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DETERMINANTS AND CONSEQUENCES OF BOARD SIZE:**CONDITIONAL INDIRECT EFFECTS**

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Determinants and consequences of board size: conditional indirect effects

Abstract

This paper uses the resource dependency theory, agency theory and contingency theory to propose indirect effects of organization size on organizational performance via board size, conditional on industry. Specifically, it proposes the following: a positive relationship between organization size and board size; a positive relationship between board size and organizational performance; the moderating effect of industry on the organization size–board size and board size–organizational performance relationships; the indirect effect between organization size and organizational performance via board size; and this indirect effect is conditional on industry. The paper contributes to the field of corporate governance by theorizing the determinants and consequences of board size, leading to a more precise assessment of the board's performance.

Keywords Board size, Industry, Organization size, Performance

Track: Corporate Governance

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Introduction

Given the significance of board size as a dimension of corporate governance, a body of literature has investigated the determinants and consequences of board size, with more interest shown in the latter (see meta analysis Dalton, Daily, Johnson and Ellstrand, 1999) . The determinants studied include organization size, organization age, growth opportunities, growth, diversification and firm complexity (e.g. Boone, Field, Karpoff and Raheja, 2007; Coles, Danielb and Naveen, 2008; Lehn, Patro and Zhao, 2009; Linck, Netter and Yang, 2008). The consequences studied include corporate reputation (Musteen, Datta and Kemmerer, 2010) and environmental reporting (Rao, Tilt and Lester, 2012), but predominantly focus on organizational performance using measures such as accounting-based and market-based financial performance measures (e.g. Adams, Mansi and Nishikawa, 2009; Adams and Mehran, 2012; Kim, Cha, Cichy, Kim and Tkach, 2012). This body of literature provides conflicting findings: positive impact on performance (e.g. Adams and Mehran, 2012; Kiel and Nicholson, 2003; Kim et al., 2012; Sahu and Manna, 2013), negative impact on performance (e.g. Adams et al., 2009; Bai, 2013; Cheng, 2008; Kumar and Singh, 2013; Liang, Xu and Jiraporn, 2013), U-shaped impact on performance (e.g. Coles et al., 2008) and inverted U-shaped impact on performance (e.g. Hartarska and Nadolnyak, 2012). Inconclusive findings have encouraged tests of moderating effects on the board size–organizational performance relationship. Some of the moderating variables studied are: organization size (O’Connell and Cramer, 2010), complexity/advising needs (Coles et al., 2008), for-profit/not-for-profit status (Bai, 2013), organizational form (Adams et al., 2009), politically-connected directors (Menozzi, Gutiérrez Urriaga and Vannoni, 2012), pre-global financial crisis/post-global financial crisis, and market power (Pathan and Faff, 2013).

This study presents the following predictions: a positive relationship between organization size and board size; a positive relationship between board size and organizational performance based on the resource dependency theory (Pfeffer, 1972) and agency theory (Eisenhardt, 1989); the moderating effect of industry on the organization size–board size and board size–organizational performance relationships based on contingency theory (Galbraith, 1973); the indirect effect between organization size and organizational performance via board size; and the indirect effect between organization size and organizational performance is conditional on industry (see Figure 1).

<Insert Figure 1 approx here>

Theories and hypotheses development

Organization size and board size

The responsibilities of a board of directors include: selecting a CEO; advising on the development and implementation of corporate strategic plans; monitoring top management’s running of the corporation; regularly assessing the backgrounds, skills and abilities of its members as part of succession planning; and engaging with shareholders and other stakeholders (Business Roundtable, 2012). Advising and monitoring are perhaps the two most important functions (Business Roundtable, 2012; Linck et al., 2008).

Advising involves helping the organization’s top management team in establishing goals and developing strategies (Department of Social Services, 2010). As an organization grows, the complexities of its various functions increase exponentially. These large and complex

organizations need a more hierarchical structure (Fama and Jensen, 1983). The increased complexities also require a larger board with members having expertise and knowledge in various areas (Coles et al., 2008; Linck et al., 2008). A large board can handle and process the huge amount and depth of information on the complex operations (Boone et al., 2007). Moreover, large organizations engage in sophisticated technologies, mergers and acquisitions (Lehn et al., 2009).

Monitoring is about overseeing shareholders' interests by making sure that the top management team and other managers are implementing the strategies and leading the organization in the right direction to achieve set goals (Business Roundtable, 2012). It also requires boards to ensure that management is refining the strategies and implementing them successfully. As organizations grow, the board's monitoring role also becomes more complex and difficult due to the diversification, scale and scope of operations. The geographical dispersion, products/services diversification and the huge financial stakes involved require a large board to perform the monitoring role. Thus, it is proposed:

Hypothesis 1. Organization size is positively associated with board size.

Moderating effect of industry on the organization size–board size relationship

Organization size determines the board size due to the complexities involved in governing a large organization. However, industry adds to some of those complexities and may moderate the strength of the positive organization size–board size relationship. Due to several push factors (need for a large board) and pull factors (value in a large board), manufacturing organizations have larger boards than services organizations.

Manufacturing and services organizations diverge on a number of factors, such as the degree of direct involvement of customers in the production and delivery of products/services, and the customization of products/services (Jiang, 2009; Schmenner, 1986). Manufacturing organizations also tend to have high levels of the following complexities: logistical, technological, organizational and environmental (Khurana, 2014). One of the most significant challenges facing manufacturing organizations is to deal with these complexities (Humphlett, 2014); a large board can help with this. For instance, a large board can bring high levels of social capital that can help manage the environmental complexities and provide valuable connections to procure materials, improving logistics (Pfeffer, 1972). Similarly, a large board can help tighten the monitoring of a manufacturing organization's complex and diverse operations (Fama and Jensen, 1983). Moreover, the optimal board size is a trade-off between the costs and benefits associated with the size of the board which may vary across industries (Lehn et al., 2009). The costs of a large board include 'free-riding' and coordinating its decision-making process. The benefits include a variety of perspectives, additional information and insights. This paper argues that manufacturing organizations' complexities allow them to benefit more from additional board members than services organizations. For instance, increasingly manufacturing organizations rely more on outsourcing than vertical integration (Sissons, 2011). A large board can provide valuable contacts with prospective efficient suppliers. Thus, the benefits of a large board outweigh its costs in a manufacturing organization, whereas in a services organization, the board size where the benefits offset the costs might be reached at a lower level. Thus, it is proposed:

Hypothesis 2. Industry moderates the strength of the positive relationship between organization size and board size such that the positive relationship is stronger in the manufacturing industry than in the services industry.

Board size and organizational performance

Resource dependency theory suggests that organizations depend on external actors in their environment for resources necessary for their survival and growth (Pfeffer, 1972). The level of dependency is conditional on the extent of the need for resources (e.g. specific raw material) and the number of sources of resources (i.e. single supplier or multiple suppliers) (Thompson, 1967). Organizations manage their environment to secure resources (e.g. their directors sit on the boards of supplier organizations called interlocking directorates) or reduce dependency on external actors (e.g. through vertical integration). The strategic nature of boards makes them suitable to connect with the environment (Pfeffer and Salancik, 1978). A large board can help the organization through board members' connections with external actors in the environment such as suppliers and business customers (Pfeffer, 1972). Through interlocking directorates, board members can provide valuable advice to management to secure important contracts. Large boards are more likely to have more interlocking directorates; thus in comparison to small boards, large boards are likely to perform the advising role in a better way (Dalton et al., 1999).

Agency theory suggests that there is an inherent conflict of interest between the principal (shareholders) and agents (management) (Eisenhardt, 1989). While shareholders want to maximize their returns, management may be more interested in their own gains. Therefore, board members need to play the important role of monitoring the behaviours of management leading to the attainment of objectives set in the strategic planning process. A large board is likely to perform the monitoring role in an effective manner as more directors will be involved in this process (Kiel and Nicholson, 2003). Boards can operate by forming various committees based on the expertise of the board members. These committees can include governance committee, audit committee, nomination committee, remuneration committee, compliance committee, and risk committee (Corporate Governance Council, 2014). Therefore, a large board with directors having a range of expertise would help perform the various complicated roles in a more efficient manner than a smaller board doing all the work as one group. Thus, it is proposed:

Hypothesis 3. Board size is positively associated with organizational performance.

Moderating effect of industry on the board size–organizational performance relationship

The strength of the positive board size–organizational performance relationship is contingent on the industry. A large board should add more value in manufacturing organizations than in services organizations due to the inherent complexities involved in a manufacturing organization. Large boards can help deal with the complexities of logistics, technology, organization and environment in manufacturing organizations (Khurana, 2014). For instance, a large board comprising industry experts, former CEOs of competitors, customers or supplier organizations, and interlocking directorates can help improve the complex supply chains which are vital in a manufacturing organization (Humphlett, 2014). Similarly, the interconnected, yet somewhat

independent, and geographically-dispersed operations based on various technologies add to the technological complexities in manufacturing organizations. These complex technologies, along with the increasingly more common global value chain and greater proportions of knowledge-intensive input (Sissons, 2011), require multiple directors with know-how of those technologies and the global value chain. Moreover, manufacturing organizations perceive greater changes in their environment than services organizations (Rant, 2007). A large board with a diverse set of experiences in dealing with environmental factors might help manufacturing organizations to deal with those environmental changes.

Compared to small boards, large boards perform the advising and monitoring roles in a more effective manner (see theoretical arguments leading to Hypothesis 3). These effective advising and monitoring functions should have a larger impact on organizational performance in manufacturing organizations than in services organizations. For instance, manufacturing organizations develop strategies and restructure their organizations to introduce innovations, compared to services organizations that tend to do this less formally (Ettlie and Rosenthal, 2011). Proper advising from a large board in a manufacturing organization is especially important in these cases. Similarly, the benefits of tighter monitoring by a large board of a manufacturing organization outweigh the costs of such monitoring (Fama and Jensen, 1983); this happens in services organizations as well, but the net positive effect (benefits minus costs) of such tighter monitoring might be smaller in services organizations. Therefore, a manufacturing organization, due to its complexities, will benefit more from a large board than a services organization with a similar-sized board. Thus, it is proposed:

Hypothesis 4. Industry moderates the positive relationship between board size and organizational performance such that the positive relationship is stronger in the manufacturing industry than in the services industry.

Indirect effects between organization size and performance

Organization size may have a positive impact on organizational performance. Large organizations benefit from economies of scale (Katrishen and Scordis, 1998). They may influence their environment and thus may be able to reduce their dependency on it (Starbuck, 1965). Some of that effect might be enacted through a larger board with greater levels of connections with the organizations in its environment. Based on the arguments presented for a positive relationship between organization size and board size (Hypothesis 1), and a positive relationship between board size and organizational performance (Hypothesis 3), it is proposed that there is an indirect relationship between organization size and organizational performance via board size. No prior research has tested this indirect relationship. Thus, it is proposed:

Hypothesis 5. Board size mediates the positive relationship between organization size and organizational performance.

Conditional indirect effects between organization size and performance

Based on the preceding arguments regarding a positive indirect effect of organization size on organizational performance via board size (Hypothesis 5), and the moderating effects of industry

on the organization size–board size relationship (Hypothesis 2) and the board size–organizational performance relationship (Hypothesis 4), the positive indirect effect of organization size on organizational performance (via board size) will be conditional on industry. The positive indirect effect will be stronger in the manufacturing industry than in the services industry. No prior research has tested such a conditional indirect relationship. Thus, it is proposed:

Hypothesis 6. Industry moderates the indirect positive relationship between organization size and organizational performance via board size such that the positive indirect effects are stronger in the manufacturing industry than in the services industry.

Discussion

This paper has several theoretical, research, practice and policy implications. First, the arguments put forward for the mediating effects of board size in the organization size-organizational performance relationship provide new insights into how organization size affects the performance of an organization. Similarly, the proposed moderating effects of industry on the organization size–board size and board size–performance relationships can help refine theories. These refined theories may predict differences across industries. A qualitative study focusing on how boards function differently in the two industries could provide valuable insights into the theoretical framework. Second, the conditional indirect effects model presented in this paper may generate a stream of research investigating such conditional indirect effects models between organization size and performance. The research in this direction may incorporate additional mediators (e.g. top management team) and moderators (e.g. organization life cycle stage, interlocking directorates, and corporate regulations). The research in this direction can also benefit from including second stage parallel mediators between board size and performance such as advising and monitoring.

Third, future research on these conditional indirect effects models can provide some support for the resource dependency theory (Pfeffer, 1972) and agency theory (Eisenhardt, 1989). The current paper focused on the two ends of the continuum: board size and organizational performance. Direct support for the resource dependency theory would include the intervening processes such as directors' social and business networks and how they help secure important resources or manage the environment. Similarly, direct support for agency theory would require demonstrating how a large board can be effective in monitoring a firm's management. A test of the moderating effects of industry can may provide some support for contingency theory (Galbraith, 1973). Fourth, the proposed indirect effects model suggests that the nomination committee should consider organization size to determine the optimal size of its board. While a growing organization would need a larger board, this paper indicates that these requirements vary across industries. Thus, this paper provides theoretical arguments for the ASX Corporate Governance Council's second principle regarding the size of the board appropriate for its effective functioning (Australian Securities Exchange, 2012). Not all best governance practices are predicted by theories and supported by empirical evidence (Dalton & Dalton, 2005). Research indicates that organizations that follow more ASX Corporate Governance Council's principles outperform their counterparts (Brown & Gørgens, 2009).

Fifth, in following the recommendation regarding periodically evaluating the performance of a board (Corporate Governance Council, 2014), directors should take into account the effect of board size and industry. Considering these will provide a more precise assessment of the board's performance in a particular industry. Focusing on performance is one of the features of good corporate governance (Department of Social Services, 2010). Sixth, a policy implication of this model is that Australia should continue to introduce industry-specific regulations (Lawrence & Stapledon, 1999) and make the ASX Corporate Governance Council's principles more industry-based (Australian Securities Exchange, 2012). The conditional indirect effects model of this paper provides a more comprehensive analysis of the determinants and effects of board size, directors to see the bigger picture and the connections between various elements.

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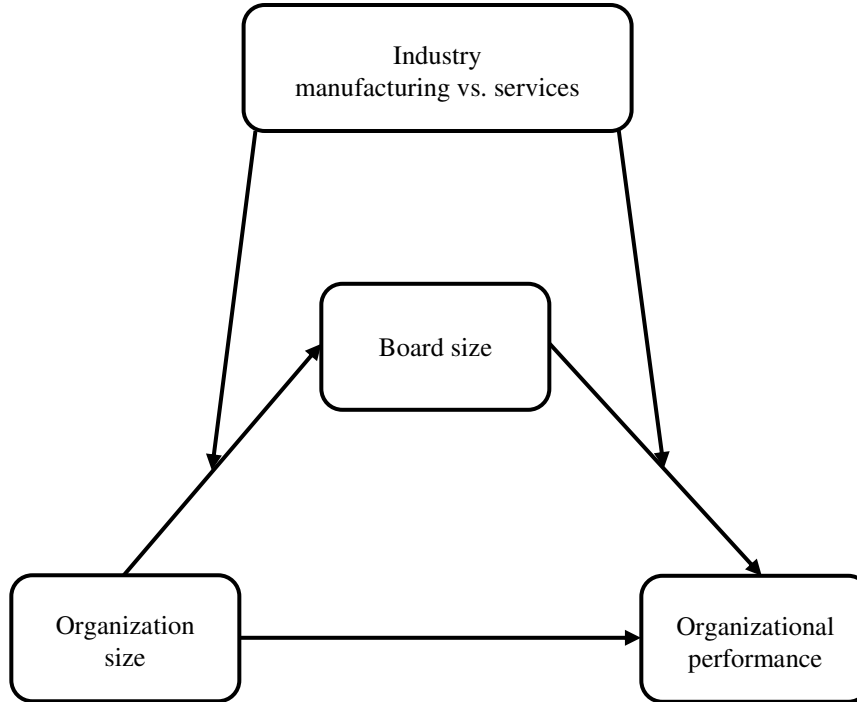


Figure 1 Research framework