

Board Heterogeneity, Corporate Diversification and Firm Performance

Kong-Hee Kim and Abdul A. Rasheed

Abstract

While board heterogeneity would lead to higher decision quality due to the interaction of multiple perspectives, experiences, and behaviors, heterogeneity can also result in inefficiencies in board's strategic decision-making processes. Our empirical investigation using a sample of 313 Fortune 1000 firms reveals that task-related heterogeneity in board tenure and functional experience contribute to firm performance as corporations are engaged in higher levels of unrelated diversification. Other non-task-related heterogeneity dimensions such as age and educational background have little impact on firm performance in the strategic context of unrelated diversification. The results emphasize the importance of fit between board heterogeneity and strategic context of the corporation.

Keywords: Board Heterogeneity, Demographic Composition, Corporate Diversification

INTRODUCTION

There has been growing pressure for boards of directors to become more active contributors for corporate strategic performance (Daily, Dalton and Cannella, 2003; Hillman and Dalziel, 2003; Carpenter and Westphal, 2001; Weber, Crockett, Arndt, Grow and Byrnes, 2005). Boards of directors as a pivotal entity at the apex of corporations, together with top management teams (TMTs), typically approve or disapprove strategic initiatives pertaining to corporate reorganizations, such as mergers and acquisitions, and reorganizations of subsidiaries (Schultz, 2000). Corporate boards are required to review and control

important strategic levers, such as corporate risk levels (e.g., short and long-term debt), corporate partnering, investment of cash, and sales of major corporate assets. Despite the growing body of research focusing on board's contribution to strategy, our knowledge on the determinants of boards' strategy roles still remains limited (Deutsch, 2005; Tuggle, Schnatterly and Johnson, 2010). A growing stream in board research has focused on board compositional characteristics and processes that enhance board's ability in providing advice and counsel in corporate strategic management (Carter, Simkins and Simpson, 2003; Charan, 1998; Tuggle et al., 2010).

Research on the relationship between demographic diversity and group performance is characterized by theoretical pluralism (Pelled, Eisenhardt and Xin, 1999; Cannella, Park and Lee, 2008; Bunderson, 2003; Carpenter, Geletkanycz and Sanders, 2004; Finkelstein and Hambrick, 1996). Variation in team members' cognitive and knowledge structures is expected to lead to a wider range of information, experience, expertise, and cognitive decision-making behaviors, which, in turn, can enhance a group's ability for quality decision making (Watson, Kumar and Michaelson, 1993; West and Schwenk, 1996).

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On the other hand, it has also been argued that heterogeneity in a team can protract decision making due to internal process inefficiencies (Cannella et al., 2008; Jackson and Joshi, 2002; Li and Hambrick, 2005; Smith, Smith, Olian, Sims, O'Bannon and Scully, 1994). Previous researchers on TMT diversity have suggested that factors such as the external environmental dimensions (Cannella et al., 2008; Carpenter, 2002) and group process (Cannella and Holcomb, 2005; Tuggle et al., 2010; Rico, Molleman, Sanchez-Manzanares and Van der Veg, 2007) should be taken into consideration to develop an understanding of the relationship between TMT diversity and firm performance. For example, studies focusing on the moderating effect of external environment found that the effects of top management team (TMT) members' functional diversity become more positive as environmental uncertainty (Cannella et al., 2008) and complexity (Carpenter, 2002) increases. Although a number of studies have examined these dueling perspectives (Kilduff, Angelmar and Mehra, 2000; Cho and Hambrick, 2006; Carpenter, 2002), to date little empirical research has been devoted to the implications of board heterogeneity for board's effectiveness in strategy role and subsequent corporate performance. We know very little about whether heterogeneity in the boardroom has implications for corporate performance or whether such a relationship may be more pronounced in certain strategic contexts than in others.

Thus, our objective in this research is to examine the relationship between board heterogeneity composition and firm performance in the context of corporate unrelated diversification. Diversification decisions are critical initiatives that involve large-scale resource commitments with major implications for firm performance. We chose the strategic decision context because successful formulation and implementation of unrelated diversification strategies require a breath of information, knowledge, and industry experiences for identifying and realizing emerging opportunities in different industries. Value creation via unrelated diversification is contingent in part upon the board's abilities for advising top management team including the CEO, given the informational and

environmental complexity involved in corporate unrelated diversification strategies. The boards of directors of unrelated diversified firms must be capable of advising and effectively counseling top management concerning the more heterogeneous environments and more complex strategic issues than atypical single-business firm faces.

Therefore, we posit that the implications of board heterogeneity are not universal, but contingent on the strategic decision context. Corporations will benefit from board heterogeneity when there is an appropriate alignment between board-level diversity and decision context. That is, the benefits of board heterogeneity would be more salient in the informational setting of unrelated diversification than in relatively simple contexts or settings that require specialized knowledge in narrowly defined settings as in the case of single business firms or even related diversifiers. We believe that our research focusing on the relationship between board heterogeneity and performance of unrelated diversified firms can provide important insights regarding the context specificity of the board heterogeneity — firm performance relationship. Such insights, in turn, can allow scholars to build and test mid-range theories (Harrigan, 1983; Bamberger, 2008) that ultimately can lead to context theories that can reduce the ambiguity associated with the implications of board heterogeneity.

THEORY AND HYPOTHESES

Practitioners and strategy scholars have long grappled with a central question: should a firm remain in a single business segment, or instead diversify by expanding into other product or market segments? A firm's diversification strategy represents an adaptive response to environmental changes. Diversification strategy is the result of a firm's decision to realize business opportunities in related or unrelated industries by leveraging the financial, physical, and intangible resources that the firm possesses. The pursuit of growth and profit opportunities leads firms to different diversification options. Some companies choose to enter related business arenas in terms of value chain activities (related diversifiers); other firms proactively seek

business opportunities in distinctively different product markets (conglomerate or unrelated diversifiers); while others choose to focus on their areas of core competence (focused strategy). Even managers of already-diversified firms are faced with the on-going diversification decisions of whether to become more or less diversified and more or less related. Thus, diversification decisions are complex and often ongoing.

An unrelated diversification strategy represents a conscious proactive domain expansion into unrelated product markets. Decisions to enter such unrelated product areas, and subsequent efforts to manage the resulting product/market diversity, are characterized by informational diversity and complexity, and by a need for comprehensiveness across multiple potential product markets. Related diversification may accentuate the potential for synergies from economies of scope and skill transfer than does unrelated diversification. In such situations, a more cognitively homogeneous board that is focused on a particular industry context is likely to be able to offer the requisite advice and counsel. The decision-making process in unrelated diversified firms involves wide-ranging informational activities that include: the assessment of opportunities in markets new to the firm, the prediction of changes in multiple markets, and the assessment of resource availabilities for entering relatively unfamiliar markets to the focal firm. Purely unrelated diversified firms pursuing conglomerate diversification have little need for interdivisional coordination; there are few linkages and only pooled interdependencies among divisions. Instead, successful managers of conglomerate diversifiers must be attuned to changes occurring in many diverse industry environments.

Boards of directors are expected to closely examine corporate diversification initiatives because of the crucial implications for firm scope, risk and performance. Executives pursuing firm growth through diversification often see their boards of directors as important advisory and informational resources (Arendt, Priem and Ndofor, 2005; McDonald, Westphal and Graebner, 2008). Thus,

diversification choices, implementation, and performance outcomes can be considered the result of on-going processes of advice and consent by the board. In light of these mechanisms, a board's heterogeneity composition along with attributes relating to information, expertise, experience, and perspectives could be an important influence affecting the performance of diversified firms.

Previous researchers on group demography have emphasized various benefits that result from diversity composition (Jackson and Joshi, 2002; Wiersema and Bantel, 1992). Most of the benefits of group diversity are attributed to the cognitive and informational diversity that diverse members bring to the process of group decision making. In a group decision-making context, dissimilarity among group members' cognitive backgrounds enhances diversity in values, beliefs, attitudes, perspectives, knowledge, and information-processing behaviors, which is conducive to decision comprehensiveness (Milliken and Martins, 1996; Jackson, May and Whitney, 1995). For example, diversity in tenure, educational and functional backgrounds should increase the breadth of a group's cognitive perspectives, because individuals from different cognitive backgrounds provide diversity of knowledge, experience and information-processing behaviors, which leads to more alternatives, better evaluation of strategic options, and more accurate prediction of environmental changes (Finkelstein and Hambrick, 1996). Thus, diversity in directors' cognitive backgrounds provides an increased pool of information, skill sets, expertise, and perspectives (Conger, Lawler and Finegold, 2001; McNamara, Luce and Tompson, 2002). The combined pool of experience and knowledge is likely to be greater in heterogeneous boards than in homogeneous boards.

Diversity in cognitive behavior derived from diversity of group composition also stimulates constructive debate, which enhances creativity in problem solving while reducing narrow-mindedness. The dialectic tension among competing perspectives that is inherent in the decision-making processes of a heterogeneous

board contributes to strategic decision comprehensiveness regarding the assessment of different industries' market opportunities and potentials for competitive advantage (Amason, 1996; Brodbeck, Kerschreiter, Mojzisch and Schulz-Hardt, 2007). A variety of perspectives in group decision-making processes causes directors to evaluate more alternatives and more carefully explore the consequences of the strategic alternatives, which in turn leads to a more comprehensive scanning of market opportunities in different industries and better collective evaluation of diversification options.

Therefore, a heterogeneous board is especially helpful in the assessment of management proposals regarding wide-ranging opportunities for unrelated diversification. The need for diverse information, specialties, and perspectives would be highest for firms seeking multiple product markets. Given that individual cognitive schema such as organizational tenure, functional experience and educational background guide individual decision-makers' attention and filtering of information in environmental scanning (Ocasio, 1997; March and Simon, 1958), directors from diverse cognitive backgrounds and knowledge structures should be able to better identify and assess the opportunities emerging from different industry domains. On the other hand, more homogeneous boards are more likely to have experience that is focused on a particular industry or related industry sectors and thus may not be able to provide much help to managers of unrelated diversified firms. A strategy of unrelated diversification would be best served when board members have a correspondingly high level of diversity in their knowledge structures and exposures to different industry environments. Boards with members with heterogeneous cognitive backgrounds will be more open to new environmental stimuli and entrepreneurial issues, which should expand the scope of environmental scanning involved in unrelated diversification strategies.

Previous scholars on demography have suggested that demographic diversity can occur along a multitude of socio-cultural dimensions, such as

gender, ethnicity, nationality, career backgrounds, educational orientations, religious beliefs and organizational tenure. It is not surprising that researchers in different disciplines have employed various categorizations (Jackson, 1992; Jehn, 1995; Hambrick, 2007; Earley and Mosakowski, 2000; Barkema and Shvyrkov, 2007) and conceptualizations (cf. Harrison and Klein, 2007) of diversity. For example, Jackson et al. (1995) categorized various demographic attributes in terms of task-relatedness (e.g., organizational tenure, functional/career background, professional membership) versus relationship orientation (e.g., sex, race, and ethnicity). While there is no clearly agreed upon framework for categorizing various demographic attributes, we suggest that task-related demographic attributes would be most relevant for this study that examines the contribution of board diversity to strategic decision making. Thus, diversity attributes employed in this study include the cognitive attributes that comprise directors' task-related cognitive diversity (e.g., tenure and functional experience), and that have most salient impact on cognitive decision-making behavior (e.g., age and educational background).

Board Diversity in Task-related Experience: Variance in Tenure and Functional Experience

Degree of shared tenure in a board means longer time spent together, leading to greater socialization and consequently greater likelihood for developing shared frames of reference, experiences, and perspectives (Wiersema and Bantel, 1992). Industries have their own routines and recipes (Spender, 1989), and executives with long tenure in their industries tend to be rooted in their prior industry-specific knowledge structure (Geletkanycz and Hambrick, 1997). Board members from outside the industry of the focal firm are not embedded in those industry routines and are less inclined towards the status quo (Pfeffer, 1983). Therefore, they are likely to approach business models from different cognitive lenses and facilitate identification of entrepreneurial opportunities in different markets.

Thus, variance in tenure should foster diversity in

opinions, perspectives, and information, fostering creativity in problem solving and promoting openness to changes while minimizing groupthink (Cho and Hambrick, 2006). For example, a recent study found empirical evidence that board diversity in tenure and industry background are positively associated with a board's discussion of entrepreneurial issues (Tuggle et al., 2010). Variations in board members' tenure also increase the scope of external information analyzed and the access to networks from various industry sectors, because each director has previously served in different organizations in different industries. And board members' varied external contacts can be valuable sources of information for environmental sense-making and in developing and assessing a range of strategic alternatives (Mizruchi, 1996). For example, McDonald et al. (2008) provide empirical evidence that outside directors' expertise and prior experience in acquisition decision making has positive effects on the performance of a focal firm's acquisition. Therefore, we hypothesize that:

Hypothesis 1: *As unrelated diversification increases, increased board tenure diversity will be associated with higher levels of firm performance.*

Managers' functional experience plays a role in shaping individuals' cognitive bases in viewing the environment and approaching issues (Michel and Hambrick, 1992; Dearborn and Simon, 1958). That is, managers from similar functional experiences may possess similar viewpoints about business problems and opportunities and thus are more likely to select strategies compatible with their functional backgrounds (Waller, Huber and Glick, 1995; Chaganti and Sambharya, 1987). For instance, managers whose dominant functional background is output functions such as marketing and sales may attend primarily to market opportunities, whereas managers from throughput functions such as operation and accounting may emphasize operational efficiency (Hambrick, 1981). Directors with different functional backgrounds such as law, marketing, engineering, and government service can foster the heterogeneity of information, experience and viewpoints in boardroom discussions. This is why companies often recruit directors based on

their functional expertise and specialized knowledge, to reflect different functional areas and consumer groups (Michel and Hambrick, 1992).

Therefore, board members from different functional experience would contribute to the breadth of knowledge, experience, and specialty areas of the board, leading to rich and elaborated interpretation and assessment of market opportunities in distinctively different industries (Cho and Hambrick, 2006). Prior research also provides empirical evidence that environmental uncertainty moderates the relationship between TMT functional diversity and firm performance (Carpenter and Fredrickson, 2001). A board composed of directors from dissimilar functional backgrounds can bring diverse perspectives, specialties, and values to discussions. Functional heterogeneity in a board can enhance board's ability to attend to environmental changes, opportunities, and product-market issues, contributing to a more comprehensive assessment of market opportunities and issues (Cannella et al., 2008; Cho and Hambrick, 2006). Conversely, similarity in the functional backgrounds suggests a shared experience and an overlap in expert areas among directors, providing a disadvantage for complete evaluation of strategic alternatives (Keck, 1997).

Hypothesis 2: *As unrelated diversification increases, increased board functional background diversity will be associated with higher levels of firm performance.*

Board Diversity in Cognitive Behavior: Diversity in Age and Education

Previous researchers on group diversity suggested that cognitive diversity in a group has an impact on process and dynamics in group decision making (Jackson et al., 1995). Cognitive diversity drawn from board age diversity can reduce groupthink and help the board to be less committed to status quo and existing strategic inertia, and make the board more cognizant of diverse information about environmental changes and opportunities. Previous empirical research on the diversity-adaptability relationship showed that more heterogeneous top

management teams were more receptive to changes (Boeker, 1997; Wiersema and Bantel, 1992). For example, directors in different age groups provide cognitive diversity due to their exposures to different industry and business environments in differing time periods. Executives and directors in the same age group may share similar attitude and belief structures in work-related experiences (Wagner, Pfeffer and O'Reilly, 1984). Moreover, differences in top managers' ages also are expected to lead to diversity in decision-making styles and risk-taking behaviors (Hitt and Tyler, 1991; Barker and Mueller, 2002), which should also reduce biases in strategic information processing.

Hypothesis 3: *As unrelated diversification increases, increased board age diversity will be associated with higher levels of firm performance.*

Differences in educational background may also result in significant differences in knowledge structures and underlying attitudes in the decision-making process. Previous studies focusing on demography have related decision-maker's educational background to strategic orientations and preferences (Datta and Guthrie, 1994; Wiersema and Bantel, 1992). For example, firms following market innovation strategies had more CEOs with marketing or engineering educational backgrounds (Thomas, Litschert and Ramaswamy, 1991). Datta and Guthrie (1994) also found that higher levels of R&D spending were associated with CEOs from technical and science backgrounds. CEOs with business and law specializations were less inclined to pursue innovation strategy through R&D spending, and managers with science and engineering backgrounds were more likely to favor high levels of R&D spending (Tyler and Steensma, 1998).

Educational level is associated with a higher capacity for information processing (Schroder, Driver and Streufert, 1967), greater cognitive complexity (Hitt and Tyler, 1991; Wally and Baum, 1994), and a greater tolerance for ambiguity (Dollinger, 1984). Hambrick and Mason (1984) mentioned that advanced education indicates a preference for administrative complexity. Hitt and Tyler (1991) suggest that greater cognitive complexity provides

greater ability to absorb new ideas and knowledge, thus increasing the tendency to be more receptive to new ideas. Thus, the cumulative evidence of prior research suggests that diversity in cognitive behavior derived from diversity in educational orientations and levels cause the board to be more cognizant of new business ideas in different industries while at the same time reducing strategic inertia of the firm, contributing to the performance of unrelated diversified firms.

Hypothesis 4: *As unrelated diversification increases, increased board educational background diversity will be associated with higher levels of firm performance.*

Hypothesis 5: *As unrelated diversification increases, increased board education level diversity will be associated with higher levels of firm performance.*

METHODS

The sample for this study was randomly drawn from the Fortune 1000 list for the year of 2002. A majority of these firms engage in some level of diversification into related and unrelated industries. Moreover, the setting of Fortune 1000 firms provides a variety of industry structures, firm sizes, competitive strategies, and board composition structures, which potentially increases generalizability of the study's results. In total, data from 313 firms were collected and used in the statistical analysis.

Prior research on group diversity has primarily relied on the homogeneity-heterogeneity dimension for measuring categorical variables in group diversity (Polzer, Milton and Swann, 2002; Ancona and Caldwell, 1992; Jehn, Northcraft and Neale, 1999). Demographic homogeneity, defined as "an aggregate level of interpersonal similarity along one or several dimensions among board members" (Murray, 1989), contributes to the development of common schemata and similar frames of reference, providing a common premise for strategic decision making (Gupta and Govindarajan, 1984). The homogeneity-heterogeneity measure captures the compositional effects on group performance

(Pfeffer, 1983; Kosnik, 1990). For the categorical variables of educational level, educational specialty, and functional background, this study uses an entropy based index of heterogeneity (Blau, 1977). It is calculated as follows:

$$1 - \sum_{i=1}^N (P_i)^2$$

where P_i is the proportion of a group's individuals in the i^{th} category. This index ranges from 0 (absolute homogeneity) to 1 (absolute heterogeneity). Educational specialization, represented by the highest obtained university degree, is divided into five specializations: arts, sciences, engineering, business and economics, and law (Wiersema and Bantel, 1992). Educational level was measured in terms of the highest obtained degree and was coded as 1=below BS, 2=below MS, 3=below Ph.D, and 4=Ph.D. This study employs a trichotomous functional background measure of output, throughput, and peripheral functions, in which output functions included marketing and sales, throughput functions included operations, R&D, and engineering, and peripheral functions included law, finance, and accounting (Michel and Hambrick, 1992; Chaganti and Sambharya, 1987).

The continuous variables of board tenure and age were measured using the coefficient of variation, defined as the standard deviation divided by the mean (Allison, 1978; Pelled et al., 1999). Board tenure was measured by the length of time each board member had served in the current position. Larger coefficients imply greater heterogeneity. The logarithm of the heterogeneity measure is used to reflect the decreasing rate of the effect of dissimilarity (Wiersema and Bantel, 1992). Information on individual director's profile was obtained from companies' proxy statements filed with the Securities Exchange Commission (SEC). Where necessary, the data was also cross-validated against director information provided by Standard & Poor's Register of Corporations, Directors, and Executives.

We used the entropy measure of diversification (Jacquemin and Berry, 1979) to capture the degree of corporate unrelated diversification. The entropy

measure is a continuous measure based on Standard Industrial Classification (SIC) code, which potentially eliminates researchers' subjectivity in classifying industry domains and relatedness (Martin and Sayrak, 2003; Hall and John, 1994). We calculated *Unrelated diversification* (UD) as:

$$UD_T = \sum_{i=1}^n P_i \ln(1/P_i)$$

where P_i is the percentage of a firm's total sales in the i^{th} industry segment and n is the number of the firm's businesses. The unrelated diversification component is captured by the degree to which a firm's sales are allocated across unrelated (different two-digit SIC codes) industry segments (Hoskisson, Hitt, Johnson and Moesel, 1993; Clarke, Fee and Thomas, 2004). Diversification indices were computed using the line-of-business sales data for the year 2002 provided by the Compustat database. Larger values represent greater levels of unrelatedness among business lines. The dependent variable of *firm performance* was captured by the return on assets (ROA) for the year of 2002 using data from Standard & Poor's Compustat.

Several control variables were included in the empirical model to isolate the effects of the hypothesized variables on firm performance. *Firm size*, measured as the logarithm of total annual revenue, was included to control for the potential influence of scale economies on firm performance (Wan and Hoskisson, 2003). The annual revenue data were obtained from Compustat. We also controlled for the following governance variables which have been suggested previously as affecting firm performance. *Board* and *CEO equity ownership* were included to reflect the impact of managerial ownership on firm performance and were measured as the percentage of total common equity owned by directors and CEOs, respectively (Dalton, Daily, Certo and Roengpitya, 2003). Log transformation was applied to reduce heteroscedasticity in the ownership data (Kerlinger, 1973). *Board size* was used to control the potential impact of board size on firm performance and was measured as the logarithm of the number of directors on the board to capture the curvilinear effect of board size on a firm's performance (Pearce and Zahra, 1992). *Board*

independence was controlled using the independence-interdependence measure (Boeker, 1992). This measure defines independent directors as outside board members who are appointed prior to the current CEO. Directors who were appointed to the board prior to the current CEO are regarded as relatively more independent from the CEO. Board composition data were available from corporate annual proxy statements. We further controlled for degree of *ownership concentration* in a firm because presence of large blockholders on the board may enhance board's ability to control management, thus having a positive impact on firm performance. Ownership concentration ratio was calculated using the Herfindahl Index for the top five institutional investors in a firm (Hartzell and Starks, 2003). The data on institutional equity holdings were collected from the Mergent database.

We relied upon hierarchical ordinary least squares (OLS) regression analyses to test the moderating effects of board diversity on the relationship between unrelated diversification and firm performance (Cohen, Cohen, West and Aiken, 2003). Control variables were entered in the first hierarchical step. Next, the independent variables of unrelated diversification and board diversity dimensions were entered. All the two-way interaction terms were then entered in the final regression model. Coefficients and incremental variances explained by the two-way interaction terms were tested for significance.

RESULTS

Table 1 presents the means, standard deviations, and correlations for the variables used in our analysis. Sample firms have, on average, 10.9 directors on their boards (in total, 3433 directors were examined and their demographic attributes were coded). Examination of zero order correlation coefficients shows that unrelated diversification is negatively correlated with firm performance in our sample ($p < .01$). Board diversity in board tenure and educational background are positively correlated with firm performance ($p < .01$; $p < .05$, respectively).

Since interaction terms often create multicollinearity

among interaction terms and independent variables (Aiken and West, 1991), we applied scale transformation (mean centering) to the independent board demographic diversity variables when we tested for moderating effects. The statistical literature suggests that "rescaling by additive constants leads to changes in all regression coefficients, except for the highest order term", which is the interaction term and the focal research question in this study (Aiken and West, 1991). We also examined Studentized residuals and Cook's D values to check for outliers. However, no reason was found to remove any cases from the sample.

Previous researchers across disciplines have noted concerns associated with reciprocal causation in developing regression models and theories (e.g., endogeneity). We therefore checked the consistency of our regression models using Durbin-Wu-Hausman (DWH) test and 2 Stage Least Squares (2SLS) test (Greene, 2003; Baum, Schaffer and Stillman, 2003). For example, whereas we developed models testing the effects of board diversity and unrelated diversification on firm performance, increased firm performance (e.g., extra cash or profits) could reciprocally influence the firm to expand into unrelated business domains. In the DWH test (Davidson and Mackinnon, 1993), we first obtained the residual from the original model regressed on firm performance and the residual was then included as an independent variable in the second stage regression model regressed on the dependent variable of unrelated diversification. The results of the DWH test showed non-significance of this residual in the second regression model of the test, which indicates consistency or nonexistence of reciprocal causation in the original model. We also conducted a 2SLS test using an instrumental variable of one-year lagged unrelated diversification. The results of the 2SLS test also showed consistency in the coefficients and p-values between the OLS and 2SLS, which suggests little concern for endogeneity.

The result of the individual moderator analysis in Model 1 provides evidence that board tenure diversity has a significant positive moderating effect on the relationship between unrelated diversification

Table 1: Descriptive Statistics and Correlation Coefficients

	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12
1. Firm performance	2.98	9.08												
2. Tenure diversity	-0.21	0.31	.14*											
3. Age diversity	-0.90	0.13	.03	.06										
4. Functional diversity	0.52	0.12	.05	.07	.07									
5. Educational background diversity	0.58	0.11	.16**	.08	.05	.29***								
6. Educational level diversity	0.50	0.13	.05	.02	-.08	-.09	.23***							
7. Unrelated diversification	0.23	0.30	-.15**	-.02	-.10	.04	-.02	.02						
8. Firm size	13.69	22.16	.03	.02	-.18**	.12*	.08	.07	.24***					
9. Board equity ownership	0.06	0.19	-.07	-.05	.29***	-.02	-.03	-.02	-.11*	-.10				
10. CEO equity ownership	0.02	0.05	.07	.02	.22***	.09	-.11*	-.03	.08	-.04	.09			
11. Board size	10.96	2.81	.08	.11*	-.12*	.20***	.24***	.14*	.08	.30***	-.06	-.10		
12. Board independence	0.46	0.29	-.09	.26***	-.10	.06	.04	.01	.06	.01	.04	-.23***	.12*	
13. Ownership concentration	0.02	0.02	-.10	-.03	.11	-.03	-.06	-.01	-.07	-.08	.04	-.06	-.17**	.06

N = 313; * $p < .05$; ** $p < .01$; *** $p < .001$

Table 2: Regression Results: Board Diversity, Unrelated Diversification and Performance²

Variable	Control Variables	Baseline Model	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	-5.25 (5.51)	-7.02 (6.49)	-21.76 (10.36)*	-18.45 (10.50)†	-18.17 (10.13)†	-18.43 (10.50)†	-15.55 (10.21)	-20.96 (10.16)*
Firm size	.23 (.53)	.55 (.54)	1.03 (.79)	1.15 (.80)	1.16 (.79)	1.13 (.80)	.86 (.79)	1.10 (.77)
Board equity ownership	-2.49 (2.79)	-2.63 (2.83)	18.01 (10.31)†	10.11 (10.18)	10.91 (10.03)	10.03 (10.19)	7.40 (9.93)	17.57 (10.11)†
CEO equity ownership	.58 (.38)	.54 (.39)	.59 (.55)	.44 (.56)	.39 (.55)	.39 (.56)	.33 (.56)	.50 (.54)
Board size	11.50 (5.24)*	7.21 (5.32)	8.35 (8.18)	9.99 (8.32)	9.68 (8.18)	10.03 (8.32)	9.11 (8.35)	9.36 (8.02)
Board independence	-2.05 (1.91)	-2.79 (1.99)	-2.01 (2.63)	-2.81 (2.65)	-3.27 (2.61)	-3.11 (2.65)	-2.99 (2.66)	-2.41 (2.59)
Ownership concentration	.28 (.24)	.24 (.24)	.40 (.29)	.39 (.30)	.36 (.29)	.39 (.30)	.38 (.30)	.38 (.29)
Unrelated diversification		-4.67 (1.71)**	1.58 (2.65)	-8.72 (4.12)*	-12.21 (4.27)**	-8.79 (4.19)*	-6.72 (3.80)†	-8.12 (4.46)†
Tenure diversity		4.05 (1.71)*	15.44 (3.26)***	8.23 (2.36)**	8.67 (2.31)***	8.24 (2.36)**	8.51 (2.36)***	15.20 (3.20)***
Age diversity		.19 (4.29)	-5.70 (6.44)	-8.54 (6.75)	-5.73 (6.40)	-4.89 (6.54)	-4.37 (6.55)	-6.40 (6.33)
Functional diversity		-1.19 (4.47)	1.44 (6.32)	-2.04 (6.31)	6.83 (6.93)	-1.82 (6.31)	-1.56 (6.34)	10.12 (6.99)
Educational background diversity		10.02 (4.85)*	9.32 (6.95)	9.89 (7.05)	10.23 (6.92)	15.47 (7.31)*	11.07 (7.04)	8.13 (6.82)
Educational level diversity		.30 (4.09)	1.47 (6.20)	.97 (6.29)	2.61 (6.25)	1.39 (6.32)	3.84 (7.07)	4.08 (6.16)
Tenure diversity x Unrelated diversification			5.59 (1.93)**					5.46 (1.89)***
Age diversity x Unrelated diversification				-2.69 (1.38)†				
Functional diversity x Unrelated diversification					7.54 (2.73)**			7.24 (2.71)***
Educational background diversity x Unrelated diversification						4.52 (2.35)†		
Educational level diversity x Unrelated diversification							3.40(2.26)	
R ²	.04	.04	.19	.17	.19	.17	.15	.23
Adjusted R ²	.02	.02	.13	.10	.12	.10	.08	.16
F	2.03†	2.76**	2.84**	2.43**	2.75**	2.42**	2.18*	3.26***
ΔR ²			.04	.02	.04	.02	.01	.08
F for Δ R ²			8.38**	3.79†	7.61**	3.69†	2.26	7.94***

N = 313; † < .10; * $p < .05$; ** $p < .01$; *** $p < .001$

² Unstandardized coefficients are reported; the figures in parentheses are standard errors.

and firm performance, which was indicated by the significant R-square change and significant regression coefficient of the interaction term, thus supporting Hypothesis 1 (5.59; $p < .05$). The results show that tenure diversity in board membership contributes to the performance of unrelated diversified firms, thereby suggesting that board tenure diversity has a positive effect on the board's ability to contribute to firm performance in the case of unrelated diversified firms. Consistent with our prediction, as unrelated diversification increases, board tenure diversity contributes increasingly to firm performance in our sample.

Hypotheses 2 also receives strong support (7.54; $p < .05$). Diversity in boards' functional backgrounds moderates the relationship between unrelated diversification and firm performance. As a firm

diversifies into unrelated product markets, board functional diversity increasingly contributes to firm performance. The results show a significant positive effect for board functional diversity on the relationship between unrelated diversification and firm performance, supporting Hypothesis 2. Figures 1 and 2 show how the relationship between unrelated diversification and firm performance changes as a function of board tenure diversity and functional background diversity, respectively.

We next ran OLS regression analyses on the most extensive model that combines interaction terms. Collinearity diagnostics from our full model showed substantial multicollinearity among interaction terms in that model, except for the interactions of *tenure diversity* \times *unrelated diversification* and *functional diversity* \times *unrelated diversification*. These two interaction terms,

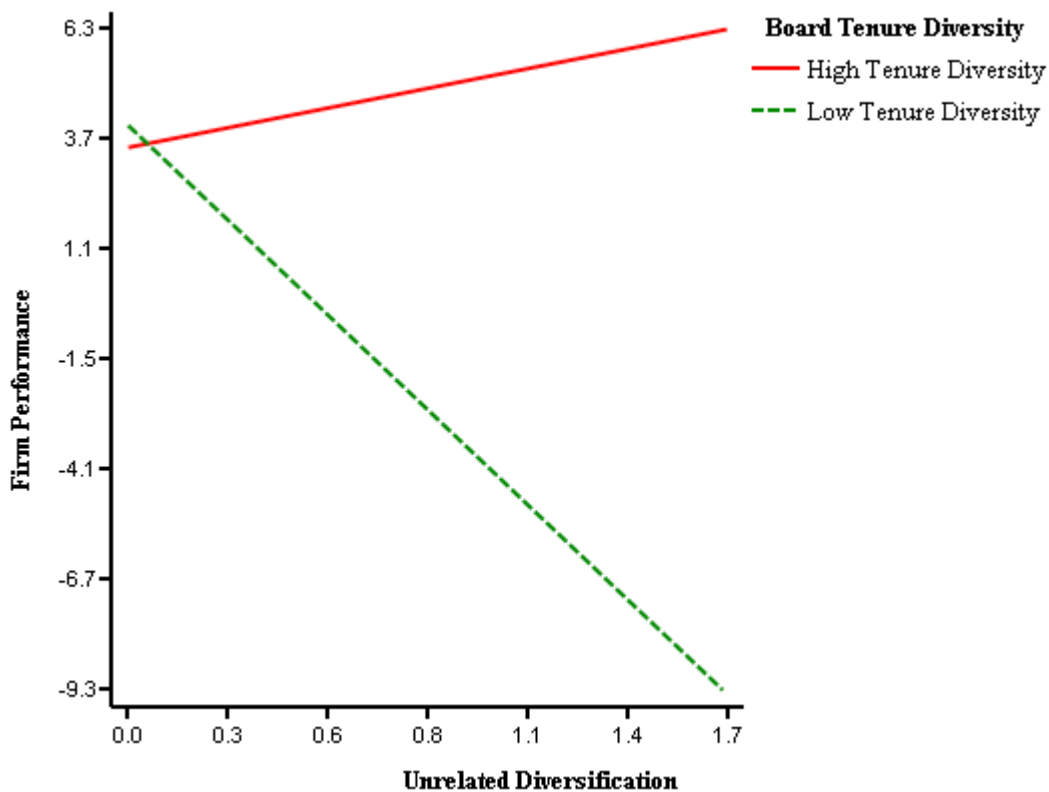


Figure 1: Effect of Board Tenure Diversity and Unrelated Diversification on Firm Performance

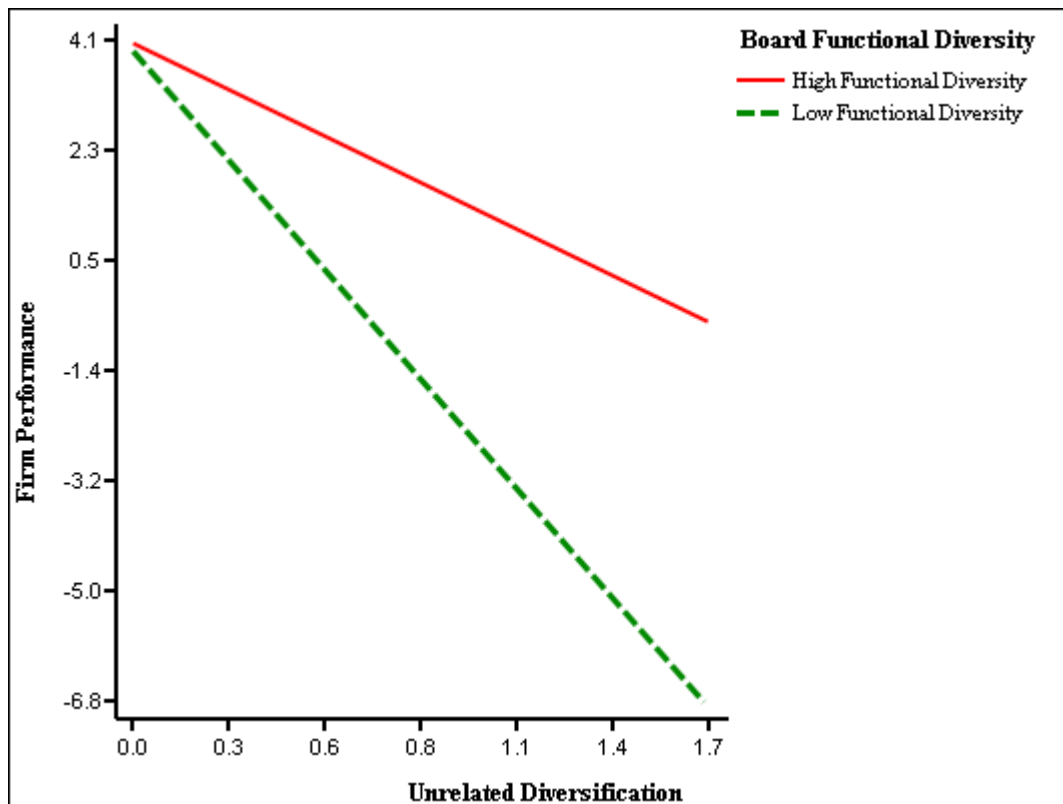


Figure 2: Effect of Board Functional Diversity and Unrelated Diversification on Firm Performance

therefore, were included in our final model, Model 6, and there was no indication of multicollinearity in this model; none of the VIFs approached the threshold value of 10 commonly used to detect potential multicollinearity (Neter, Kutner, Nachtsheim and Wasserman, 1996). This model again shows the expected moderating effects of board tenure diversity and board functional background diversity, providing further strong support for Hypothesis 1 and Hypothesis 2.

Hypothesis 3 which suggested a moderating impact of board age diversity received partial support, but interestingly, the coefficient of the interaction term suggests a negative impact of board age diversity on firm performance when the firm has a higher degree of conglomerate diversification (-2.69; $p < .10$). Our interpretation is that board member dissimilarities in age and the resulting potential for incompatibilities can hinder interaction and

communication in board processes, leading to lower decision quality and difficulties in strategy implementation (Wagner et al., 1984; Westphal and Zajac, 1995). Hypothesis 4 received partially significant support. The results show a partially significant, positive impact of board educational background diversity on the relationship between unrelated diversification and firm performance (4.52; $p < .10$). Board educational level diversity did not have a significant impact on firm performance of unrelated diversified firms (Hypothesis 5).

IMPLICATIONS AND FUTURE RESEARCH

Despite a growing recognition of the potential importance of board heterogeneity, there is as yet no clear consensus among scholars or practitioners about the implications of board heterogeneity for corporate strategic management and subsequent

firm performance. As our earlier literature review showed, the existing literature on team diversity suggests divergent implications for group performance. Jackson and Joshi (2002), for example, conclude that “as a consequence of the great variation in effects found across studies, researchers cannot be certain that they understand phenomena well enough to justify making prescriptive statements about how to effectively manage diversity.”

The major theme in our theory development was that the implication of board heterogeneity for firm performance is contingent on the informational context with which board members function. More specifically, the purpose of this study was to empirically examine if board heterogeneity contributes to firm performance when the strategic informational components necessary for quality decision-making are complex and diverse, which is the case when firms pursue conglomerate diversification strategies (i.e., extensive pursuit of unrelated business diversification). In other words, the value of board heterogeneity becomes more salient when there is an alignment between board heterogeneity and the decision-making context. Although homogeneity among board members may engender cohesion, consensus and conformity (Milliken and Martins, 1996), the benefits of board heterogeneity in firms with extensive diversification are greater than the costs of diversity.

Our results indicate that the performance effects of board heterogeneity are indeed contingent upon the diversification strategy of the firm. Specifically, for our sample of 313 Fortune 1000 firms, board tenure diversity and functional background diversity both contribute increasingly to firm performance as unrelated diversification increases. Figure 1 shows that as unrelated diversification increases boards with high tenure heterogeneity actually overcome negative effects of over-diversification on firm performance. But as shown in Figure 2, although high functional diversity reduces the negative effects of increasing unrelated diversification, it does not eliminate them. In both cases, however, boards that are more heterogeneous in tenure and functional experience are more appropriate for firms pursuing

extensive unrelated diversification. That is, informational and decision-making context does make a difference when it comes to the performance implications of board heterogeneity. We also conducted a separate supplemental analysis on the moderating effects of board diversity in the relationship between related diversification and firm performance. As expected, board diversity had little influence on the performance of related diversified firms (the results are not presented here). The findings of this research are, we believe, consistent with the results of prior research that found that the positive effects of TMT functional diversity become more salient in firms that face greater environmental uncertainty (Cannella et al., 2008). Moreover, we assert that the results of our study provide more proximate and practical insight for both academics and practitioners, reducing the ambiguity associated with board diversity, by focusing on the strategic context of corporate unrelated diversification.

There are two basic insights from our research. First, examination of the performance consequences of board heterogeneity needs to be sensitive to context, because the relationship between diversity and performance may be context specific. For example, decision contexts may vary in terms of information processing needs. This clearly is the case with the strategic decision context of unrelated diversification, where we found that the benefits of diversity in boards of directors are more pronounced for unrelated diversified firms where the need for diverse information, specialties, and perspectives is great. Thus, a firm’s strategic context may determine whether heterogeneity has positive or negative effects on firm performance, as was the case in our study. Second, one potentially fruitful approach for reconciling conflicting perspectives regarding the benefits or detriments of board heterogeneity is to focus on the types of diversity. As shown in the results, board diversity in more task-related experience such as diversity in tenure and functional backgrounds has significant and positive impacts on the performance of unrelated diversified firms. However, relatively non-task-related diversity such as diversity in age,

educational background and levels had no significant impact on the firm performance of unrelated diversified firms. Thus, we suggest that future research on board diversity should pay more attention to types of diversity aligned to contextual factors. In this way we can clarify which sources of diversity matter most to performance.

While interpreting the results of our study, it is important to bear in mind some of its limitations. First, given the cross-sectional nature of this study, future research should benefit from applying longitudinal approaches in studying the relationships we examined. For instance, previous research focusing on the moderating effect of time in the diversity–performance relationship has suggested that as group members undergo interactions and shared experiences, cognitive distinctions blur and the dysfunctional effects of demographic dissimilarity are neutralized (Jehn et al., 1999; Pelled et al., 1999; Price, Harrison, Gavin and Florey, 2002). Thus, future research focusing on group developmental processes that occur over time would further clarify whether board heterogeneity has a constant or tenure-variant impact on board effectiveness.

Second, future research on board diversity could benefit by paying greater attention to other diversity dimensions. Expanding the examination of board heterogeneity to include additional attributes such as gender, nationality, ethnicity, and culture may result in a richer understanding of the differences between different types of diversity. For example, as globalization gathers momentum the boards of many large corporations now have members from different nationalities and ethnic groups (Schultz, 2001; Norburn, Boyd, Fox and Muth, 2000). There is greater need to study the effect of national culture on individual board members' cognitive behaviors as well as its influence on firm performance in international operations. Finally, our

study is restricted to only one strategic context, namely, unrelated diversification. Future research focusing on other strategic decision contexts should extend our understanding of the context specificity of the relationship between board heterogeneity and firm performance.

The results of this study have important practical implications. Governance practitioners sometimes believe that heterogeneity in a board of directors can bring confusion, uncertainty, and discomfort (Bryson, 2004). However, corporations have tended to pursue board diversity quite broadly, on the assumption that any type of diversity is good in all contexts. Both academic research and the business press have been emphasizing the benefits of board diversity, especially for representing the interests of diverse consumer groups and investors. Exhortations to increase board diversity often have been made, however, without attention to the factors that affect board composition. Our results show that board heterogeneity must fit the firm's strategic posture if heterogeneity is to influence performance positively.

Thus, practitioners should carefully weigh the requirements of a firm's informational and strategic context when shaping their board heterogeneity, rather than routinely seeking demographic diversity of directors. Our study provides empirical evidence that board diversity, in particular, heterogeneity in task-related experience, contributes positively to performance for corporations with unrelated diversification strategy, where the decision context requires a variety of information, knowledge, and industry experience. In conclusion, future research should further examine board diversity, and other mechanisms through which boards might have contingent effects on firm performance in differing strategic contexts. Such research will surely produce additional insights about effective compositions and processes for boards of directors.

NOTES

1. Results of the Durbin-Wu-Hausman test are provided upon request.

REFERENCES

- Aiken, L. S. and West, S. G. (1991), *Multiple Regression: Testing and Interpreting Interactions*. Sage, Newbury Park, CA.
- Allison, P. D. (1978), Measures of Inequality, *American Sociological Review*, 43(6): 865–880.
- Amason, A. C. (1996), Distinguishing the Effects of Functional and Dysfunctional Conflict on Strategic Decision Making: Resolving a Paradox for Top Management Teams, *Academy of Management Journal*, 39(1): 123–148.
- Ancona, D. and Caldwell, D. (1992), Demography and Design: Predictors of New Product Team Performance, *Organization Science*, 3(3): 321–341.
- Arendt, L. A., Priem, R. L. and Ndofor, H. A. (2005), A CEO-Adviser Model of Strategic Decision Making, *Journal of Management*, 31(5): 680–699.
- Barker, V.L. III and Mueller, G. C. (2002), CEO Characteristics and Firm R&D Spending, *Management Science*, 48(6): 782–801.
- Bamberger, P. (2008), Beyond Contextualization: Using Context Theories to Narrow the Micro-macro Gap in Management Research, *Academy of Management Journal*, 51(5): 839–846.
- Barkema, H. G. and Shvyrkov, O. (2007), Does Top Management Team Diversity Promote or Hamper Foreign Expansion? *Strategic Management Journal*, 28(7): 663–680.
- Baum, C. F., Schaffer, M. E. and Stillman, S. (2003), Instrumental Variables and GMM: Estimation and Testing, *Stata Journal*, 3: 1–31.
- Blau, P. M. (1977), *Inequality and Heterogeneity*, Free Press, IL.
- Boeker, W. (1992), Power and Managerial Dismissal: Scapegoating at the Top, *Administrative Science Quarterly*, 37(3): 400–421.
- Boeker, W. (1997), Strategic Change: The Influence of Managerial Characteristics and Organizational Growth, *Academy of Management Journal*, 40(1): 152–170.
- Brodbeck, F. C., Kerschreiter, R., Mojzisch, A. and Schulz-Hardt, S. (2007), Group Decision Making under Conditions of Distributed Knowledge: The Information Asymmetries Model, *Academy of Management Review*, 32(2): 459–479.
- Bryson, E. (2004), Building Board Diversity, *Foundation News & Commentary*, 45(6): 44–45.
- Bunderson, J. S. (2003), Team Member Functional Background and Involvement in Management Teams: Direct Effects and the Moderating Role of Power Centralization, *Academy of Management Journal*, 46(4): 458–473.
- Cannella, A. A. and Holcomb, T. R. (2005), A Multilevel Analysis of the Upper-echelons Model, in Dansereau, A. and Yammarino, F. J. (Eds), *Research in Multilevel Issues* (Vol 4), pp. 197–237, Elsevier, Oxford.
- Cannella, A. A. Jr, Park, J. and Lee, H. (2008), Top Management Team Functional Background Diversity and Firm Performance: Examining the Roles of Team Member Collocation and Environmental Uncertainty, *Academy of Management Journal*, 51(4): 768–784.
- Carpenter, M. A. (2002), The Implications of Strategy and Social Context for the Relationship between Top Management Team Heterogeneity and Firm Performance, *Strategic Management Journal*, 23(3): 275–284.
- Carpenter, M. A. and Fredrickson, J. W. (2001), Top Management Teams, Global Strategic Posture, and the Moderating Role of Uncertainty, *Academy of Management Journal*, 44(3): 533–545.
- Carpenter, M. A., Geletkanycz, M. A. and Sanders, W. G. (2004), The Upper Echelons Revisited: Antecedents, Elements, and Consequences of Top Management Team Composition, *Journal of Management*, 30(6): 749–778.
- 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*, 44(4): 639–660.
- Carter, D. A., Simkins, B. J. and Simpson, W. G. (2003), Corporate Governance, Board Diversity, and Firm Value, *Financial Review*, 38(1): 33–53.
- Chaganti, R. and Sambharya, R. (1987), Strategic Orientation and Characteristics of Upper Management, *Strategic Management Journal*, 8(4): 393–401.

- Charan, R. (1998), *Boards at Work: How Corporate Boards Create Competitive Advantage*, Wiley, San Francisco.
- Cho, T. and Hambrick, D. C. (2006), Attention as the Mediator between Top Management Team Characteristics and Strategic Change: The Case of Airline Deregulation, *Organization Science*, 17(4): 453–469.
- Clarke, J., Fee, E. and Thomas, S. (2004), Corporate Diversification and Asymmetric Information: Evidence from Stock Market Trading Characteristics, *Journal of Corporate Finance*, 10(1): 105–129.
- Cohen, J., Cohen, P., West, S. and Aiken, L. (2003), *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences* (Third Ed), Lawrence Erlbaum Associates, Publishers, Mahwah, NJ.
- Conger, J., Lawler, E. E. III and Finegold, D. (2001), *Corporate Boards: New Strategies for Adding Value at the Top*, Jossey-Bass, San Francisco.
- Daily, C. M., Dalton, D. R. and Cannella, A. A. (2003), Introduction to Special Topic Forum on Corporate Governance: Decades of Dialogue and Data, *Academy of Management Review*, 28: 371–382.
- Dalton, D. R., Daily, C. M., Certo, S. T. and Roengpitya, R. (2003), Meta-analyses of Financial Performance and Equity: Fusion of Confusion? *Academy of Management Journal*, 46(1): 13–26.
- Datta, D. K. and Guthrie, J. P. (1994), Executive Succession: Organizational Antecedents of CEO Characteristics, *Strategic Management Journal*, 15(7): 569–577.
- Davidson, R. and Mackinnon, J. G. (1993), *Estimation and Inference in Econometrics*, Oxford University Press, New York.
- Dearborn, D. C. and Simon, H. A. (1958), Selective Perceptions: A Note on the Departmental Identification of Executives, *Sociometry*, 21: 140–144.
- Deutsch, Y. (2005), The Impact of Board Composition on Firms' Critical Decisions: A Meta-analytic Review, *Journal of Management*, 31: 424–444.
- Dollinger, M. J. (1984), Environmental Boundary Spanning and Information Processing Effects on Organizational Performance, *Academy of Management Journal*, 27(2): 351–368.
- Earley, P. C. and Mosakowski, E. (2000), Creating Hybrid Team Cultures: An Empirical Test of Transnational Team Functioning, *Academy of Management Journal*, 43(1): 26–49.
- Finkelstein, S. and Hambrick, D. C. (1996), *Strategic Leadership: Top Executives and their Effects on Organizations*, West, Minneapolis/St. Paul.
- Geletkanycz, M. A. and Hambrick, D. C. (1997), The External Ties of Top Executives: Implications for Strategic Choice and Performance, *Administrative Science Quarterly*, 42(4): 654–681.
- Greene, W. H. (2003), *Econometric Analysis* (Fourth Ed), Upper Saddle River: NJ.
- Gupta, A. K. and Govindarajan, V. (1984), Business Unit Strategy, Managerial Characteristics, and Business Unit Effectiveness at Strategy Implementation, *Academy of Management Journal*, 27(1): 25–41.
- Hall, E. H. Jr. and John, C. H. (1994), A Methodological Note on Diversity Measurement, *Strategic Management Journal*, 15(2): 153–168.
- Hambrick, D. C. (1981), Environment, Strategy, and Power within Top Management Teams, *Administrative Science Quarterly*, 26(2): 253–276.
- Hambrick, D. C. (2007), Upper Echelons Theory: An Update, *Academy of Management Review*, 32(2): 334–343.
- Hambrick, D. C. and Mason, P. A. (1984), Upper Echelons: The Organization as a Reflection of its Top Managers, *Academy of Management Review*, 9(2): 193–206.
- Harrigan, K. R. (1983), Research Methodologies for Contingency Approaches to Business Strategy, *Academy of Management Review*, 8(3): 398–406.
- Harrison, D. A. and Klein, K. L. (2007), What's the Difference? Diversity Constructs as Separation, Variety or Disparity in Organizations, *Academy of Management Review*, 32(4): 1199–1228.
- Hartzell, J. C. and Starks, L. T. (2003), Institutional Investors and Executive Compensation, *Journal of Finance*, 58(6): 2351–2374.

- Hillman, A. J. and Dalziel, T. (2003), Boards of Directors and Firm Performance: Integrating Agency and Resource Dependence Perspectives, *Academy of Management Review*, 28(3): 383–396.
- Hitt, M. A. and Tyler, B. B. (1991), Strategic Decision Models: Integrating Different Perspectives, *Strategic Management Journal*, 12(5): 327–351.
- Hoskisson, R. E., Hitt, M. A., Johnson, R. A. and Moesel, D. D. (1993), Construct Validity of an Objective (Entropy) Categorical Measure of Diversification Strategy, *Strategic Management Journal*, 14(3): 215–236.
- Jackson, S. E. (1992), Team Composition in Organizational Settings: Issues in Managing an Increasingly Diverse Work Force, in Worchel, S., Wood, W. and Simpson, J. A. (Eds) *Group Process and Productivity*, pp. 138–173, Sage, Newbury Park, CA.
- Jackson, S. E. and Joshi, A. (2002), Research on Domestic and International Diversity in Organizations: A Merger that Work? in Anderson, N., Ones, D. S., Sinangil, H. K. and Visweswavan, C. (Eds), *Handbook of Industrial, Work & Organizational Psychology*, Sage.
- Jackson, S. E., May, K. E. and Whitney, K. (1995), Understanding the Dynamics of Diversity in Decision-making Teams, in Guzzo, R. A. and Salas, E. (Eds), *Team Effectiveness and Decision-making in Organizations*, pp. 204–261, Jossey-Bass, San Francisco, CA.
- Jacquemin, A. P. and Berry, C. H. (1979), Entropy Measure of Diversification and Corporate Growth, *Journal of Industrial Economics*, 27(4): 359–369.
- Jehn, K. A. (1995), A Multimethod Examination of the Benefits and Detriments of Intragroup Conflict, *Administrative Science Quarterly*, 40(2): 256–282.
- Jehn, K. A., Northcraft, G. B. and Neale, M. A. (1999), Why Differences Make a Difference: A Field Study of Diversity, Conflict, and Performance in Workgroups, *Administrative Science Quarterly*, 44(4): 741–763.
- Keck, S. L. (1997), Top Management Team Structure: Differential Effects by Environmental Context, *Organization Science*, 8(2): 143–156.
- Kerlinger, F. (1973), *Foundations of Behavioral Research*, Holt, Rinehart & Winston, New York.
- Kilduff, M., Angelmar, R. and Mehra, A. (2000), Top Management Team Diversity and Firm Performance: Examining the Role of Cognitions, *Organization Science*, 11(1): 21–34.
- Kosnik, R. D. (1990), Effects of Board Demography and Directors' Incentives on Corporate Greenmail Decisions, *Academy of Management Journal*, 33(1): 129–150.
- Li, J. and Hambrick, D. C. (2005), Factional Groups: A New Vantage on Demographic Faultlines, Conflict, and Disintegration in Work Teams, *Academy of Management Journal*, 48(5): 794–813.
- March, J. G. and Simon, H. A. (1958), *Organizations*, Wiley, New York.
- Martin, J. D. and Sayrak, A. (2003), Corporate Diversification and Shareholder Value: A Survey of Recent Literature, *Journal of Corporate Finance*, 9(1): 37–57.
- McDonald, M. L., Westphal, J. D. and Graebner, M. E. (2008), What Do They Know? The Effect of Outside Director Acquisition Experience on Firm Acquisition Performance, *Strategic Management Journal*, 29(11): 1155–1177.
- McNamara, G. M., Luce, R. A. and Tompson, G. H. (2002), Examining the Effect of Complexity in Strategic Group Knowledge Structures on Firm Performance, *Strategic Management Journal*, 23(2): 153–170.
- Michel, J. G. and Hambrick, D. C. (1992), Diversification Posture and Top Management Team Characteristics, *Academy of Management Journal*, 35(1): 9–37.
- Milliken, F. J. and Martins, L. L. (1996), Searching for Common Threads: Understanding the Multiple Effects of Diversity in Organizational Groups, *Academy of Management Review*, 21(2): 402–433.
- Mizruchi, M. S. (1996), What Do Interlocks Do? An Analysis, Critique, and Assessment of Research on Interlocking Directorates, *Annual Review of Sociology*, 22(1): 271–298.
- Murray, A. I. (1989), Top Management Group Heterogeneity and Firm Performance, *Strategic Management Journal*, 10: 125–141.

- Neter, J., Kutner, M., Nachtsheim, C. and Wasserman, W. (1996), *Applied Linear Statistical Models* (Fourth Ed), Irwin, IL.
- Norburn, D., Boyd, B. K., Fox, M. and Muth, M. (2000), International Corporate Governance Reform, *European Business Journal*, 12(3): 116–133.
- Ocasio, W. (1997), Towards an Attention-based View of the Firm, *Strategic Management Journal*, 18(Summer): 187–206.
- Pearce, J. A. and Zahra, S. A. (1992), Board Composition from a Strategic Contingency Perspective, *Journal of Management Studies*, 29(4): 411–438.
- Pelled, L. H., Eisenhardt, K. M. and Xin, K. R. (1999), Exploring the Black Box: An Analysis of Work Group Diversity, Conflict, and Performance, *Administrative Science Quarterly*, 44(1): 1–28.
- Pfeffer, J. (1983), Organizational Demography, in Cummings, L. L. and Staw, B. M. (Eds), *Research in Organizational Behavior*, pp. 299–357, JAI Press, Greenwich, CT.
- Polzer, J. T., Milton, L. P. and Swann, W. B. (2002), Capitalizing on Diversity: Interpersonal Congruence in Small Work Groups, *Administrative Science Quarterly*, 47(2): 296–324.
- Price, K. H., Harrison, D. A., Gavin, J. H. and Florey, A. T. (2002), Time, Teams, and Task Performance Changing Effects of Surface and Deep-level Diversity on Group Functioning, *Academy of Management Journal*, 45(5): 1029–1045.
- Rico, R., Molleman, E., Sanchez-Manzanares, M. and Van der Veg, G. S. (2007), The Effects of Diversity Faultlines and Team Task Autonomy on Decision Quality and Social Integration, *Journal of Management*, 33(1): 111–132.
- Schroder, H. M., Driver, M. J. and Streufert, S. (1967), *Human Information Processing*, Holt, Rinehart, & Winston, New York.
- Schultz, S. F. (2000), *The Board Book*, Amacom, New York.
- Schultz, S. F. (2001), *Making Your Corporate Board a Strategic Force in Your Company's Success*, Amacom, New York.
- 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*, 39(3): 412–438.
- Spender, J. C. (1989), *Industry Recipes: An Enquiry into the Nature and Sources of Managerial Judgement*, Basil Blackwell, Oxford.
- Thomas, A. S., Litschert, R. J. and Ramaswamy, K. (1991), The Performance Impact of Strategy-Manager Coalignment: An Empirical Examination, *Strategic Management Journal*, 12(7): 509–522.
- 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*, 53(3): 550–571.
- Tyler, B. B. and Steensma, H. K. (1998), The Effects of Executives' Experiences and Perceptions on their Assessment of Potential Technological Alliances, *Strategic Management Journal*, 19: 939–965.
- Wagner, W. G., Pfeffer, F. and O'Reilly, C. A. III (1984), Organizational Demography and Turnover in Top Management Groups, *Administrative Science Quarterly*, 29(10): 74–92.
- Waller, M. J., Huber, G. P. and Glick, W. H. (1995), Functional Background as a Determinant of Executives' Selective Perception, *Academy of Management Journal*, 38(4): 943–974.
- Wally, S. and Baum, J. R. (1994), Personal and Structural Determinants of the Pace of Strategic Decision Making, *Academy of Management Journal*, 37(4): 932–956.
- Wan, W. and Hoskisson, R. E. (2003), Home Country Environments, Corporate Diversification Strategies, and Firm Performance, *Academy of Management Journal*, 46(1): 27–45.
- Watson, W. E., Kumar, K. and Michaelson, L. K. (1993), Cultural Diversity's Impact on Interaction Process and Performance: Comparing Homogeneous and Diverse Task Groups, *Academy of Management Journal*, 36(3): 590–602.
- Weber, J., Crockett, R. O., Arndt, M., Grow, B. and Byrnes, N. (2005), How the Best Boards Stay Clued, *BusinessWeek*, June: 40–40.
- West, C. T. and Schwenk, C. R. (1996), Top Management Team Strategic Consensus, Demographic Homogeneity and Firm Performance: A Report of Resounding Nonfindings, *Strategic Management Journal*, 17(7): 571–576.

- Westphal, J. D. and Zajac, E. J. (1995), Who Shall Govern? CEO/ Board Power, Demographic Similarity, and New Director selection, *Administrative Science Quarterly*, 40(1): 60–83.
- Wiersema, M. F. and Bantel, K. A. (1992), Top Management Team Demography and Corporate Strategic Change, *Academy of Management Journal*, 35(1): 91–121.

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