✓	Finds that audit controls and internal controls such as board monitoring are complementary in less regulated environments.
Hillman, Nicholson, and Shropshire (2008)	Empirical	Individual	✓	Individual director’s identifications with multiple role and social identities affect monitoring and resource provision.
Kaplan (2008)	Empirical	Group, Firm	✓	Response to criticism of CEO salary. Kaplan defends CEO pay and says that in some instances they are not paid enough. Additionally, he says on page 15 that boards have performed monitoring duties in the period (1998–2005) more than in any other period.
Kim and Cannella (2008)	Theory	Individual	✓	Focuses on social capital as a key resource that influences board selection and thus board effectiveness.
Kroll, Walters, and Wright (2008)	Empirical	Individual/ Group	✓	Says that directors with relevant experience will be both better monitors and better advisors.
Kumar and Sivaramakrishnan (2008)	Empirical	Group	✓	Delegating governance to the board improves monitoring but creates another agency problem because directors themselves avoid effort and are dependent on the CEO. Thus boards with more independence may actually perform worse.
Laux (2008)	Empirical	Group	✓	Greater board independence is associated with subsequent trends toward higher CEO turnover, more generous severance packages, and larger stock option grants.

Table 1 (Continued)

Author(s)	Article type	Analysis level	Theoretical framework				Key finding related to monitoring
			Agency	Resource dependence	Stewardship	Power Other	
Li and Aguilera (2008)	Empirical	Individual	✓			✓	The likelihood of target non-executive director turnover depends on the factors that determine the performance of directors in their monitoring, advisory and social roles pre-acquisition and during the acquisition process.
Linck, Netter, and Yang (2008)	Empirical	Group, Firm	✓			✓	Find that firms structure their boards in ways consistent with the costs and benefits of monitoring and advising by the board.
McDonald et al. (2008)	Empirical	Individual					Looked at how and when outside board director experience affected firm acquisition performance.
Osma (2008)	Empirical	Group	✓				Addition of institutional directors to the board improves financial statement quality. However, the addition of independent directors is an inefficient corporate governance mechanism. They show that reductions in the proportion of independent directors on the board are associated with a lower level of earnings management.
Adams and Ferreira (2007)	Empirical	Group	✓				Boards serve two roles, advisor and monitor. Find first that policies that enhance board independence may be detrimental for shareholders in a sole board system, but not for shareholders in a dual board system.
Anderson, Melanson, and Maly (2007)	Empirical	Group	✓			✓	Boards are increasingly serving both as advisors and monitors.
Boone, Casares Field, Karpoff, and Raheja (2007)	Empirical	Firm and Group	✓				Results indicate that board size and composition vary across firms and change over time as the firm matures to accommodate the specific growth, monitoring, and managerial characteristics of the firm.

Cho and Kim (2007)	Empirical	Group	✓			Results indicated that it's too early to determine if Korean governance structures are impacted by outside directors. Also found that outside shareholders were found to possess insufficient power to monitor large controlling shareholders.
Cohen, Krishnamoorthy, and Wright (2007)	Empirical	Group	✓	✓		Found that board role (monitoring vs. advising) impacted auditor risk assessment.
Combs, Ketchen, Perryman, and Donahue (2007)	Empirical	Group	✓		✓	Although regulatory trends increasingly support outside director dominated boards, findings indicate that this may not always benefit shareholders and that CEO power should be considered when constructing boards. Paper explores: (a) the influence of a firm's investment opportunity set, and (b) the influence of external monitors such as security analysts, institutional investors, and lenders on the relationship between the option and grant components of directors' stock compensation and a firm's stock market performance.
Cordeiro, Vehyath, and Romal (2007)	Empirical	Individual	✓			Review of agency theory approaches to corporate governance.
Dalton et al. (2007)	Review	Group	✓			Outside directors of fraud-affiliated firms are not more likely to turnover, but do experience a decrease in other directorships, suggesting that they bear a larger responsibility for monitoring.
Fich and Shivdasani (2007)	Empirical	Individual	✓			Boards of young firms that have recently undergone IPO are better off with original management members rather than outside board directors.
Kroll, Walters, and Le (2007)	Empirical	Individual	✓			Finds that firm complexity does influence board structure.
Markarian and Parbonetti (2007)	Empirical	Group	✓			Board composition significantly determines earnings manipulation practices. However, the main role in constraining such practices in Spain is not played by independent directors, but by institutional directors.
Osma and Nogue (2007)	Empirical	Individual	✓			

Table 1 (Continued)

Author(s)	Article type	Analysis level	Theoretical framework				Key finding related to monitoring
			Agency	Resource dependence	Stewardship	Power Other	
Rutherford et al. (2007)	Empirical	Group	✓				Survey of board chairs found that increases in boards' information gathering are associated with increases in boards' monitoring activities.
Westphal and Stern (2007)	Empirical	Individual	✓			✓	Directors increased chances for board appointments by low levels of monitoring and control behavior. Demographic minorities were punished for it. Directors were also rewarded for providing advice and information to CEOs and peer directors.
Zona and Zattoni (2007)	Empirical	Individual	✓				Survey of Italian firms. Findings support the idea that (a) process variables and, to a limited extent, demographic variables significantly influence board task performance; (b) board processes have a different impact on each specific board task; (c) board task performance varies depending upon firm and industry characteristics.
Brick, Palmon, and Wald (2006)	Empirical	Group	✓				After controlling for monitoring proxies, they found a significant positive relationship between CEO and director compensation.
Fich and Shivdasani (2006)	Empirical	Individual	✓				Busy boards display patterns associated with weaker corporate governance.
Fiss (2006)	Empirical	Individual				✓	Findings demonstrate significant effects for relative rather than absolute CEO education and tenure on TMT compensation.
Kor (2006)	Empirical	Group	✓			✓	Top-management team composition and board composition have direct and additive effects on R&D investment intensity. Also monitoring by outside directors is not an effective governance mechanism for R&D.

Radin and Stevenson (2006)	Theory	Group	✓		Discusses how board structure in corporations is different from mutual funds.
Ravasi and Zattoni (2006)	Empirical	Group	✓		Interviewed nine board members from different companies. Boards have a role in strategy development. In the presence of highly diverging interests represented on the board and in the absence of ex-ante conflict resolution mechanisms, boards not only monitor and advise management but also serve a consensus-building function, acting as a negotiation forum.
Buchholtz, Amason, and Rutherford (2005)	Empirical	Group		✓	Shows that board monitoring as perceived by the TMT, decreases the affective conflict in the TMT. This is moderated by CEO power.
Davis (2005)	Review	Group	✓		Review of corporate governance literature in sociology, law, and economics.
Farber (2005)	Empirical	Group	✓		Fraudulent firms had poor governance mechanisms, but after detection they increase board independence, reduced CEO/Chair duality, have more audit meetings, and increase financial experts on audit committees. These changes lead to superior stock performance.
Hambrick et al. (2005)	Theory	Individual	✓		Develop a construct for executive job demands.
Hermalin (2005)	Theory	Group	✓		Says that greater board monitoring will lead to external CEOs, shorter CEO tenure, greater CEO compensation.
Kaufman and Englander (2005)	Theory	Group	✓		Says that a team perspective should be used to view corporate governance and that boards should represent stakeholders that add value. Dependent directors should be more common.
Melis (2005)	Empirical	Group	✓		Says that Italian Parmalat scandal was due to the lack of a monitoring such as through internal control committee and independent directors.
Peasnell, Pope, and Young (2005)	Empirical	Group	✓		Independent board members reduce the likelihood of managers making income-increasing abnormal accruals to avoid reporting losses.

Table 1 (Continued)

Author(s)	Article type	Analysis level	Theoretical framework				Key finding related to monitoring
			Agency	Resource dependence	Stewardship	Power Other	
Perry and Peyer (2005)	Empirical	Group	✓				Outside directorships for executives can enhance firm value unless the firm has other agency issues.
Raheja (2005)	Empirical	Group	✓		✓		Says that optimal board size and composition are functions of director and firm characteristics.
Roberts, McNulty, and Stiles (2005)	Empirical	Group	✓		✓		Forty interviews with UK non-executive directors. Says that it's the non-executive conduct that determines board effectiveness.
Romano (2005)	Empirical	Group	✓				Says that SOX provisions were poorly conceived and that they were a knee jerk reaction to a bad stock market.
Van den Berghe and Baelden (2005)	Empirical	Group	✓				Boards should only monitor the tasks they have delegated to management, thus, the level of delegation influences the scope of the board's monitoring role. However, concentration of management power should lead to more intense board management.
Anderson and Reeb (2004)	Empirical	Group	✓				Find that the most valuable public firms are those that balance family board representation with independent directors. Also find that moderate family board representation benefits the firm.
Bange and Mazzeo (2004)	Empirical	Group	✓				Bidders consider target board characteristics when determining offer. Firms with CEO/Chair are more likely to receive bypass offers and that offer is more likely to succeed during takeover attempts. Firms with independent boards are less likely to receive a high premium and the offer is less likely to succeed.

de Bos and Donker (2004)	Empirical	Individual	✓		Large outside shareholders will monitor voluntary accounting changes more effectively than small shareholders, and will restrict the opportunistic behavior of managers bent on increasing reported net income. They find no support for the monitoring role of outside members of the supervisory board
Hooghiemstra and van Manen (2004)	Empirical	Individual	✓		Survey of 250 non-executive directors. Found that the majority agreed that monitoring is their main duty, they also expressed doubts whether they are really able to carry out this "watchdog role" effectively since they are dependent on their supervisors for information.
Kao, Chiou, and Chen (2004)	Empirical	Firm	✓		Boards of conglomerate firms are more likely to face agency issues in using shares as collateral.
Nicholson and Kiel (2004)	Theory	Group		✓	Develop framework that says that board intellectual capital (company history, constitution, legal environment), will need to be mobilized and used in order for the board to carry out its monitoring role.
Randoy and Jenssen (2004)	Empirical	Group	✓		Highly competitive markets serve as effective monitors, so firms in those markets should have fewer outside directors as it reduces firm performance.
Ryan and Wiggins (2004)	Empirical	Group	✓	✓	Firms with more outsiders on their boards award directors more equity-based compensation. However, when CEO power increases, compensation provides weaker incentives to monitor.
Almazan and Suarez (2003)	Empirical	Group	✓		Passive (or weak) boards may be optimal because severance pay and weak boards are substitutes for costly incentive compensation.
Dalton, Daily, Certo, and Roengpitya (2003)	Empirical	Group	✓		Does not find any relationship between equity ownership for boards, CEOs, managers, and firm performance. This is a contradiction to the agency based perspective that says people will be motivated to pursue shareholder interest when you give them an equity stake.

Table 1 (Continued)

Author(s)	Article type	Analysis level	Theoretical framework				Key finding related to monitoring
			Agency	Resource dependence	Stewardship	Power Other	
Del Guercio, Dann, and Partch (2003)	Empirical	Group, Firm	✓				Board characteristics that they identify with effective board independence are associated with lower expense ratios and value-enhancing restructurings.
Ferris et al. (2003)	Empirical	Individual	✓				Evidence does not support calls for limits on directorships held by an individual. Board business is not a bad thing. Contrary to Fich 2006 article
Finkelstein and Mooney (2003)	Empirical	Group	✓				The “usual suspects”, as measured by the classic indicators, do not ensure a truly independent board and that the key to making boards work better rests in board process.
Harford (2003)	Empirical	Individual	✓				There is a cost to outside directors should they fail as monitors, forcing the external control market to act for them
Hillman and Dalziel (2003)	Theory	Group	✓	✓			Board capital affects both board monitoring and resource provision, and that board incentives moderate this relationship.
Ingley and Van Der Walt (2003)	Review	Group	✓				They summarize some of the existing literature to conclude that diversity in board composition is insufficient to address the issues related to board performance and effectiveness.
Kiel and Nicholson (2003)	Empirical	Group				✓	Firms should seek to maximize board capital, not just increase size. This includes increasing outside board members.

Lynall, Golden, and Hillman (2003)	Theory	Group	✓	✓	✓	✓	Shows that board composition changes depending on CEO power and the stage of life it's in, thus suggesting that monitoring will also be effected by these. Board's composition at the time of founding is likely to be the result of two factors: (1) the relative power of the CEO and external financiers and (2) the stage of the organizational life cycle within which the board is formed.
Nowak and McCabe (2003)	Empirical	Individual	✓			✓	Interviews with 45 directors. They perceive that the CEO and executives have the controlling power over information.
Sundaramurthy and Lewis (2003)	Theory	Group, Firm	✓			✓	Builds theory that embraces varied theoretical perspectives to accommodate human limitations and aspirations and to underscore vital control and collaboration needs.
Bhagat and Black (2002)	Empirical	Group	✓				Equity ownership is good for shareholders as it aligns managerial and shareholder interest.
Carcello et al. (2002)	Empirical	Individual, Group	✓				Looks at board independence, diligence, and expertise and the relationship with audit fees. Finds that these characteristics increase the audit fees, suggesting greater amounts of monitoring.
Core (2002)	Empirical	Firm	✓				There is no evidence that accounting returns are related to CEO pay or incentives after IPO.
Cyert, Kang, and Kumar (2002)	Empirical	Group	✓				In equilibrium, the internal governance mechanisms (i.e. the board) and external takeover threats endogenously substitute for one another in dealing with managerial incentive problems: Specifically, either the internal or the external mechanism dominates in constraining the tendency of top management to "grow" its compensation, especially through large equity-based awards.

Table 1 (Continued)

Author(s)	Article type	Analysis level	Theoretical framework				Key finding related to monitoring
			Agency	Resource dependence	Stewardship	Power Other	
Ellstrand et al. (2002)	Empirical	Group	✓				Found that managers will be more risk averse than stockholders to risky investments. Thus, in a board with more insiders and a CEO/chair, outside directors will be given information that leads them away from risky investments. Percentage of inside directors and CEO duality were inversely related to the level of political risk in portfolios of foreign direct investment.
Filatotchev and Bishop (2002)	Empirical	Firm	✓			✓	Endogenously developed governance factors may be used by IPO teams to reduce underpricing.
Klein (2002)	Empirical	Group	✓				Suggests that boards structured to be more independent of the CEO are more effective in monitoring the corporate financial accounting process.
Reuer, Zollo, and Singh (2002)	Empirical	Group	✓				Find that alliance formation is likely to lead to post-formation governance changes to alliance board committees to improve monitoring of the alliance.
Sonnenfeld (2002)	Empirical	Group	✓				Suggests that we need to focus less on procedural requirements for board monitoring and more on building boards into teams that work well together and with managers.
Van den Berghe and Levrau (2002)	Empirical	Individual	✓				Venture capitalist's monitoring resembles more that of reference shareholders. Both types of shareholders are well represented on boards of funded companies. VC board control is less common for first VC rounds.
Woidtke (2002)	Empirical	Individual	✓				Institutional investors face a conflict of interest depending on whether the pension fund is public or private. Suggests that public pension fund managers (who can be board members) may act out of political aspirations rather than out of fiduciary responsibility.

Carpenter and Westphal (2001)	Empirical	Individual	✓	They developed a sociocognitive perspective on how appointments to other boards affect the capability of focal firm board members to monitor and advise its management in the strategic decision-making process.
Coles, McWilliams, and Sen (2001)	Empirical	Firm	✓	Industry performance is a strong indicator of firm performance, more so than traditional agency theory constructs. This would lessen then importance of board structure on firm performance.
Huson, Parrino, and Starks (2001)	Empirical	Group	✓	Found that changes in internal and external monitoring from 1971 – 1994 did not improve the likelihood that CEOs would be replaced in poorly performing companies.
Kroszner and Strahan (2001)	Empirical	Individual	✓	Bankers as board members of distressed firms leads to conflict of interest and result in less monitoring.
Westphal and Fredrickson (2001)	Empirical	Group	✓	Board of directors shape a firm's strategic direction by selecting a CEO who has experience at implementing the strategy that board members favor.
Brush, Bromiley, and Hendrickx (2000)	Empirical	Group	✓	Confusing results for agency theory. They argue that free cash flow will be least profitable with weak governance structures.
Coles and Hesterly (2000)	Empirical	Group	✓	Finds that it is when leadership structure is not independent that the monitoring and control functions of outside directors are most important and most beneficial for the shareholders.
Coombes and Watson (2000)	Media Articla	Group	✓	Effective board of directors involves a combination of the right people, the right structure, and the right processes.
Rhoades, Rechner, and Sundaramurthy (2000)	Empirical	Group	✓	Board composition explains less than 1% of the variation in financial performance.

Table 1 (Continued)

Author(s)	Article type	Analysis level	Theoretical framework				Key finding related to monitoring
			Agency	Resource dependence	Stewardship	Power Other	
Westphal and Milton (2000)	Empirical	Group	✓			✓	While being a minority may decrease influence on a board, other characteristics can moderate this. Prior experience with being in a minority position increases a minority's ability to influence board decision-making. Social connections also increase a minority's ability to influence board decision-making.
Young, Stedham, and Beekun (2000)	Empirical	Group	✓			✓	Suggests that boards who adopt formal CEO evaluation processes are related to an independent board chair.
Bhagat and Black (1999)	Empirical	Group	✓				Says that there should be a moderate number of inside directors as this is better for firm performance than high percentage of outside directors.
Core, Holthausen, and Larcker (1999)	Empirical	Group	✓				Says that firms with less board monitoring result in higher paid CEOs and perform worse.
Dalton et al. (1999)	Empirical	Group	✓				Meta-analysis suggesting that board size is positively correlated with firm performance. This is not moderated by board composition.
Forbes and Milliken (1999)	Conceptual	Group	✓				Conceptual paper suggesting that board dynamics are important to helping us understand board effectiveness.
Gulati and Westphal (1999)	Empirical	Group	✓			✓	Higher levels of board/CEO cooperation increased the probability of alliance formation while higher levels of board control decreased alliance formation. Third-party ties moderated both of these relationships. Board monitoring can have unanticipated side effects on corporate strategy, at least in the area of alliance formation.
March (1999)	Book	Group					Book on decisions in organizations.

Porac, Wade, and Pollock (1999)	Empirical	Group, Firm	✓	✓	Peer definitions expand when firms perform poorly, when the industry that they are in performs well, when they pay their CEOs highly, and when they have powerful, active shareholders.
Shivdasani and Yermack (1999)	Empirical	Group	✓		Find that CEOs play a key role in board nomination process and thus appoint less independent directors.
Westphal (1999)	Empirical	Individual	✓		Board independence and friendship ties did not predict monitoring. CEO/board social ties increase cooperation between CEO and board. Collaboration between the board and the CEO can have positive effects on firm performance, and these effects are enhanced by having CEO incentive alignment.
Black (1998)	Review	Group	✓		The effect of institutional investors as a monitoring influence is weak. Institutional investors spend very little time and effort monitoring individual firms. Institutional ownership has little effect on firm performance.
Canyon and Peck (1998)	Empirical	Group	✓		Monitoring, as proxied by non-executive directors, remuneration committees, and CEO duality had a limited effect on TMT pay. Concluded that performance and pay were more aligned in companies with independent boards.
Daily, Johnson, Ellstrand, and Dalton (1998)	Empirical	Group	✓		Directors serving on powerful board committees are, regardless of their level of dependence, mindful of their obligation to shareholders.
David, Kochar, and Levitas (1998)	Empirical	Group	✓		Institutional owners without a business relationship w/ focal firm influenced the focal firm to have lower CEO compensation and more of that in incentives. Institutional investors that have business relationship w/ the focal firm had no effect on CEO compensation.

Table 1 (Continued)

Author(s)	Article type	Analysis level	Theoretical framework				Key finding related to monitoring
			Agency	Resource dependence	Stewardship	Power Other	
Hermalin and Weisbach (1998)	Conceptual	Group	✓				A CEO who performs poorly is more likely to be replaced than one who performs well. CEO turnover is more sensitive to performance when the board is more independent. The probability of independent directors being added to the board rises following poor firm performance. Board independence declines over the course of a CEO's tenure. Accounting measures of performance are better predictors of management turnover than stock-price performance.
Holmstrom and Roberts (1998)	Empirical	Group	✓			✓	Agency issues may affect how the boundaries of an organization are structured. Affects decisions about incentives. Stock prices have more integrity than do accounting measures of performance.
Kalbers and Fogarty (1998)	Empirical	Group	✓			✓	Results strongly suggest the corporations will not naturally invest in a level of board oversight that provides the appropriate degree of protection to constituents. For these purposes, factors such as the distribution of ownership, the preponderance of debt and company size do not serve as useful predictors for the substantive level of monitoring attained.
Millstein and Macavoy (1998)	Review	Group	✓				A board that is active and independent of management should be associated with higher returns to investors.

Sanders and Carpenter (1998)	Empirical	Group	✓	✓	Firms with higher levels of internationalization pay their TMTs with more long-term pay and have higher levels of pay. Internationalization was associated with higher TMT size, less CEO duality, board size, and proportion of outsiders. The relationship between internationalization and board structure was moderated by board size and TMT long-term pay.
Westphal (1998)	Empirical	Individual, Group	✓	✓	The results of board independence are affected by interpersonal interactions between the board and CEO. Showed how micro-social processes change macro-level relationships between structural power and economic constructs such as incentive alignment.
Westphal and Zajac (1998)	Empirical	Group	✓	✓	The announcement of certain governance mechanisms are received positively by the market whether or not they are implemented. The market rewarded long-term incentive plans, especially when an agency perspective was put forth as the reason for adoption.
Wiseman and Gomez-Mejia (1998)	Theory	Group	✓	✓	Sets forth propositions on how compensation and monitoring can be structured so as to create loss perspectives for executives and therefore increase risk taking. They propose that managers are loss averse rather than simply risk averse.
Tosi et al. (1997)	Empirical	Group	✓		Equity holders may find incentive alignment more effective than monitoring to ensure that agents act in their interests.
Westphal and Zajac (1997)				✓	Propose that CEO-directors may typically support fellow CEOs by impeding increased board control over management but that CEO-directors may also foster this change if they have experienced it in their own corporation.

Table 1 (Continued)

Author(s)	Article type	Analysis level	Theoretical framework				Key finding related to monitoring
			Agency	Resource dependence	Stewardship	Power Other	
Belliveau et al. (1996)	Empirical	Group	✓				CEO social capital relative to the compensation committee chair led to higher compensation independent of firm performance. CEOs who had higher status than the compensation committee chairperson had higher compensation. Shows that CEOs are partially rewarded for status regardless of performance.
Finkelstein and Hambrick (1996)	Book	Group	✓				Book on executive leadership that includes a section on the relationship between boards and management.
Henderson and Fredrickson (1996)	Empirical	Group	✓				CEOs are paid according to the level of information processing demanded by their job. Showed that CEO compensation is affected by what CEOs actually do (job demands) and not just by politics and power.
Johnson et al. (1996)	Review	Group					Review of board of director literature.
Yermack (1996)	Empirical	Group	✓				Small boards are more effective at monitoring.
Zajac and Westphal (1996)	Empirical	Group	✓			✓	Politics has segmented the network for potential board members. Current board involvement affects appointments to other boards. Participation in gaining more board control decreased the likelihood of appointments to other boards with low control and increased the likelihood of appointments to other boards with high control.
Denis and Denis (1995)	Empirical	Group	✓				Forced resignations are rare and are due more often to external pressures than to board monitoring.
Rediker and Seth (1995)	Empirical	Group	✓				Other monitoring mechanisms can be substituted for board independence.

Westphal and Zajac (1995)	Empirical	Group	✓	✓	CEO/Board levels of power have direct influence on important firm resources. Social psychological biases mediate the effects of power on compensation contracts. CEO's with high power appoint board members who are like themselves. Boards with high power appoint board members who are like themselves. Similarity of board and CEO leads to higher compensation.
Zajac and Westphal (1995)	Empirical	Group	✓	✓	Organizations may use different logics to justify the adoption of long-term incentive plans. Incentive alignment adoption can be explained by political, psychological, and institutional factors. Later adopters of LTIs used agency explanations. Early adopters used HR explanations. Similarity between the board and CEO led to HR explanations.
Beatty and Zajac (1994)	Empirical	Group	✓		The riskier the firm, the less likely the manager will be accept more contingent forms of compensation. The lower the level of incentive compensation the higher was the level of monitoring by the firm.
Finkelstein and Daveni (1994)	Empirical	Group		✓	Develops a construct to measure TMT power.
Kaplan and Minton (1994)	Empirical	Group	✓		They conclude that banks and corporate shareholders play an important monitoring and disciplinary role in Japan. However, they did not find the same relationship in the U.S.
Westphal and Zajac (1994)	Empirical	Group	✓	✓	Early adopters of long-term incentive plans were likely to do so for incentive alignment reasons, later adopters were more likely to decouple these plans. When the CEO has high influence there is likely to be the announcement of LTIPs but not their use (decoupling). Shows how internal power relationships can lead to symbolic use of compensation contracts.

Table 1 (Continued)

Author(s)	Article type	Analysis level	Theoretical framework				Key finding related to monitoring
			Agency	Resource dependence	Stewardship	Power Other	
Zajac and Westphal (1994)	Empirical	Group	✓				The proper level of incentive alignment and monitoring should depend on the complexity and risk level of the firm. They found a U-shaped relationship between strategic complexity and monitoring capacity. The use of incentives will decrease at a decreasing rate as firm riskiness rises. More complex firms used less monitoring. Showed that monitoring capacity is limited by decision-making capacity.
Alexander, Fennell, and Halpern (1993)	Empirical	Group				✓	Stability of the CEO position depends on both the organization's life-cycle stage and the relative distribution of expertise, resources, and influence between the CEO and the board of directors.
Cannella and Lubatkin (1993)	Empirical	Group				✓	Social factors moderate the relationship between poor performance and the likelihood of outside CEO succession. When there was no heir apparent or the CEO has been dismissed poor performance makes outsider succession more likely.
Johnson, Hoskisson, and Hitt (1993)	Empirical	Group		✓			Board members (especially outside directors) become involved in restructuring only when managerial strategy implementation appears to be deficient. Top-management team equity stakes are found to be negatively related to board involvement in restructuring, while outside director ownership is found to be positively related.
Rosenstein, Bruno, Bygrave, and Taylor (1993)	Empirical	Group		✓			CEOs of new venture rated their board members as helpful in advice, monitoring, CEO replacement, and crisis.

Boeker (1992)	Empirical	Group		✓	Powerful CEOs are less likely to be dismissed because of poor performance. They are likely to have other top managers dismissed. (The reverse as well board independence and poor performance leads to dismissal of CEO). CEOs are less likely to be dismissed due to poor performance when (1) they own more stock, (2) there is greater shareholder dispersion, (3) there is a greater proportion of inside directors, (4) more directors have been appointed since CEO. They also found evidence that when CEO power was high and performance was low, other top managers were dismissed.
Byrd and Hickman (1992)	Empirical	Group			Bidding firms on which independent outside directors hold at least 50% of the seats have significantly higher announcement-date abnormal returns than other bidders but they also note that it is possible to have too many independent outside board members.
Finkelstein (1992)	Empirical	Group		✓	Developed a measure for TMT power.
Judge and Zeithaml (1992)	Empirical	Group		✓	Board size and levels of diversification and insider representation were negatively related to board involvement, and organizational age was positively related to it. Furthermore, we found board involvement to be positively related. Also found board involvement to help firm performance.
Davis (1991)			✓		Board interlocks were more explanatory in the analysis of poison pill adoption than was board structure or insider ownership. Suggests that social cohesion and structural equivalence explain the adoption of poison pills better than agency theory explanations.
Goodstein and Boeker (1991)	Empirical	Group			Changes in ownership and board have significant independent and interactive effects on strategic change.

Table 1 (Continued)

Author(s)	Article type	Analysis level	Theoretical framework				Key finding related to monitoring
			Agency	Resource dependence	Stewardship	Power Other	
Baysinger and Hoskisson (1990)	Theory	Group	✓				Inside directors may help board more accurately evaluate the quality of decision-making by executives. Outsider controlled boards will evaluate based on financial performance and insider controlled boards will evaluate based on more subjective measures. Outsider controlled boards may lead to a more short-term focus for management and higher levels of diversification.
Jensen and Murphy (1990)	Empirical	Group	✓				Proposes ways that inside directors are valuable. The link between executive pay and firm performance is very weak. This link has gotten weaker over the past 50 years. For every \$1000 change in shareholder wealth there is only a \$3.25 change in executive wealth. Political forces have constrained both the upper and lower limits of executive pay variability weakening the effectiveness of incentive alignment.
Kosnik (1990)	Empirical	Group	✓				Board independence interacts with variance in director incentives to predict greenmail. The main effect of director compensation ratio was not significant. This implies that director pay only matters in situations where executives' interests are not aligned with shareholders. Suggests that the effects of monitoring on governance is contingent on the social relationship between directors.
Rosenstein and Wyatt (1990)	Empirical	Group	✓			✓	Says that outside directors are able to represent the interests of shareholders, even though the CEO has power in their appointment.
Wade et al. (1990)	Empirical	Group				✓	CEOs who appoint more outside directors are more likely to get golden parachute.

Walsh and Seward (1990)	Empirical	Group	✓	Boards have only two control mechanisms, incentives and dismissal. The market for corporate control helps to correct for internal control mechanisms inefficiencies. Executives try to weaken board members ability to attribute blame and to use the control mechanisms.
Eisenhardt (1989)	Review	Group	✓	Agency theory is connected to organization theory. Empirical results show that it has validity. Agency theory is useful because it maintains the notion that actors act in their own self-interest.
Lorsch and Maciver (1989)	Theory	Group	✓	Outlines the major problem is that many boards lack the power to truly work for shareholder interests. Suggests that CEO and chairman positions should be separated to diffuse power. Provides a number of suggestions of changes to improve board functioning.
Zahra and Pearce (1989)	Review	Group	✓	Reviews research on the impact of boards of directors on corporate financial performance.
Holmstrom (1987)	Theory	Board	✓	Making part of the CEO's pay contingent also has costs, because now the executive must bear some risk. Incentive plans should be designed to get executives to focus on the long-term performance of the company.
Mace (1986)	Empirical	Group	✓	Managers completely control corporations. Directors are ineffectual and uninvolved in decisions. This is an update of a 1971 book. It was classic for arguing that management actually controls the board.
Bhagat et al. (1985)	Empirical	Group	✓	The market rewards companies that adopt equity compensation plans that are designed to align managerial incentives. Companies that introduced equity compensation plans that were directed at top management had higher returns than those that introduced plans aimed at lower level employees.

Table 1 (Continued)

Author(s)	Article type	Analysis level	Theoretical framework				Key finding related to monitoring
			Agency	Resource dependence	Stewardship	Power Other	
Dalton and Kesner (1985)	Empirical	Group	✓				Firms with average performance were more likely to replace their CEOs w/outside than were firms with high or low performance. This was an attempt to clarify what performance led to outsider succession.
Fama and Jensen (1983)	Empirical	Group	✓				Agency problems arise due to the costs of enforcing contracts. Suggests the separation of decision management from decision control. Discusses ways to manage the risk of separating decision management from decision control in many forms of modern firms. Answers to the agency problem in the corporation include the stock market, the market for corporate control, and expert boards of directors. Also discusses agency issues in mutual funds and nonprofit firms.
Mizruchi (1983)	Empirical	Group	✓				Argues that the board of directors can actually control the company without actually management. Proposes that outside directors will exercise control over management. Tries to confront arguments that the board is simply a tool of management. Argues that the board can exercise control by firing management.
Hayes and Abernathy (1980)	Empirical	Group	✓				Argues that low productivity in the U.S. is because of managerial failure. They argue that U.S. management is too risk averse. Tight financial control has led to an overemphasis on short-term rather than long-term corporate performance.

Jensen and Meckling (1976)	Empirical	Group	✓	There are costs to agency of monitoring by the principal. Develop the distinction between positive and normative work in agency theory. This paper introduced the idea of monitoring to the literature. Positivist work in agency theory is concerned with the actual nature of the firm and the costs of agency. Normative work is devoted to developing compensation structures to align interests.
Ross (1973)	Theory	Group	✓	An economic view of how to structure fees to combat agency problems. The authors argue that fee structures can be designed to align the interests of principal and agent.
Thompson (1967)	Theory	Group	✓	Introduced the concept of power. The more one is dependent on someone else, the more power that someone has over you.
Coase (1937)	Theory	Group	✓	Employers employ agents to reduce transaction costs. Asks the question; why do firms exist? The answer suggested is to reduce transaction costs associated w/ frequent transacting in markets and to reduce uncertainty. Views the firm as a nexus of contracts.
Berle and Means (1932)	Theory	Group	✓	Modern corporations have the control function separated from the ownership of the firm. The interests of those who manager or control the firm may not be the same as those of shareholders.

Note: IPO, initial public offering.

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