Making sense of board effectiveness: a socio-cognitive perspective

Sujit Sur

Sujit Sur is Assistant Professor at the School of Business, Dalhousie University, Halifax, Canada.

Abstract

Purpose – *This paper aims to investigate a team dynamics based approach to assess board effectiveness, namely the interplay between boardroom decision-making processes and the board members' cognitive mental models.*

Design/methodology/approach – *A socio-cognitive perspective is utilized for analyzing board processes and determining board effectiveness. Utilizing the concepts of team mental models and sensemaking, a theoretically grounded model of board effectiveness is developed, wherein the propositions predict the causality and effect of the socio-cognitive and sensemaking processes on board effectiveness.*

Findings – *The proposed model is able to analyze the relationship among the different decision-making processes and members' cognitive models as determinants of board effectiveness, wherein the board's decision making process mediates the board's cognitive model – effectiveness relationship, while the board's cognitive model moderates the decision process – effectiveness relationship.*

Research limitations/implications – *The conceptual model advances a rationale that might explain the mixed or modest findings in literature on the relationship between board demographics, dynamics and effectiveness.*

Practical implications – *The model allows practitioners and policy makers an alternative mechanism to assess board effectiveness, that is able to not only integrate the demographic, diversity and dynamics related measures, but also enables a clear understanding of the cognitive influences on board decision making and effectiveness.*

Originality/value – *The conceptual model encompasses most of the relevant constructs and findings of previous studies and offers a parsimonious yet holistic understanding of the boardroom mechanisms that might determine board effectiveness.*

Keywords *Sensemaking, Decision making, Cognition, Boardroom effectiveness, Board functionality, Team mental model*

Paper type *Conceptual paper*

Board of directors and board effectiveness have been enduring topics in business literature as well as popular press; however, there seems to be no consensus as to the efficacy of boards in influencing firm performance (Minichilli *et al.*, 2012; Payne *et al.*, 2009; Dalton *et al.*, 1998) or what might be an appropriate measure of board effectiveness, i.e. strategic outcomes or financial performance. Nor is there any agreement about what might be the primary function of the board (i.e. monitoring or resource providing) or even about which aspect of boards is of importance (e.g. demographics, insider-outsider composition, leadership structure, or board dynamics). The fact that practitioners and regulators are leading implementations of ''ideal'' board mechanisms without sufficient evidence or even academic validity of the underlying concepts (Daily *et al.*, 1999; Dalton, 2004) has raised the issue of board effectiveness beyond the level of intellectual curiosity. The spate of recent corporate governance scandals and failures indicate that these practitioner-designed mechanisms might fail to forestall the very incidents that they were purported to prevent. Enron, Worldcom and Lehman Brothers have been the largest ever

Received 12 May 2012
Revised 30 October 2012
8 December 2012
Accepted 13 December 2012

bankruptcies in corporate America, and all of these corporations had boards assessed to be effective by industry standards right up to their downfall. Therefore it is timely to investigate the mechanisms of boardroom effectiveness in greater detail and to seek clarity in assessing the process and the underlying theoretical concepts of what constitutes an effective board.

Recent studies tend to point towards the importance of investigating board dynamics, especially board-level intermediate processes to develop our understanding of board effectiveness (Nicholson and Kiel, 2007). Forbes and Milliken (1999) highlight the importance of investigating board behavior and offer a cognition based model to assess board processes. Forbes and Milliken (1999) propose that the interplay between board decision-making processes and demographics determine the board-level outcomes of task performance, wherein the demographics capture the cognition or mental models of the board members. However, Markoczy (1997) critique demographics as a proxy for cognition, while others (Hodgkinson and Healey, 2008; Kilduff *et al.*, 2000) argue for direct assessment of cognition or mental models[1]. This paper contributes to this growing literature by extending the Forbes and Milliken (1999) model to develop a parsimonious behavioral process model that includes direct assessment of cognition for assessing board effectiveness. As per this model, board effectiveness is determined by the interplay between boardroom decision-making processes and the board members' cognitive mental models. This theoretically grounded team-level model is developed by integrating the concepts of cognitive mental models, a higher order behavioral construct that captures the salient aspects of board characteristics, and the concepts of sensemaking that captures the dynamics of the decision-making processes. Based on this model, propositions predicting the causality and effect of the socio-cognitive and decision-making processes on board effectiveness are also offered. Such a team-level, process dynamics based model furthers the understanding of board effectiveness in three distinct ways. First, it develops a model for analysing the relationship among the different decision-making processes and members' cognitive models as determinants of board effectiveness. Secondly, it encompasses most of the relevant constructs and findings of previous studies and offers a holistic yet parsimonious understanding of the boardroom mechanisms that might determine board effectiveness. And finally, it advances a rationale that might explain the mixed or modest findings in literature on the relationship between board demographics/dynamics and effectiveness. This paper is organized as follows. First, I undertake a review of the extant literature on board of directors, specifically focusing on board functionality and board effectiveness. Next I introduce the concepts of sensemaking as social decision-making and of cognitive mental models as means of addressing the aforementioned issues. Thereafter, I develop the model for assessing board effectiveness based on the relationship between decision-making processes and the cognitive function of the board and present propositions that predict these relationships. The final section concludes with comments on research and the managerial implications and limitations of this study.

Literature review: defining the domain

Board effectiveness

The dominant logic of board and board dynamics research has been the agency perspective (Daily *et al.*, 2003), which views boards as a governance and control mechanism for protecting shareholders' interests from self-serving managers (Beatty and Zajac, 1994; Eisenhardt, 1989; Fama, 1980; Fama and Jensen, 1983; Jensen and Meckling, 1976). However, some management researchers also utilize the resource dependence perspective to view boards as a critical resource for providing advice, counsel, legitimacy, and social capital and network resources to a firm (Daily and Dalton, 1994; Haynes and Hillman, 2010; Salancik and Pfeffer, 1978; Zajac and Westphal, 1994). These studies either point towards board composition (e.g. size, insider/outsider ratio, demographics/diversity, functional specialists), or board leadership (whether unitary or duality), or board compensation and incentives to be the factors that predict effectiveness, usually measured in terms of firm performance. Most recommendations on composition as well as compensation for board members are similar in both agency and resource dependence

perspectives, e.g. higher number of outside independent directors will provide better monitoring as per the agency perspective, while outside directors will enable access to greater resources as per the resource providing ''service'' perspective (Zahra and Pearce, 1989; Brauer and Schmidt, 2008). However, most management related recommendations, e.g. unitary leadership, wherein the CEO and chairman of the board is the same individual, stand in direct contradiction as per the two perspectives. As per the resource dependence perspective, unitary leadership removes ambiguity in processes and outcomes, leads to greater co-ordination, and results in higher performance (Anderson and Anthony, 1986; Donaldson, 1990; Finkelstein and D'Aveni, 1994), while as per the agency perspective unitary leadership is akin to trusting the fox to guard the henhouse (Jensen, 1993).

The findings as per either of these perspectives are mixed at best. For example, Westphal (1998) finds CEOs use ingratiation, impression management, and persuasion techniques with board members to offset the structural changes implemented to facilitate the agency prescribed board independence. While Westphal (1999) also finds that, contrary to the tenets of both agency and resource dependence perspectives, boards with higher number of insiders are associated with higher performances, Molz (1988) finds no significant differences in firm performance between unitary or duality of board chairmanship, while Pergola and Joseph (2011) find differing impact of board member's shareholdings, whether insiders or independent. Cashman *et al.* (2012) find a negative relationship between independent board members on multiple boards and firm performance, while Geletkanycz and Boyd (2011) find CEOs serving on external boards lead to higher internal performance. Overall, meta-analyses of studies based on either of these views do not show any consistent relationship between board composition, leadership structure, or compensation and firm performance (Dalton *et al.*, 2003; Dalton *et al.*, 1998; Dalton *et al.*, 1999) or any clear guidance for identifying governance practices (Finegold *et al.*, 2007). Numerous researchers also question the appropriateness of measuring board effectiveness in terms of firm performance (Daily *et al.*, 1999; Forbes and Milliken, 1999; Zahra and Pearce, 1989), and even the validity of the proposed demographics – performance relationship. As Pettigrew (1992) states:

> Great inferential leaps are made from input variables such as board composition to output variables such as board performance with no direct evidence on the *processes and mechanisms* which presumably link the input to the output (Pettigrew, 1992, p. 171, italics added for emphasis)

I assert that as most of the earlier studies were based on the dominant logic of agency prescribed monitoring functionality for the board members, researchers were singularly focused on demographics as determinant of monitoring efficacy and thus board effectiveness. And as the commonly accepted premise of agency theory is that mitigating agency costs enhance firm value, board effectiveness was usually assessed in terms of enhanced firm performance. Even the subsequent studies from the resource providing perspective maintained the focus on demographics as determinant of enhanced firm performance (Zahra and Pearce, 1989, p. 316). The thinking seems to be in accordance with the earlier findings showing demographics as an important and equifinal consideration in assessing organizational performance (McCain, O'Reilly, & Pfeffer, 1983; Wagner *et al.*, 1984), whereas studying intervening processes was a regress of reductionism and violated the rules of parsimony (Pfeffer, 1983).

However, recent studies challenge this assumption and argue for analysing the intervening processes to assess board effectiveness as the parsimonious models have failed to have any predictive power (Forbes and Milliken, 1999; Johnson *et al.*, 1996).

These studies argue for analysing the intervening processes as determinants of board effectiveness and for being cognisant of the fact that there are many crucial intervening factors between board effectiveness and firm performance (Forbes and Milliken, 1999; Zahra and Pearce, 1989). Zahra and Pearce (1989) review extant literature on board variables and firm performance and display an intermediate variable of strategic outcomes between the board variables (attributes and roles) and firm performance as per all existing perspectives. Forbes and Milliken (1999) in their model of board processes, clearly distinguish between firm-level (financial performance) outcome, and board-level (task

performance and cohesiveness) outcomes, suggesting that board level effectiveness might eventually result in firm level financial performance.

Based on these findings, this study assesses board effectiveness in terms of the strategic outcome of the board's decision-making processes - as in the ability to achieve its functional objective effectively. Such a conceptualization is consistent with the ''task performance'' construct defined by Forbes and Milliken (1999, p. 492) and Minichilli *et al*. (2009). However, for an understanding of board effectiveness, we first need clarity on the functionality of the board. In the following section, I review the literature that defines our understanding of the functions of the board.

Board functionality

As discussed above, agency theory prescribes monitoring functionality for boards, while resource dependency theory prescribes a resource providing functionality. Of late, some researchers also argue for an integrated functionality model for boards wherein board members provide both agency prescribed monitoring (i.e. passive or control related) functions as well as resource dependence based service (i.e. active or strategic counsel related) functions (Haynes and Hillman, 2010; Hillman and Dalziel, 2003; Shen, 2003). Hendry *et al*. (2010) offer a qualitative strategizing framework that advances understanding of board's functionality beyond the current passive-active continuum. Hillman and Dalziel (2003) build on extant literature as well as the Korn/Ferry (1999) survey findings to assert that board members view both monitoring as well as resource providing functions as integral to their board-related activities. Shen (2003) offers a model where the salient functionality among monitoring and resource providing is dependent on the tenure/experience of the CEO. Forbes and Milliken (1999) also suggest such an integrated functionality for boards as ''the board's control task refers to its legal duty to monitor management. . .service task refers to its potential to provide advice and counsel to CEO and other top managers and to participate actively in the formulation of strategy'' (Forbes and Milliken, 1999, p. 492). Thus a combination of both ''counsel and control'' functionalities seems to better define the overarching objective function of the board; however, empirical studies assessing both these functionalities simultaneously are still rare.

It is important to reiterate that most studies on board process models adopt only the monitoring function for the board, while the Smith *et al.* (1994), Knight *et al.* (1999), Westphal and Zajac (1995); Westphal (1998); and Westphal and Bednar (2005) models are based solely on resource providing functionality of the management team. Not including both of these functionalities in the overall objective for boards might be adding to the present complexity and confusion in analysing the boardroom process-effectiveness relationship, as it stands to logic that effectiveness of a team cannot be assessed without considering which function or functions does the team perceive to be its objective (Ong and Wan, 2008).

Thus, unless it is ascertained what the board members perceive to be their functional objectives (i.e. monitoring, or providing resources, or an integration of both), it will be difficult to assess the effectiveness of the board. Furthermore, boards might not have a uniform function or a standardized decision-making process for all decisions as boards are involved in multiple decision-making circumstances – from hiring or firing a CEO, to setting long-term strategic objectives, to auditing performance and determining compensation, to crisis management and even approving amendments to routine administrative protocols[2]. Therefore it stands to reason that board members might choose their individual function on a decision-by-decision basis. Additionally, boards also meet infrequently and cover an extensive amount of business in a limited timeframe, and thus operate under attention-based constraints (Ocasio, 1997). Moreover, depending on the board's social capital and CEO/Board Chair's power dynamics (Tuggle, Schnatterly, and Johnson, 2010), the perceived function for every individual decision by each board member or the entire board as a team might vary from monitoring to resource providing to an integrated ''counsel and control'' functionality. To summarize Forbes and Milliken (1999), boards are large, elite and episodic decision-makers that face complex tasks, and the outcome of their decision-making processes is entirely cognitive (Forbes and Milliken, 1999, p. 492).

In other words, board effectiveness, i.e. the strategic outcome of the board's decision-making processes or the ability to achieve its functional objectives effectively, cannot be ascertained without including an analysis of the board's cognition of its functional objective on a decision by decision basis. In the next section, I review the extant understandings of the social processes of board dynamics, specifically the decision-making processes followed by cognition processes, to develop the framework to assess their impact on a board's functional objective and on its effectiveness.

Social processes of board dynamics

Some conceptual as well as empirical studies do look at board effectiveness in terms of social processes of group dynamics (Murphy and McIntyre, 2007), as in the strategic decision-making process (Carpenter and Westphal, 2001; Westphal, 1998; Westphal and Khanna, 2003; Westphal and Zajac, 1997), in terms of board and CEO power circulation (Combs *et al.*, 2007), or in terms of board social capital dynamics (Ji-Hwan *et al.*, 2012). Tang *et al.* (2011) find that powerful boards dampen the extreme strategy – whether beneficial or detrimental – undertaken by powerful CEO, while He and Huang (2011) find that the clarity in the informal hierarchy within a board leads to increased productivity.

Some researchers also find that demographics as well as the intervening decision-making processes together predict strategic outcomes and firm performance (Knight *et al.*, 1999; Smith *et al.*, 1994), while others (Kiel and Nicholson, 2005; Forbes and Milliken, 1999) suggest board characteristics and decision-making processes predict board-level outcomes, that eventually might influence firm performance outcome. However, these studies all report a complex interplay between demographics and processes in assessing effectiveness and subsequent performance as shown at Table I.

Hence, the role of conflict, consensus, communication and board involvement in determining board effectiveness is unclear, and these processes seem to interact with demographics and diversity work in a complicated manner when analysing board effectiveness. Though there seems to be a consistent link between diversity, communications and heterogeneity on decision processes and eventually board effectiveness, the mechanism does not seem to be simple or direct (Forbes and Milliken, 1999; Johnson *et al.*, 1996; Zahra and Pearce, 1989). For example, diversity has opposing effects on processes, namely positive effect on processes of cognitive conflict and presence of functional knowledge and skills, while having a negative effect on use of knowledge and skills and cohesiveness (Forbes and Milliken, 1999, Table I, p. 500). Cohesiveness itself has an inverted U relationship with effectiveness, moderated by the opposing effect of cognitive conflict (Forbes and Milliken, 1999, Figure 1, p. 498). Similarly, frequency of communication is negatively related to performance, while informal communication via social integration is positively related to performance (Smith *et al.*, 1994, Figure 1, p. 412), and heterogeneity in experience is negatively related to performance, while heterogeneity in education and

Table I The role of demographics and processes in determining effectiveness

Process	*Outcome*	*Positive impact*	*Negative impact*	*Source*
Board diversity	Board process	Presence of functional knowledge and skills Cognitive conflict	Use of knowledge and skills Cohesiveness	Forbes and Milliken (1999) Table 1, p. 500
Board cohesiveness	Board effectiveness	Inverted U relationship moderated by opposing effect of cognitive conflict		Forbes and Milliken (1999) Figure 1, p. 498
TMT diversity	Strategic consensus	Employment tenure diversity	Location, functional, age and educational diversity	Knight *et al.* (1999) Figure 3, p. 456
Team diversity	Team performance	Heterogeneous education and background	Heterogeneous experience	Smith *et al.* (1994) Figure 1, p. 412
Team communication		Informal communication via social integration	Communication frequency	

background are positively related (Smith *et al.*, 1994, Figure 1, p. 412). Thus, there seems to be a common theme of assessing the decision-making process as indicative of board effectiveness; however, some of the processes seem to have counteracting effects on effectiveness, thus complicating the analysis.

In the subsequent social decision-making process section, that viewing the decision-making process from the sensemaking framework (Gioia and Chittipeddi, 1991; Maitlis, 2005; Weick, 1995) might offer a parsimonious analysis that is able to parse out the conflicting mechanisms and offer clarity in analysing board decision processes including cohesiveness and communications. I also argue that the effects of deep or psychological diversity (Harrison *et al.*, 1998; Mohammed and Angell, 2004) and heterogeneity (Tuggle, Sirmon, Reutzel, and Bierman, 2010) can be captured within the construct of the cognitive mental model of the board collectively as a team as well as individually for each board member. Such a team mental model construct, when examined along with the sensemaking decision-making process of the board, might enable clarity in understanding the dynamics (i.e. conflict, communication, consensus, cohesiveness, heterogeneity and diversity of the board members) and might be predictive of the effectiveness of the board decision-making process. Building on these premises, I then develop an integrative framework for a systematic assessment of the effectiveness of the board that includes both board functionalities as well as the board's decision-making processes.

Sensemaking as a social decision-making process

Sensemaking has been typically utilized in an organizational context to mean that process that occurs when members confront unanticipated or non-routine events, issues or actions (Gioia and Thomas, 1996; Weick, 1988, 1993, 1995). Weick (1993, p. 635) argues that sensemaking is, in effect, ''an ongoing accomplishment that emerges from efforts to create order and make retrospective sense of what occurs''. Some researchers (Gioia *et al.*, 2002; Gioia and Mehra, 1996), however, argue that the sensemaking process is also applicable for making plans or decisions of future events. Thus, sensemaking is fundamentally a social process of social construction in which individuals interpret their environment in and through interactions with others, constructing accounts that allow them to comprehend the world and act collectively (Maitlis, 2005; Sackmann, 1991; Weick, 1993; Weick and Roberts, 1993). Clearly sensemaking is, then, a social process concerned with decision-making that provides ''clear questions and clear answers'' (Weick, 1993, p. 636) that both precede and follow a decision-making process and involve both leader sensegiving (Bartunek *et al.*, 1999; Gioia and Thomas, 1996) as well as member sensegiving (Dutton and Ashford, 1993; Dutton *et al.*, 1997; Westley, 1990).

Sensemaking has been mostly utilized for organizations in crisis situations or for elitist teams or crews specifically (Waller *et al.*, 2004; Webber and Klimoski, 2004; Weick, 1988, 1993; Weick and Roberts, 1993) and is considered to be critical in dynamic and turbulent contexts (Weick and Roberts, 1993); however, Maitlis (2005, p. 24) argues and finds evidence of the sensemaking process in all kind of organizations and even for routine activities of an organization. She examines three British symphony orchestras, asserting orchestras provide surprisingly high level of generalizability to a broader population of organizations while developing her typology of sensemaking in terms of leader sensegiving and member sensegiving. She utilizes the Gioia and Chittipeddi (1991, p. 442) definition of sensegiving as ''the process of attempting to influence the sensemaking and meaning construction of others toward a preferred redefinition of organizational reality''. Other researchers have also utilized the construct of sensemaking for analysing decision-making in diverse groups such as administrative groups (Wright and Manning, 2004), US intelligence agencies (Orton, 2000) and academia (Gioia and Thomas, 1996).

I build on these findings and on Forbes and Milliken's (1999) socio-psychological model to assert that a board is a specialized strategic decision-making team whose processes are appropriately examined in terms of sensemaking activities, i.e. as decision-making processes for activities that might range from crisis situations to administrative actions and routine activities. I utilize Maitlis' (2005) framework based on leader and member

sensegiving actions as patterns of social interactions. This framework is, in effect, a typology of four forms of sensemaking processes, each with distinct process characteristics and outcomes. Utilizing this typology of sensemaking forms is appropriate for analysing the decision-making processes of a board as a specialized strategic decision making team, where the leader is the chairman of the board, and all the other participants are team members of the board. Such a typology enables a decision-by-decision analysis of the board's working, and thus can be utilized in terms of an event study analysis to parse out the confounding effects of other endogenous and exogenous factors (Zahra, 1990; Zahra and Pearce, 1990; Zahra and Pearce, 1989). It also enables a fine-grained analysis of the role of conflict, consensus, communication, and involvement in the board processes. Thus I utilize Maitlis's (2005) typology to define four distinct decision-making processes that are associated with four specific types of board involvement and outcomes as follows:

1. *Restricted decision-making process.* High leader sensegiving, low member sensegiving. Process of high leader coordination and low team involvement. Outcome will be unitary, narrow account that will lead to one time action or planned set of consistent actions.
2. *Guided decision-making process.* High leader sensegiving, high member sensegiving. Process of high team involvement and high leader coordination. Outcome will be a unitary, rich account that will lead to emergent series of consistent actions.
3. *Fragmented decision-making process.* High member sensegiving, low leader sensegiving. Process of high team involvement but poor leader coordination. Outcome will be a discursive, narrow account that will lead to an emergent series of inconsistent actions.
4. *Minimal decision-making process.* Low leader and low member sensegiving. Process of low team involvement and low leader coordination. Outcome will be a nominal account that will lead to one time compromise action.

As per the proposed model, whether or not each of these decision-making processes will result in high or low board effectiveness for that particular decision, will depend on the cognition that each board member and the board as a team perceives to be its individual and collective function respectively. It is important to reiterate that boards are a special category of a team and do not operate like typical workgroups, as they meet infrequently for a very specific function and cover extensive amount of business in a very limited period of time, and might have different functional objectives in mind when approaching each decision. Thus individual board members might differ in their perception of their function (schema congruence), and also differ in their perception of the function of the board (schema accuracy) when approaching each decision. We utilize Mathieu *et al.* (2005) definition of a team as ''a distinguishable set of two or more people who interact, dynamically, interdependently, and adaptively to achieve specified, shared, and valued objectives.'' with the abovementioned caveat that board's meet infrequently, cover inordinate amount of business in a limited timeframe, and each board member might approach each decision with a different cognition of their individual function for that decision.

In the following section, I introduce and explain the construct of the team cognitive model, consisting of team schema congruence and schema accuracy, before elaborating further on the interplay between decision making processes and the team cognitive model in the propositions section.

Cognitive model as indicator of collective function

I utilize the construct of team cognition as a product, i.e. a shared mental model by a team (Salas and Fiore, 2004, p. 235), which might not only explain the complexity of team processes, but also may be of use in predicting team performance based on the metrics used to explain team processes (Cannon-Bowers and Salas, 2001). In a critical examination of the construct of team mental models, Klimoski and Mohammed (1994, p. 429) conclude that this construct can bring explanatory power to theories of team performance and offer a framework that includes an interplay between team decision-making processes and team mental models

as predictive of team performance. Klimoski and Mohammed (1994, p. 431) also stress the linkage of effects of team composition to the existence of team mental models while acknowledging that other factors like communication also influence the development of team mental models. They also stress that team mental models are a group or team level construct (Klimoski and Mohammed, 1994, p. 432), unlike the organizational level phenomenon proposed by Weick and Roberts (1993), and should be utilized in terms of a specific task (function), technology, or training of a team (see Weick and Roberts, 1993)[3]. Other researchers (Cannon and Edmondson, 2001; Ensley and Pearce, 2001; Mathieu *et al.*, 2005; Mohammed and Dumville, 2001; Rentsch and Klimoski, 2001) further develop and test the concept of team shared mental models or schemas as team cognition and the interplay with team processes in predicting team effectiveness and performance. As the focus here is limited to only one aspect, i.e. the functionality of the board, and as boards unlike other teams or workgroups, do not usually interact beyond this singular aspect and only meet episodically and under time and scope constraints, the concern that the content of team cognition may form with respect to a wide variety of other (non-functionality) team-related issues (Cannon-Bowers *et al.*, 1993) is less applicable when studying cognition of a board as a team.

Rentsch and Woehr (2004) develop the construct of team member schema similarity (TMSS), which refers to the degree to which team members have similar or compatible knowledge structures for organizing and understanding team-related phenomenon. They assert that TMSS can be assessed in terms of schema congruence and schema accuracy. The difference between the two is that congruence reflects the degree of match in cases in which there is no target or ''correct'' value, whereas schema accuracy reflects the degree of match in cases in which a ''true score'' or target value exists (Rentsch and Woehr, 2004, p. 16). As the cognition of a board's function has no ''true score'', I utilize the construct of team member schema congruence as an assessment of the board's cognition of its function as a team. The utility of such a construct in understanding the interaction among the team members is highlighted by the illustration used by Rentsch and Woehr (2004, p. 15)[4]. The Rentsch and Woehr (2004) depiction of team members who employ different schema of teamwork demonstrates the schisms that may result in decreased team effectiveness. Team member schema congruence, then, is an essential element in assessing a board's cognition of its function as a team, and might be the underlying reason for the complex findings of conflict, consensus, cohesiveness and communications in board processes.

Thus I conceptualize a cognitive model of board functionality to have four dimensions – monitoring (same, congruent) and resource providing (same, congruent). Utilizing cognitive similarity and congruence has another advantage, apart from assessing the functional agreement of the board members. It can also substitute as representative of the diversity demographics as well as cohesiveness that seem to define board effectiveness (Forbes and Milliken, 1999, Figure 1, p. 498). Rentsch and Klimoski (2001) find support for demographic diversity (i.e. team composition in terms of age, gender, education, organizational level, level of team experience) to be positively related to team cognition measured as team member schema agreement. They further find that team cognition mediates the board composition-effectiveness relationship. Thus, analysing the team cognitive model will capture most, if not all, of the diversity/demographics effects on effectiveness including cohesiveness, and hence this construct coupled with the decision making process might be able to offer a parsimonious yet fine-grained analysis of board dynamics and perhaps resolve the conflicting relationships bedevilling previous studies since this new construct can differentiate between cognition related versus process related conflict.

Building on the aforementioned literature and premises, I integrate the sensemaking derived decision-making process typology with the cognitive mental model construct to develop a team level socio-cognitive framework for assessing effectiveness of a board as a team. The interplay between the team processes and team/shared mental model as predictive of team effectiveness is then elaborated in the propositions section.

The socio-cognitive framework

Consistent with recent literature (Maharaj, 2009), I look beyond the usual demographic measures and propose that the interplay between the decision-making process of a board and the cognitive model of the board will predict the effectiveness of the board as a team, as per the general model depicted at Figure 1. The decision-making process of the board will mediate the board's cognitive model-effectiveness relationship, while the board's cognitive model will also moderate the decision making-effectiveness relationship.

I also propose that each type of decision-making process, when undertaken by a board with a congruent cognition model (i.e. high congruence in terms of monitoring or resource providing), will be indicative of the level of board effectiveness. The flowchart model at Figure 2 shows a schematic representation of the stylized combinations of processes and cognitive models that might indicate the effectiveness of the strategic outcome.

In the following section, I explain the rationale and the theoretical underpinnings for these models and also develop specific propositions that define these relationships.

Research propositions

The level to which the predictor constructs (namely, leader sensegiving, member sensegiving, monitoring cognitive congruence, and resource providing cognitive congruence) tend to be high or low will define the level of the estimated construct, i.e. board effectiveness as the outcome. I elaborate on each of the decision-making process types individually.

Restricted decision-making process

This process involves high leader sensegiving, and low member sensegiving. Maitlis (2005) explicates this process as follows:

> A significant amount of sensegiving occurred in private meetings . . . Leaders. . .were able to use key resources available to them, such as time, space, and their personal networks, to create opportunities to meet stakeholders (members) one-on-one so that discussions could take place away from the scrutiny of others (Maitlis, 2005, p. 30).

Such a process will enable high leader coordination/guidance with relatively low team involvement. On one hand, the leader might utilize such a process to seek a specific resource from the individual member who can provide it or to expedite decision making without having to convene formal meetings and avoiding the resulting delays and inefficiencies (Maitlis, 2005, p. 45). On the other hand, this process, especially if the leader is also the CEO, might be a way of overcoming the scrutiny of the board members to further a personal agenda. In such a process, if the members' cognitive schema of a board's function is to provide resources to the management is high and congruent, the member will be fully engaged and the outcome of the decision-making process most probably will be effective, i.e. the outcomes will be a unitary, narrow account and will lead to one time action or planned set of consistent actions. However, if the members' predominant cognition of the board's function is to monitor the management, the members will either be suspicious of the intention of private one-on-one meetings or, in accordance with Westphal's (1998) findings, see the

Figure 1 General model of board decision-making process, cognitive model, and effectiveness relationship

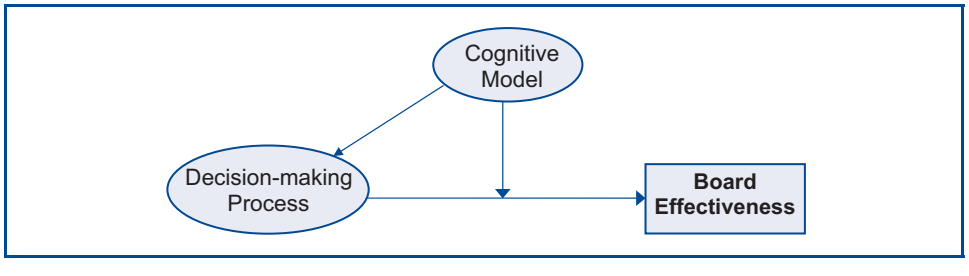
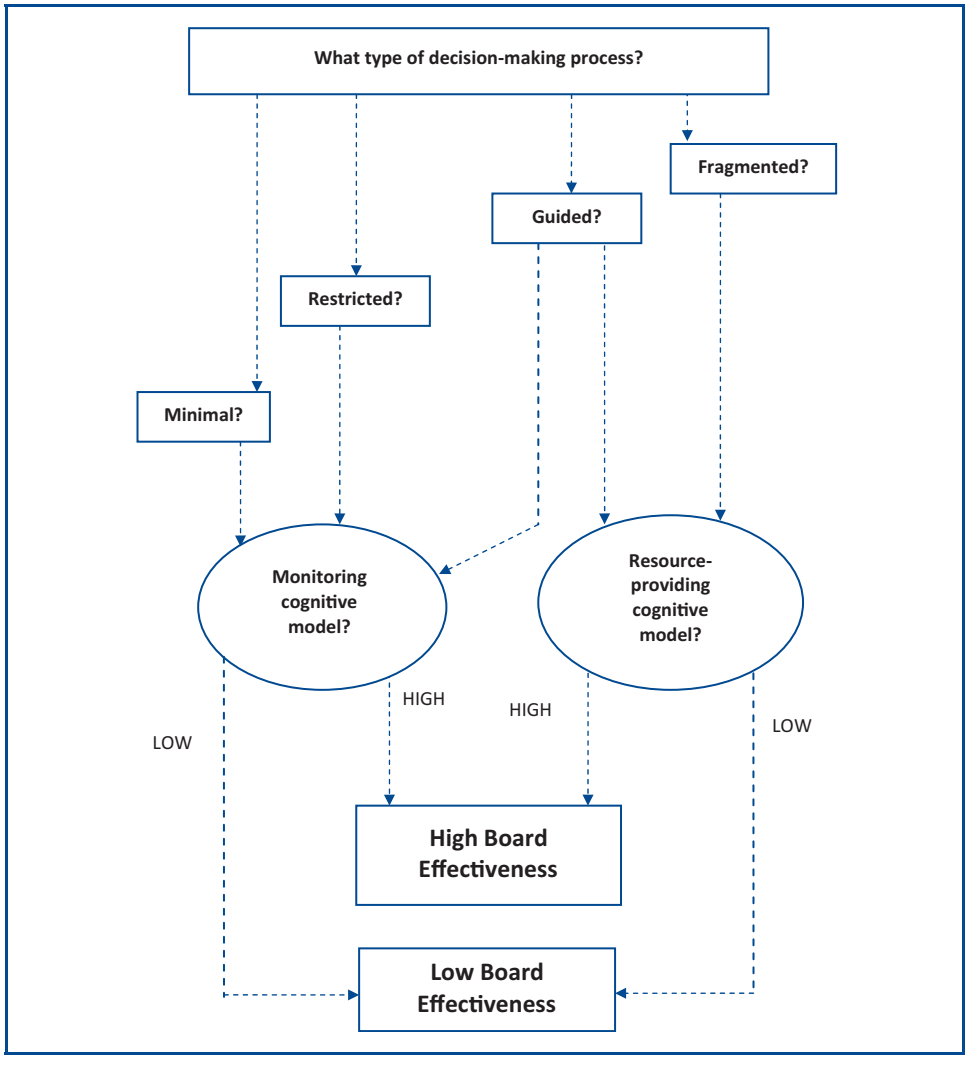


Figure 2 A flow chart schematic of the optimum decision process and cognitive model predicting board effectiveness



action as management's attempt to offset the effect of board independence. Therefore, the outcome will be ineffective, at least in terms of the members' cognition of board function. Thus, I put forth the following propositions:

P1a. For boards with members reporting high level of resource providing cognition, restricted decision-making processes will be positively related to board effectiveness.

P1b. For boards with members reporting high level of monitoring cognition, restricted decision-making processes will be negatively related to board effectiveness.

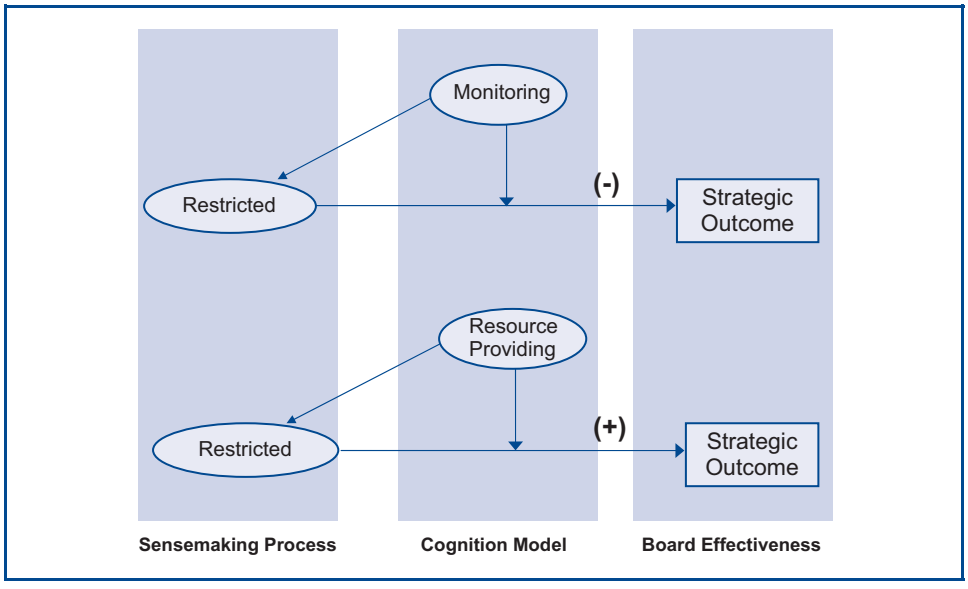
A schematic representation of this relationship is displayed in Figure 3.

Guided decision-making process

This process involves high leader sensegiving and high member sensegiving. Maitlis (2005) explains this process:

> Sensegiving by both leaders and stakeholders tended to occur in an organized, systematic fashion, rather than *ad hoc*. . .scheduled meetings, formal committees, and planned events . . . rather than by informal, impromptu meetings of self-organizing groups. . .because leaders drew on

Figure 3 Model of board cognitive model, restricted decision-making process, and board effectiveness relationship



> their formal authority to organize sensegiving occasions in which issues were discussed through formal channels, and because stakeholders responded to leader sensegiving by participating in and supporting these organized opportunities for sensegiving (Maitlis, 2005, p. 30).

Thus, this is a process of high team involvement as well as high leader guidance. The outcome of such a decision making process will be a unitary, rich account that will lead to emergent series of consistent actions. As the process is well coordinated and guided by the leader, the possibility of conflict due to the high involvement by the members will be low. Even within the agency theory's hypothesized confrontational board-managerial relationship, Jensen (1993, p. 866) asserts that in well-functioning organizations the board will generally be relatively inactive and will exhibit little conflict. A typical example will be a board with long tenure, with members with integrated function cognition, i.e. both monitoring as well as resource providing, who work as a well-coordinated team, or a small compact board with a high number of insiders like those Westphal (1999) found to be associated with higher performance. Such a board might be more likely to produce innovation and efficiency of financial performance (Maitlis, 2005, p. 45). Thus I propose the following:

P2. Guided decision-making processes will be positively related to board effectiveness, irrespective of members' cognition of board function.

Fragmented decision-making process

This process involves high member sensegiving; however, the leader sensegiving is low. Thus this will be a process of high team involvement but poor leader coordination. The outcome will be discursive, narrow accounts that will lead to an emergent series of inconsistent actions. This process might be indicative of lack of consensus, high conflict, and definitely low power of the leader (Daily and Johnson, 1997; Hendry and Kiel, 2004; Westphal and Zajac, 1995). In a case in which the board's cognition of function is monitoring, such a decision-making process is highly conducive to ensuring that the management's misadventures are kept in check; however, if the board's cognition of function is resource providing, the lack of coordination might imply that the high frequency of communication will be detrimental for effectiveness (Smith *et al.*, 1994). Maitlis (2005, p. 45) reports that in her study this process led to very little consistent action; however, it may lead to generation of valuable ideas. In the context of boards, this might be indicative of a mature firm that needs

to maintain the status quo and ensure that management does not rush into ventures without due diligence. Therefore, I propose the following:

P3a. For boards with members reporting a high level of monitoring cognition, fragmented decision-making processes will be positively related to board effectiveness.

P3b. For boards with members reporting high level of resource providing cognition, fragmented decision-making processes will be negatively related to board effectiveness

Minimal decision-making process

This process involves low leader and low member sensegiving, implying a process of low team involvement and low leader coordination. The outcomes will be a nominal account that will lead to one time compromise action. This process might be reflective of boards that simply ''go through the motions'' of attending meetings and registering votes without being mentally engaged with the issues facing the board (Forbes and Milliken, 1999, p. 494). Such a process might be indicative of either a dysfunctional team, where the members' schemas are not at all in agreement, or of a board that is a mere rubber stamp for the management (Westphal, 1999). Alternatively, it could mean that such a process reflects a well-functioning team, so attuned to each other that the team functions as a collective (Weick, 1995; Weick and Roberts, 1993), or of a well-coordinated team making mundane routine decisions. Thus assessing the members' cognition of function is most crucial in assessing the effectiveness of this type of decision-making process. In any case, if the members' cognition is monitoring the management, this process does not allow any providing or seeking of information. Thus I put forth the following propositions:

P4a. For boards with members reporting high levels of resource providing cognition, minimal decision-making processes will be positively related to board effectiveness.

P4b. For boards with members reporting high levels of monitoring cognition, minimal decision-making processes will be negatively related to board effectiveness.

Research and managerial implications

This study offers a theoretically grounded model that links team mental models with decision-making processes to assess board effectiveness. The proposed model is exploratory in nature; thus, future studies will be required to operationalize, test, and determine the contextual nature of the mechanisms of this model. As the conceptual model assesses the type of decision-making process by the board member and their team and task-based cognitive model as well as board effectiveness, the operationalization would need board members and board chairs filling out survey questionnaire that assesses each of these constructs. The board members and Board chair/CEO will be asked to reflect on one particular strategic decision in the recent past when addressing all the questions that assess the three constructs. As proposed in the Forbes and Milliken (1999) study, these constructs need to be considered to be latent constructs and thus the responses to survey questions can be utilised by a structural modeling software (e.g. EQS, LISREL, AMOS, PLS) to develop and empirically assess the proposed model.

Validated survey questions that were used to assess cognitive model in Mathieu *et al.* (2005) and Mathieu *et al.* (2000) can be utilized for assessing board's team and task-based cognitive model. The questions for assessing type of decision-making processes will need to be developed and pre-tested with content experts and a smaller panel of board members. The sense-giving framing from the Maitlis (2005) study provides adequate description to develop a survey questionnaire for collecting decision-making process related data. Board effectiveness data can be collected as per the procedure outlined by Ingley and van der Walt (2005) and Leblanc and Schwartz (2007).

Future longitudinal studies on the lines of Ensley and Pearce (2001) can examine the ongoing dynamics between these variables to ascertain the cross-lagged relationship between decision-making processes and the cognitive model of the team. Studies might also examine the antecedents of the decision making process as called for by Maitlis (2005) in the context of boards, as well as examine the consequences of effectiveness on firm performance measures. Also, this model enables boards and top management teams to become aware of and understand that the underlying cause of rifts and conflicts in their processes might just be the differences in their mental schema. Such a sensemaking-based understanding might in itself lead to enhancement in the quality of future interactions and parse out the conflict from the constructive differences in opinion. Thus, the findings of this study are also asserted to have great managerial implications. Organizational design and development researchers can also utilize the findings to design instruments and mechanisms for coaching and educating board members.

Limitations

A concern in this study is the possibility that the conceptually different constructs of decision-making processes, cognitive model, and effectiveness constructs might possibly be attributes of the same latent variable, and thus these constructs might be so close together that such an analysis might indeed become a regress of reductionism (Pfeffer, 1983). I argue that these constructs involve separate settings, and are built on distinctly different premises and theoretic underpinnings, and thus conceptually are distinct and, when assessed together, will enable clarity in understanding the board dynamics. Future studies might operationalize and test these constructs to assess the validity of the socio-cognitive model.

Another issue of concern is the fact that some studies report that cognitive models are formed by social interaction (Salancik and Pfeffer, 1978; Daft and Weick, 1984; Chattopadhyay *et al.*, 1999; Knight *et al.*, 1999), while some studies also find a direct effect of cognitive model on performance (Mathieu *et al.*, 2005; Mathieu *et al.*, 2000). Some claim that the relationship between cognitive model and decision-making processes is reverse, reciprocating, or recursive (Cohen and Bailey, 1997; Klimoski and Mohammed, 1994; Mohammed *et al.*, 2000; Rentsch and Klimoski, 2001; Zaccaro and Klimoski, 2002). I argue that at any given time, cognition will lead to decision-making process while previous experience of decision-making processes, as well as outcome, will define cognition for the next decision-making interaction. The findings of Mathieu *et al.* (2005) also seem to point in this direction, as they find that both shared-team and task-based mental models relate positively to subsequent team process and performance. Thus the main effect and directionality of board cognition to decision-making process and effectiveness will be as proposed in this study. Future longitudinal studies might enable greater clarity in understanding the possible cross-lagged relationship between cognitive model, decision-making processes, and board effectiveness.

Finally, despite the extensive literature on team cognition, this team level construct might actually be an individual level construct, whereby the study might suffer from the issues of across level analyses (Bunderson, 2003; Drazin *et al.*, 1999; Jackson and Joshi, 2004). I assert that team or group level is the appropriate level of analysis for board processes and effectiveness, unlike the individual or organizational level of analysis of previous studies; however, only an empirical study can actually test and validate these constructs to be appropriate at the group or team level. Thus further research, specifically empirical studies assessing and testing the proffered model are called for.

In conclusion, I argue for a group level analysis for understanding board mechanisms and offer an interdisciplinary, socio-cognitive framework that not only integrates and builds on the previous findings but also enables making sense of the contradictions in extant literature on boards and their effectiveness.

Notes

1. I gratefully acknowledge the support from an anonymous reviewer for developing this insight.

2. I thank an anonymous reviewer for providing this insight.

3. Klimoski and Mohammed (1994) imply that there is probably no value of thinking of a team mental model, as like *a* collective mind of a team or organization (Sackmann, 1991; Weick and Roberts, 1993). Other researchers also distinguish between taskwork and teamwork domains (e.g. Cannon-Bowers *et al.*, 1993; Mathieu *et al.*, 2000; Rentsch and Klimoski, 2001). As I utilize the construct of team mental model to assess only the cognition of its function by the board as a team (where there is no distinction between taskwork and teamwork), this debate on the narrowness or breadth of the construct is not considered relevant for my utilization.

4. To quote: ''By way of illustration, let us assume that Mitch's schema of teamwork contains 'getting along', 'speaking one's mind', 'encouraging others', and 'doing one's part'. Donna's perception of Mitch's schema of teamwork is inaccurate because she does not realize that 'doing one's part' and 'encouraging others' are part of Mitch's schema. In addition, her perception of Mitch's schema is [*also*] inaccurate, because she thinks that for Mitch 'relying heavily on others' is a component of teamwork, but Mitch's schema does not contain that component. Because Donna's schema of Mitch is inaccurate, when she observes Mitch agreeing with and encouraging another teammate, she interprets this behavior as Mitch's attempt to rely on others rather than Mitch's effort to contribute unique ideas to the team. Mitch on the other hand, believes that he is making an effort to do his part. . .indicating that he agrees with the teammate, and by encouraging his teammate. Because Donna's schema of Mitch's schema is inaccurate, her reaction to his behavior may be counterproductive and may cause Mitch to counterreact negatively. Ultimately, Donna's low schema accuracy will decrease the team's performance level.''(Rentsch and Woehr, 2004, pp. 15-16).

References

Anderson, C.A. and Anthony, R.N. (1986), *The New Corporate Directors*, Wiley, New York, NY.

Bartunek, J., Krim, R., Necochea, R. and Humphries, M. (1999), ''Sensemaking, sensegiving and leadership in strategic organizational development'', in Wagner, J. (Ed.), *Advances in Qualitative Organizational Research*, Vol. 2, JAI Press, Greenwich, CT, pp. 37-71.

Beatty, R.P. and Zajac, E.J. (1994), ''Managerial incentives, monitoring and risk bearing: a study of executive compensation, ownership and board structure in initial public offerings'', *Administrative Science Quarterly*, Vol. 39 No. 2, pp. 313-335.

Brauer, M. and Schmidt, S.L. (2008), ''Defining the strategic role of boards and measuring boards' effectiveness in strategy implementation'', *Corporate Governance*, Vol. 8 No. 5, pp. 649-660.

Bunderson, J.S. (2003), ''Recognizing and utilizing expertise in work groups: a status characteristics perspective'', *Administrative Science Quarterly*, Vol. 48 No. 4, pp. 557-591.

Cannon, M.D. and Edmondson, A.C. (2001), ''Confronting failure: antecedents and consequences of shared beliefs about failure in organizational work groups'', *Journal of Organizational Behavior*, Vol. 22 No. 2, pp. 161-177.

Cannon-Bowers, J.A. and Salas, E. (2001), ''Reflections on shared cognition'', *Journal of Organizational Behavior*, Vol. 22 No. 2, pp. 195-202.

Cannon-Bowers, J.A., Salas, E. and Converse, S. (1993), ''Shared mental models in expert team decision making'', in Castellan, N.J. (Ed.), *Individual and Group Decision Making*, Lawrence Erlbaum Associates, Hillsdale, NJ, pp. 221-246.

Carpenter, M.A. and Westphal, J.D. (2001), ''The strategic context of external network ties: examining the impact of director appointments on board involvement in strategic decision making'', *Academy of Management Journal*, Vol. 44 No. 4, pp. 639-660.

Cashman, G.D., Gillan, S.L. and Jun, C. (2012), ''Going overboard? On busy directors and firm value'', *Journal of Banking and Finance*, Vol. 36 No. 12, pp. 3248-3259.

Chattopadhyay, P., Glick, W.H., Miller, C. and Huber, G.P. (1999), ''Determinants of executive beliefs: comparing functional conditioning and social influence'', *Strategic Management Journal*, Vol. 20 No. 8, pp. 763-789.

Cohen, S.G. and Bailey, D.E. (1997), ''What makes teams work: group effectiveness research from the shop floor to the executive suite'', *Journal of Management*, Vol. 23 No. 3, pp. 239-290.

Combs, J.G., Ketchen, D.J.J., Perryman, A.A. and Donahue, M.S. (2007), ''The moderating effect of CEO power on the board composition-firm performance relationship'', *Journal of Management Studies*, Vol. 44 No. 8, pp. 1299-1323.

Daft, R.L. and Weick, K.E. (1984), ''Toward a model of organizations as interpretation systems'', *Academy of Management Review*, Vol. 9 No. 2, pp. 284-295.

Daily, C.M. and Dalton, D.R. (1994), ''Bankruptcy and corporate governance: the impact of board composition and structure'', *Academy of Management Journal*, Vol. 37 No. 6, pp. 1603-1617.

Daily, C.M. and Johnson, J.L. (1997), ''Sources of CEO power and firm financial performance: a longitudinal assessment'', *Journal of Management*, Vol. 23 No. 2, pp. 97-126.

Daily, C.M., Dalton, D.R. and Cannella, A.A. Jr (2003), ''Corporate governance: decades of dialogue and data'', *Academy of Management Review*, Vol. 28 No. 3, pp. 371-382.

Daily, C.M., Johnson, J.L. and Dalton, D.R. (1999), ''On the measurements of board composition: poor consistency and a serious mismatch of theory and operationalization'', *Decision Sciences*, Vol. 30 No. 1, pp. 83-106.

Dalton, D.R. (2004), ''A different kind of governance guru'', *BusinessWeek*, No. 3895, pp. 44-46.

Dalton, D.R., Daily, C.M., Certo, S.T. and Roengpitya, R. (2003), ''Meta-analyses of financial performance and equity: fusion or confusion?'', *Academy of Management Journal*, Vol. 46 No. 1, pp. 13-26.

Dalton, D.R., Daily, C.M., Ellstrand, A.E. and Johnson, J.L. (1998), ''Meta-analytic reviews of board composition, leadership structure and financial performance'', *Strategic Management Journal*, Vol. 19 No. 3, pp. 269-291.

Dalton, D.R., Daily, C.M., Johnson, J.L. and Ellstrand, A.E. (1999), ''Number of directors and financial performance: a meta-analysis'', *Academy of Management Journal*, Vol. 42 No. 6, pp. 674-686.

Donaldson, L. (1990), ''The ethereal hand: organizational economics and management theory'', *Academy of Management Review*, Vol. 15 No. 3, pp. 369-381.

Drazin, R., Glynn, M.A. and Kazanjian, R.K. (1999), ''Multilevel theorizing about creativity in organizations: a sensemaking perspective'', *Academy of Management Review*, Vol. 24 No. 2, pp. 286-307.

Dutton, J.E. and Ashford, S.J. (1993), ''Selling issues to top management'', *Academy of Management Review*, Vol. 18 No. 3, pp. 397-428.

Dutton, J.E., Ashford, S.J., Wierba, E.E., O'Neill, R. and Hayes, E. (1997), ''Reading the wind: how middle managers assess the context for selling issues to top managers'', *Strategic Management Journal*, Vol. 18 No. 5, pp. 407-423.

Eisenhardt, K.M. (1989), ''Agency theory: an assessment and review'', *Academy of Management Review*, Vol. 14 No. 1, pp. 57-74.

Ensley, M.D. and Pearce, C.L. (2001), ''Shared cognition in top management teams: implications for new venture performance'', *Journal of Organizational Behavior*, Vol. 22 No. 2, pp. 145-160.

Fama, E.F. (1980), ''Agency problems and the theory of the firm'', *Journal of Political Economy*, Vol. 88 No. 2, pp. 288-307.

Fama, E.F. and Jensen, M. (1983), ''Separation of ownership and control'', *Journal of Law and Economics*, Vol. 26 No. 2, pp. 301-325.

Finegold, D., Benson, G.S. and Hecht, D. (2007), ''Corporate boards and company performance: review of research in light of recent reforms'', *Corporate Governance: An International Review*, Vol. 15 No. 5, pp. 865-878.

Finkelstein, S. and D'Aveni, R.A. (1994), ''CEO duality as a double-edged sword: how boards of directors balance entrenchment avoidance and unity of command'', *Academy of Management Journal*, Vol. 37 No. 5, pp. 1079-1108.

Forbes, D.P. and Milliken, F.J. (1999), ''Cognition and corporate governance: understanding boards of directors as strategic decision-making groups'', *Academy of Management Review*, Vol. 24 No. 3, pp. 489-505.

Geletkanycz, M.A. and Boyd, B.K. (2011), ''CEO outside directorships and firm performance: a reconciliation of agency and embeddedness views'', *Academy of Management Journal*, Vol. 54 No. 2, pp. 335-352.

Gioia, D.A. and Chittipeddi, K. (1991), ''Sensemaking and sensegiving in strategic change initiation'', *Strategic Management Journal*, Vol. 12 No. 6, pp. 433-448.

Gioia, D.A. and Mehra, A. (1996), ''Sensemaking in organizations'', *Academy of Management Review*, Vol. 21 No. 4, pp. 1226-1230.

Gioia, D.A. and Thomas, J.B. (1996), ''Identity, image and issue interpretation: sensemaking during strategic change in academia'', *Administrative Science Quarterly*, Vol. 41 No. 3, pp. 370-403.

Gioia, D.A., Corley, K.G. and Fabbri, T. (2002), ''Revising the past (while thinking in the future perfect tense)'', *Journal of Organizational Change Management*, Vol. 15 No. 6, pp. 622-634.

Harrison, D.A., Price, K.H. and Bell, M.P. (1998), ''Beyond relational demography: time and the effects of surface- and deep-level diversity on work group cohesion'', *Academy of Management Journal*, Vol. 41 No. 1, pp. 96-107.

Haynes, K. and Hillman, A. (2010), ''The effect of board capital and CEO power on strategic change'', *Strategic Management Journal*, Vol. 31 No. 11, pp. 1145-1163.

He, J. and Huang, Z. (2011), ''Board informal hierarchy and firm financial performance: exploring a tacit structure guiding boardroom interactions'', *Academy of Management Journal*, Vol. 54 No. 6, pp. 1119-1139.

Hendry, K. and Kiel, G.C. (2004), ''The role of the board in firm strategy: integrating agency and organisational control perspectives'', *Corporate Governance: An International Review*, Vol. 12 No. 4, pp. 500-520.

Hendry, K.P., Kiel, G.C. and Nicholson, G. (2010), ''How boards strategise: a strategy as practice view'', *Long Range Planning*, Vol. 43 No. 1, pp. 33-56.

Hillman, A.J. and Dalziel, T. (2003), ''Boards of directors and firm performance: integrating agency and resource dependence perspectives'', *Academy of Management Review*, Vol. 28 No. 3, pp. 383-396.

Hodgkinson, G.P. and Healey, M.P. (2008), ''Cognition in organizations'', *Annual Review of Psychology,*, Vol. 59 No. 1, pp. 387-417.

Ingley, C. and van der Walt, N. (2005), ''Do board processes influence director and board performance? Statutory and performance implications'', *Corporate Governance: An International Review*, Vol. 13 No. 5, pp. 632-653.

Jackson, S.E. and Joshi, A. (2004), ''Diversity in social context: a multi-attribute, multilevel analysis of team diversity and sales performance'', *Journal of Organizational Behavior*, Vol. 25 No. 6, pp. 675-702.

Jensen, M.C. (1993), ''The modern industrial revolution, exit and the failure of internal control mechanisms'', *Journal of Finance*, Vol. 48 No. 3, pp. 831-880.

Jensen, M.C. and Meckling, W.H. (1976), ''Theory of the firm: managerial agency costs and ownership structure'', *Journal of Financial Economics*, Vol. 3 No. 4, pp. 305-360.

Ji-Hwan, L., Choi, C. and Jae, M.K. (2012), ''Outside directors' social capital and firm performance: a complex network approach'', *Social Behavior and Personality: An International Journal*, Vol. 40 No. 8, pp. 1319-1331.

Johnson, J.L., Daily, C.M. and Ellstrand, A.E. (1996), ''Boards of directors: a review and research agenda'', *Journal of Management*, Vol. 22 No. 3, pp. 409-438.

Kiel, G.C. and Nicholson, G.J. (2005), ''Evaluating boards and directors'', *Corporate Governance: An International Review*, Vol. 13 No. 5, pp. 613-631.

Kilduff, M., Angelmar, R. and Mehra, A. (2000), ''Top management-team diversity and firm performance: examining the role of cognitions'', *Organization Science*, Vol. 11, pp. 21-34.

Klimoski, R. and Mohammed, S. (1994), ''Team mental model: construct or metaphor?'', *Journal of Management*, Vol. 20 No. 2, pp. 403-437.

Knight, D., Pearce, C.L., Smith, K.G., Olian, J.D., Sims, H.P. Jr, Smith, K.A. and Flood, P. (1999), ''Top management team diversity, group process and strategic consensus'', *Strategic Management Journal*, Vol. 20 No. 5, pp. 445-465.

Korn/Ferry (1999), *Survey of Corporate Governance*, Korn/Ferry, New York, NY.

Leblanc, R. and Schwartz, M.S. (2007), ''The black box of board process: gaining access to a difficult subject'', *Corporate Governance: An International Review*, Vol. 15 No. 5, pp. 843-851.

Maharaj, R. (2009), ''View from the top: what directors say about board process'', *Corporate Governance*, Vol. 9 No. 3, pp. 326-338.

Maitlis, S. (2005), ''The social processes of organizational sensemaking'', *Academy of Management Journal*, Vol. 48 No. 1, pp. 21-49.

Markoczy, L. (1997), ''Measuring beliefs: accept no substitutes'', *Academy of Management Journal*, Vol. 40 No. 5, pp. 1228-1242.

Mathieu, J.E., Heffner, T.S., Goodwin, G.F., Cannon-Bowers, J.A. and Salas, E. (2005), ''Scaling the quality of teammates' mental models: equifinality and normative comparisons'', *Journal of Organizational Behavior*, Vol. 26 No. 1, pp. 37-56.

Mathieu, J.E., Heffner, T.S., Goodwin, G.F., Salas, E. and Cannon-Bowers, J.A. (2000), ''The influence of shared mental models on team process and performance'', *Journal of Applied Psychology*, Vol. 85 No. 2, pp. 273-283.

Minichilli, A., Zattoni, A. and Zona, F. (2009), ''Making boards effective: an empirical examination of board task performance'', *British Journal of Management*, Vol. 20 No. 1, pp. 55-74.

Minichilli, A., Zattoni, A., Nielsen, S. and Huse, M. (2012), ''Board task performance: an exploration of micro- and macro-level determinants of board effectiveness'', *Journal of Organizational Behavior*, Vol. 33 No. 2, pp. 193-215.

Mohammed, S. and Angell, L.C. (2004), ''Surface- and deep-level diversity in workgroups: examining the moderating effects of team orientation and team process on relationship conflict'', *Journal of Organizational Behavior*, Vol. 25 No. 8, pp. 1015-1039.

Mohammed, S. and Dumville, B.C. (2001), ''Team mental models in a team knowledge framework: expanding theory and measurement across disciplinary boundaries'', *Journal of Organizational Behavior*, Vol. 22 No. 2, pp. 89-106.

Mohammed, S., Klimoski, R.J. and Rentsch, J.R. (2000), ''The measurement of team mental models: we have no shared schema'', *Organizational Research Methods*, Vol. 3 No. 2, pp. 123-165.

Molz, R. (1988), ''Managerial domination of boards of directors and financial performance'', *Journal of Business Research*, Vol. 16 No. 3, pp. 235-249.

Murphy, S.A. and McIntyre, M.L. (2007), ''Board of director performance: a group dynamics perspective'', *Corporate Governance*, Vol. 7 No. 2, pp. 209-224.

Nicholson, G.J. and Kiel, G.C. (2007), ''Can directors impact performance? A case-based test of three theories of corporate governance'', *Corporate Governance: An International Review*, Vol. 15 No. 4, pp. 585-608.

Ocasio, W. (1997), ''Towards an attention-based view of the firm'', *Strategic Management Journal*, Vol. 18 No. 1, pp. 187-206.

Ong, C.H. and Wan, D. (2008), ''Three conceptual models of board role performance'', *Corporate Governance*, Vol. 8 No. 3, pp. 317-329.

Orton, J.D. (2000), ''Enactment, sensemaking and decision making: redesign processes in the 1976 reorganization of US intelligence'', *Journal of Management Studies*, Vol. 37 No. 2, pp. 213-234.

Payne, G.T., Benson, G.S. and Finegold, D.L. (2009), ''Corporate board attributes, team effectiveness and financial performance'', *Journal of Management Studies*, Vol. 46 No. 4, pp. 704-731.

Pergola, T.M. and Joseph, G.W. (2011), ''Corporate governance and board equity ownership'', *Corporate Governance*, Vol. 11 No. 2, pp. 200-213.

Pettigrew, A.M. (1992), ''The character and significance of strategy process research'', *Strategic Management Journal*, Vol. 13, pp. 5-16.

Pfeffer, J. (1983), ''Organizational demography'', in Cummings, L.L. and Staw, B.M. (Eds), *Research in Organizational Behavior*, Vol. 5, JAI Press, Greenwich, CT, pp. 299-357.

Rentsch, J.R. and Klimoski, R.J. (2001), ''Why do 'great minds' think alike?: antecedents of team member schema arrangement'', *Journal of Organizational Behavior*, Vol. 22 No. 2, pp. 107-120.

Rentsch, J.R. and Woehr, D.J. (2004), ''Quantifying congruence in cognition: social relations modelling and team member schema similarity'', in Salas, E. and Fiore, S.M. (Eds), *Team Cognition. Understanding the Factors that Drive Process and Performance*, American Psychological Association, Washington, DC, pp. 11-31.

Sackmann, S.A. (1991), *Cultural Knowledge in Organizations: Exploring the Collective Mind*, Sage Club, Newbury Park, CA.

Salancik, G.R. and Pfeffer, J. (1978), ''A social information processing approach to job attitudes and task design'', *Administrative Science Quarterly*, Vol. 23 No. 2, pp. 224-253.

Salas, E. and Fiore, S.M. (2004), *Team Cognition. Understanding the Factors that Drive Process and Performance*, American Psychological Association, Washington DC.

Shen, W. (2003), ''The dynamics of the CEO-board relationship: an evolutionary perspective'', *Academy of Management Review*, Vol. 28 No. 3, pp. 466-476.

Smith, K.G., Smith, K.A., Olian, J.D., Sims, H.P. Jr, O'Bannon, D.P. and Scully, J.A. (1994), ''Top management team demography and process: the role of social integration and communication'', *Administrative Science Quarterly*, Vol. 39 No. 3, pp. 412-438.

Tang, J., Crossan, M. and Rowe, W.G. (2011), ''Dominant CEO, deviant strategy and extreme performance: the moderating role of a powerful board'', *Journal of Management Studies*, Vol. 48 No. 7, pp. 1479-1503.

Tuggle, C.S., Schnatterly, K. and Johnson, R.A. (2010), ''Attention patterns in the boardroom: how board composition and processes affect discussion of entrepreneurial issues'', *Academy of Management Journal*, Vol. 53 No. 3, pp. 550-571.

Tuggle, C.S., Sirmon, D.G., Reutzel, C.R and Bierman, L. (2010), ''Commanding board of director attention: investigating how organizational performance and CEO duality affect board members' attention to monitoring'', *Strategic Management Journal*, Vol. 31 No. 9, pp. 946-968.

Wagner, W.G., Pfeffer, J. and O'Reilly, C.A. III (1984), ''Organizational demography and turnover in top-management groups'', *Administrative Science Quarterly*, Vol. 29 No. 1, pp. 74-92.

Waller, M.J., Gupta, N. and Giambatista, R.C. (2004), ''Effects of adaptive behaviors and shared mental models on control crew performance'', *Management Science*, Vol. 50 No. 11, pp. 1534-1544.

Webber, S.S. and Klimoski, R.J. (2004), ''Crews: a distinct type of work team'', *Journal of Business and Psychology*, Vol. 18 No. 3, pp. 261-279.

Weick, K.E. (1988), ''Enacted sensemaking in crisis situations'', *Journal of Management Studies*, Vol. 25 No. 4, pp. 305-317.

Weick, K.E. (1993), ''The collapse of sensemaking in organizations: the Mann Gulch disaster'', *Administrative Science Quarterly*, Vol. 38 No. 4, pp. 628-652.

Weick, K.E. (1995), *Sensemaking in Organizations*, Sage Publications, Thousand Oaks, CA.

Weick, K.E. and Roberts, K.H. (1993), ''Collective mind in organizations: heedful interrelating on flight decks'', *Administrative Science Quarterly*, Vol. 38 No. 3, pp. 357-381.

Westley, F. (1990), ''Middle managers and strategy: the microdynamics of inclusion'', *Strategic Management Journal*, Vol. 11 No. 5, pp. 337-351.

Westphal, J.D. (1998), ''Board games: how CEOs adapt to increases in structural board independence from management'', *Administrative Science Quarterly*, Vol. 43 No. 3, pp. 511-537.

Westphal, J.D. (1999), ''Collaboration in the boardroom: behavioral and performance consequences of CEO-board social ties'', *Academy of Management Journal*, Vol. 42 No. 1, pp. 7-24.

Westphal, J.D. and Bednar, M.K. (2005), ''Pluralistic Ignorance in corporate boards and firms' strategic persistence in response to low firm performance'', *Administrative Science Quarterly*, Vol. 50 No. 2, pp. 262-298.

Westphal, J.D. and Khanna, P. (2003), ''Keeping directors in line: social distancing as a control mechanism in the corporate elite'', *Administrative Science Quarterly*, Vol. 48 No. 3, pp. 361-398.

Westphal, J.D. and Zajac, E.J. (1995), ''Who shall govern? CEO/board power, demographic similarity and new director selection'', *Administrative Science Quarterly*, Vol. 40 No. 1, pp. 60-83.

Westphal, J.D. and Zajac, E.J. (1997), ''Defections from the inner circle: social exchange, reciprocity and the diffusion of board independence in US corporations'', *Administrative Science Quarterly*, Vol. 42 No. 1, pp. 161-183.

Wright, C.R. and Manning, M.R. (2004), ''Resourceful sensemaking in an administrative group'', *Journal of Management Studies*, Vol. 41 No. 4, pp. 623-643.

Zaccaro, S.J. and Klimoski, R. (2002), ''The interface of leadership and team processes'', *Group and Organization Management*, Vol. 27 No. 1, pp. 4-13.

Zahra, S.A. (1990), ''Increasing the board's involvement in strategy'', *Long Range Planning*, Vol. 23 No. 6, pp. 109-117.

Zahra, S.A. and Pearce, J.A. II (1989), ''Boards of directors and corporate financial performance: a review and integrative model'', *Journal of Management*, Vol. 15 No. 2, pp. 291-334.

Zahra, S.A. and Pearce, J.A. II (1990), ''Determinants of board directors' strategic involvement'', *European Management Journal*, Vol. 8 No. 2, pp. 164-173.

Zajac, E.J. and Westphal, J.D. (1994), ''The costs and benefits of managerial incentives and monitoring in large US corporations: when is more not better?'', *Strategic Management Journal*, Vol. 15 No. 1, pp. 121-142.

Further reading

Boyd, B.K. (1994), ''Board control and CEO compensation'', *Strategic Management Journal*, Vol. 15 No. 5, pp. 335-344.

Dalton, D.R. and Dalton, C.M. (2011), ''Integration of micro and macro studies in governance research: CEO duality, board composition and financial performance'', *Journal of Management*, Vol. 37 No. 2, pp. 404-411.

Francis, D. and Young, D. (1992), *Improving Work Groups*, 2nd ed., Pfeiffer, San Diego, CA.

Gibson, C.B. (2001), ''From knowledge accumulation to accommodation: cycles of collective cognition in work groups'', *Journal of Organizational Behavior*, Vol. 22 No. 2, pp. 121-134.

Levesque, L.L., Wilson, J.M. and Wholey, D.R. (2001), ''Cognitive divergence and shared mental models in software development project teams'', *Journal of Organizational Behavior*, Vol. 22 No. 2, pp. 135-144.

McCain, B.E., O'Reilly, C. and Pfeffer, J. (1983), ''The effects of departmental demography on turnover: the case of a university'', *Academy of Management Journal*, Vol. 26 No. 4, pp. 626-641.

Tubbs, S.L. (1998), *A System Approach to Small Group Interaction*, 6th ed., McGraw-Hill, Boston, MA.

Zajac, E.J. and Westphal, J.D. (1996a), ''Director reputation, CEO-board power and the dynamics of board interlocks'', *Administrative Science Quarterly*, Vol. 41 No. 3, pp. 507-529.

Zajac, E.J. and Westphal, J.D. (1996b), ''Who shall succeed? How CEO/board preferences and power affect the choice of new CEOs'', *Academy of Management Journal*, Vol. 39 No. 1, pp. 64-90.

About the author

Sujit Sur is an Assistant Professor at Dalhousie University, Halifax, Canada. His research focuses on corporate ownership and international governance, reputation and their implication for firm performance including sustainability related initiatives. Sujit's research is published in *Journal of Management and Governance*, as well as in the proceedings of *European Group for Organizational Studies*, *Administrative Sciences Association of Canada*, and *Eastern Academy of Management*, and presented at Academy of Management, Strategic Management Society and Decision Sciences Institute annual meetings. Sujit has also authored book chapters in *Managing Climate Change Business Risks and Consequences: Leadership for Global Sustainability* and *Encyclopédie de la stratégie*, as well as coauthored a book chapter in *Management through Collaboration: Teaming in a Networked World*. Sujit Sur can be contacted at: sujitsur@dal.ca

This article has been cited by:

1. Sajjad Haider King Abdulaziz University, Jeddah, Saudi Arabia Francesca Mariotti King Abdulaziz University, Jeddah, Saudi Arabia . 2016. Unfolding critical events and strategic decisions: the role of spatial and temporal cognition. *Management Decision* **54**:7, 1813-1842. [Abstract] [Full Text] [PDF]
2. RebeizKarim S. Karim S. Rebeiz Karim S. Rebeiz is Associate Professor at the Olayan School of Business, American University of Beirut, Beirut, Lebanon. He received his PhD from the University of Texas at Austin, his MBA from Harvard Business School, his MS from the University of Texas at Austin and his BE from the American University of Beirut. He is currently an Associate Professor in the Olayan School of Business at the American University of Beirut. Prior to his current position, he was a Financial Manager at Ford Motor Company in Dearborn, Michigan. He also assumed managerial position at JP Morgan Chase/First USA Bank in New York and Delaware. His area of expertise is corporate governance, corporate performance and the board of directors. Olayan School of Business, American University of Beirut, Beirut, Lebanon . 2016. Design guidelines for boardroom's effectiveness: the case of Fortune 500 firms. *Corporate Governance: The international journal of business in society* **16**:3, 490-506. [Abstract] [Full Text] [PDF]
3. Jukka-Pekka Bergman School of Business and Management, Lappeenranta University of Technology, Lappeenranta, Finland Antti Knutas School of Engineering Science, Lappeenranta University of Technology, Lappeenranta, Finland Pasi Luukka School of Business and Management, Lappeenranta University of Technology, Lappeenranta, Finland Ari Jantunen School of Business and Management; Lappeenranta University of Technology; Lappeenranta; Finland Anssi Tarkiainen School of Business and Management, Lappeenranta University of Technology, Lappeenranta, Finland Aleksander Karlik Department of Economics and Management of Enterprises, Saint Petersburg State University of Economics, St. Petersburg, Russia Vladimir Platonov Department of Economics and Management of Enterprises, Saint Petersburg State University of Economics, St. Petersburg, Russia . 2016. Strategic interpretation on sustainability issues – eliciting cognitive maps of boards of directors. *Corporate Governance: The international journal of business in society* **16**:1, 162-186. [Abstract] [Full Text] [PDF]