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**Managerial Cognition and Strategic Decision Making
in Diversified Firms**

**By
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MANAGERIAL COGNITION AND STRATEGIC
DECISION MAKING IN DIVERSIFIED FIRMS¹

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ABSTRACT

The research reported here sought to identify top managers' mental models about the management of diversification and to determine whether these beliefs are associated with important strategic decisions. The study identified three broad sets of beliefs or orientations about the management of diversification that are commonly held by managers of large diversified firms. The study found that these management orientations are significantly associated with a number of key strategic choices, including decisions about the extent of diversification, divestment activity, new product development efforts, and research and development spending. The results offer empirical evidence of the influence of managerial cognition on strategic decision making.

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Major reviews of the diversification literature that were written more than a decade ago concluded that the study of diversification has been too narrow, focusing primarily on the relationship between diversification strategy and firm performance, even though the *management* of diversification is likely to be a much more important influence on performance than the *extent* of diversification (Datta, Rajagopalan, & Rasheed, 1991; Hoskisson & Hitt, 1990; Ramanujam & Varadarajan, 1989). In particular, the influence of managerial decision making has been largely ignored in most diversification studies (Dess, Gupta, Hennart, & Hill, 1995). While it was surely hoped that these reviews would stimulate a new wave of research on diversification, this stream of literature has seen relatively little study in the last decade and too few studies have pursued new directions or new approaches.

Thus by focusing on the influence of managers in large diversified firms, the research reported here addresses questions that have received too little attention in past research. Following Hambrick and Mason's (1984) upper echelons framework, this study asks two key questions. First, what are the beliefs that top managers hold about the management of diversification? Second, the study then considers whether executives' beliefs about the management of diversification are associated with their firms' key strategic choices, including decisions about diversification strategy, acquisition and divestment activity, new product development efforts, and research and development spending.

BACKGROUND

Research in managerial and organizational cognition examines how mental models determine what stimuli are noticed and interpreted. Researchers have also been keenly interested in how mental models influence decision making (Gioia & Chittipeddi, 1991; Levy, 2005; Lounsbury & Glynn, 2001; March & Simon, 1958). Thus, the cognitive perspective on strategy argues that insight into decision making requires an appreciation of the beliefs and understandings contained in executives' mental models.

Though a significant body of managerial and organizational cognition literature has now accumulated, relatively few researchers have applied this cognitive perspective to the study of diversification. In an influential article written more than two decades ago, Prahalad and Bettis (1986)

argued that executives would need to learn how to manage diversification “as a distinct process and skill” (1986: 488), and that in doing so, they would develop knowledge structures – mental models or, in their words, dominant logics – that contain their beliefs and understandings about the management of diversification. “Dominant logic ... is a conceptualization of the business and the administrative tools to accomplish goals and make decisions in that business... It is expressed as a learned, problem-solving behavior” (1986: 491). Thus, dominant logic includes executives’ beliefs about the nature of their firms – size, number of business units, and the diversity among those business units – as well as their beliefs about the processes needed to manage diversification, including the choice of diversification mode (i.e., acquisition or internal development), the way resources are allocated, and the degree to which decision making is centralized or decentralized (Prahalad & Bettis, 1986: 491).

Building on the work of Prahalad and Bettis, a few studies have explored how management beliefs or perceptions shape their understandings of the competitive environment and how their firms are positioned relative to their competitors (Garg, Walters, & Priem, 2003; Mason & Harris, 2005; Neill & Rose, 2006). Other studies have examined managers’ understandings of their own firms. Empirical research by Stimpert and Duhaime (1997) focused on one aspect of dominant logic – how top managers of diversified firms conceptualize their organizations, specifically how they understand their firms’ businesses to be related. They found that the managers of diversified firms hold at least three distinct views of relatedness, including traditional, marketing, and financial goals. Their study did not examine how these conceptualizations of relatedness are associated with strategic decision making or firm performance. More recent studies by Piscitello (2004) and Pehrsson (2006) have examined how different conceptualizations of relatedness are associated with firm performance levels. Piscitello found that a focus or coherence around a company’s technological competencies is associated with enhanced performance, and Pehrsson also found that relatedness associated with common technologies was positively associated with performance.

Other studies have demonstrated how managers’ perceptions of, and beliefs about, firm resources influence decision making and performance (Kor & Leblebici, 2005; Leavy, 2001; Pehrsson, 2006; Tanriverdi & Venkatraman, 2005). Early work by Duhaime and Schwenk (1985) argued that managers’ cognitive biases and limitations are responsible for the success or failure of acquisitions.

Research by Levy (2005) examined how managerial mindsets influence the extent of global diversification.

Kazanjian and Drazin (1987) and Ginsberg (1990) emphasized the influence of managerial cognition on the decision making associated with successful diversification. Vanhaverbeke and Peeters (2005) focused on the challenges large diversified companies have in managing discontinuous change, and examined specifically on how technological capabilities are associated with cognitive inertia.

These studies suggest that researchers have made some progress in understanding the linkage between managerial cognition and decision making in diversified firms, but they also point to some significant shortcomings. First, relative to other streams of upper echelon and diversification research, the literature examining the influence of managers on strategic decision making in diversified firms is not as well developed, and studies have examined the influence of executives on only a very limited set of strategic choice variables. Finally, much of the research has been conceptual, and too few studies have tested research propositions with empirical data. A decade ago, Hoskisson and Hitt noted that in spite of “compelling theoretical arguments” no empirical studies had examined the influence of executives’ beliefs on diversification and corporate strategy decision making (1990: 482). Over the last decade and a half, researchers have made some good progress toward addressing this shortcoming, but many important and interesting research questions remain to be explored.

The Nature of Executives’ Beliefs about the Management of Diversification and How Those Beliefs Influence Strategic Decision Making

Research aiming to “get inside the heads” of executives assumes that such executives carry models of phenomena that allow them to make sense of their situations and respond appropriately (Johnson-Laird, 1983; Rumelhart, 1984). While the actual nature of mental models continues to be a source of debate, it is widely acknowledged that mental models play key roles in executives’ decision making processes (Walsh, 1995; Weick, 1995). First, mental models simplify the complexity associated with business environments, and, in the process, they determine which environmental stimuli will be noticed and which stimuli will be ignored (Boisot & Child, 1999; Starbuck & Milliken, 1988). The management of a diversified firm is a particularly challenging and complex task. George Hall, writing from

his own experience as a corporate executive, refers to the “bewildering complexity” of diversified firms (1987: 84). To manage this complexity, the executives of diversified companies must have a conceptualization of their firms – their scope, objectives, competitive environment, and management requirements – but in the diversified firm, these demands are compounded both by the number and by the diversity of its businesses (Porter, 1987). Thus, the executives of diversified firms must process vast amounts of information and they face an almost unlimited array of choices. As a result, their mental models play a key role in complexity reduction, making comprehensible the challenging task of managing the diversified firm.

Mental models also influence how stimuli are interpreted, and suggest appropriate responses or decisions based on these interpretations. So, learning about how the managers of large diversified firms make sense of their situations and tasks is a key to understanding the strategies of their firms. Perhaps the greatest contribution made by Prahalad and Bettis was to suggest that executives’ dominant logics serve as “organizing paradigms,” providing them with a way to “conceptualize the business and make critical resource allocation decisions” (1986: 490). Goold, Campbell, and Alexander have also emphasized the importance of executives’ beliefs in large diversified firms:

Parent company managers have rules of thumb and mental models that help them to interpret and synthesize information. These rules and models, which we refer to as the parent’s mental maps, largely stem from their management experience... They shape the parent’s perception of business improvement opportunities. They embody its understanding and feel for different types of businesses... They reflect deeply held values and objectives (1994: 18-19).

As Goold *et al* suggest, mental models are shaped by individual experiences and by unique interpretations of these experiences. Thus, we could expect that mental models about the management of diversification could be quite idiosyncratic. In fact, Barney (1992) suggested that executives could gain advantage by managing their diversified firms in novel ways. On the other hand, researchers have cited institutional factors, including M.B.A. and other executive education programs, professional networks, management publications, and the relatively frequent movement of top managers across firms, to suggest that there may be patterns or varieties of management beliefs that are widely held among executives

(Huff, 1982; Spender, 1989). Hambrick (1982) also suggested that executives share “a common body of knowledge” that is disseminated through the media and other venues. Moreover, field research by Goold and Campbell and much other diversification research provide considerable support for proposing the existence of patterns or varieties of executive beliefs about the management of diversification and that these beliefs influence strategic decisions.

For example, a large body of diversification literature suggests that one type of belief about the management of diversification emphasizes product and process relatedness and deriving synergies from a portfolio of related businesses. Researchers have focused on potential benefits of pursuing portfolio relatedness. In their detailed field study of the central offices of 16 diversified British companies, Goold and Campbell (1987) identified a group of firms whose executives pursued a “strategic planning management style,” that aims to exploit operational synergies by closely coordinating the application of common resources and skills across business units. In fact, Goold and Campbell found that “the distinguishing feature” of these companies is their executives’ “willingness, where appropriate, to try to develop coordinated strategies between divisions, businesses and countries” (1987: 61). Much of the diversification literature also assumes that firms managed by executives who subscribe to the importance of product and process relatedness will make fewer acquisitions and divestments and seek to achieve synergies through the integration and close coordination of various functional and operating departments and divisions (Goold & Campbell, 1987; Jones & Hill, 1988; Kazanjian & Drazin, 1987; Porter, 1985, 1987; Rumelt, 1974, 1982; Tanriverdi, & Venkatraman, 2005).

Second, other researchers have emphasized the value of approaching the management of diversification from a functional perspective, especially in firms that have little commonality across businesses or specific product lines. Other researchers have emphasized the importance of applying a common technology or set of technological capabilities across businesses or product lines (Miller, Fern, & Cardinal, 2007; Pehrsson, 2006; Piscitello, 2004). For example, some writers have emphasized the importance of developing a set of marketing and differentiation skills that can be applied to all businesses – even though these businesses may lack common product characteristics (Kazanjian & Drazin, 1987; Mason & Harris, 2005; Porter, 1985, 1987; Tanriverdi & Venkatraman, 2005). As such, a functional or technological approach to the management of diversification may be embodied in close relationships and

tight coordination between businesses and their marketing channels and end users (Woodruff, 1997), or through the ability to apply knowledge about customers' needs and buying behaviors across businesses (Farjoun, 1998; Nayyar, 1993; Stewart, 1997).

Articles suggest that executives who emphasize the development of a diversification strategy around a common functional skill or by focusing on a key technological capability that can be applied to all businesses (even though those businesses may lack common product characteristics), will most likely emphasize brand equity, new product development, sales growth, and market share (Kazanjian & Drazin, 1987; Porter, 1987). The strategy of differentiation and most portfolio planning frameworks also emphasize market share and sales growth, and specifically advocate allocating cash to new products and other growth opportunities. Thus, we could expect that a focus on functional skills or technological capabilities will be associated with more product development (Lamont & Anderson, 1985; Pitts, 1980; Vanhaverbeke & Peeters, 2005), and should also be reflected in higher R&D spending.

Finally, an emphasis on financial controls and management is a theme of much corporate strategy writing. Williamson (1975), Teece (1982), Goold and Campbell (1987), Hall (1987), and Hill (1994) all argue that the application of strict financial controls such as ROI and other performance criteria may be the only effective way for executives to manage the complexity of a widely diversified portfolio of businesses. Not unlike mutual fund managers, these executives rely on financial criteria to assess the performance of their firms' portfolios (Teece, 1982; Williamson, 1975). In their field research, Goold and Campbell also identified a number of firms that they labeled as "financial control" companies. They found that these firms view budgets as a "contract" between corporate executives and individual businesses, and "that annual financial performance is the critical measure of achievement" (1987: 133). Grant (1988) also proposed that the evaluation of a common set of financial and investment criteria would be a core element of some executives' dominant logics.

It's widely assumed that executives who hold a financial control orientation will pursue more unrelated diversification (Fligstein, 1987, 1990). Since they lack operating or technical expertise about individual business units, these executives are also more likely to emphasize growth through acquisition over new product development efforts or the internal development of new businesses (Fligstein, 1990; Hayes & Abernathy, 1980). The financial control companies in Goold and Campbell's (1987) sample

were all active acquirers, and Goold and Campbell also found that these companies are more likely to believe that poor-performing businesses should be divested. Hayes and Abernathy were concerned that executives who emphasized financial controls would spend less on R&D and new product development.

Summary and the Research Questions Addressed by This Study

All of this theorizing seems quite plausible and much of it is already accepted as conventional wisdom, but aside from the detailed field interviews conducted by Goold and Campbell, we have little insight into whether the top managers of diversified firms subscribe to some set or sets of commonly held views about the management of diversification. Thus, our first research question addresses an important gap in the literature:

Are there patterns of executive beliefs about the management of diversification, and if so, what is the nature of those beliefs?

Similarly, cognitive theory implicitly argues that beliefs and understandings influence decisions and actions. Thus, a cognitive perspective on strategic management suggests that executives who hold different cognitive orientations will make different decisions, and this reasoning suggests our second research question:

If the top managers of diversified firms hold specific patterns of beliefs about the management of diversification, do these beliefs have a discernable influence on the key strategic decisions made by diversified firms, including decisions about diversification strategy, acquisition and divestment, new product development, and research and development spending?

RESEARCH METHODOLOGY

The Survey Questionnaire and Cognitive Variables

Researchers have adapted a variety of methodologies to map mental models, and carefully designed surveys can be an effective way to assess executives' beliefs (Hitt & Ireland, 1986; Zajac & Shortell, 1989). They are especially effective when researchers hope to obtain large numbers of

observations across a broad cross-section of subjects in order to perform rigorous statistical analyses.

This study takes advantage of a unique set of primary data that was developed in a multistage process that involved field interviews with executives of several large diversified firms as well as surveys of a larger set of such firms. Although this primary dataset was developed in 1991, its value for addressing this study's research questions is undiminished by time and an inspection of important characteristics of the business environment reveals no significant factors that would undermine the validity of the study's results for the current environment, and all other measures used in this study have been gathered for time periods appropriately matched to the primary dataset.

The first step in developing the survey questionnaire was to conduct a thorough search of the diversification literature. The goal was to identify all of the processes for managing diversified firms that scholars and writers have previously described. This search of the literature identified four broad categories of management processes in diversified firms, including 1) the sharing of functional skills or technological capabilities across businesses (Goold & Luchs, 1993; Kazanjian & Drazin, 1987; Lauenstein, 1984; Porter, 1985, 1987; Rumelt, 1974, 1982; Pehrsson, 2006; Piscitello, 2004), 2) encouraging or insisting that all businesses pursue the same generic strategy (Porter, 1987), 3) a wide range of management and financial control systems (Dundas & Richardson, 1982; Goold & Campbell, 1987; Teece, 1982; Williamson, 1975), and 4) acquisition and internal development as possible modes of diversification (Lamont & Anderson, 1985; Pitts, 1980; Song, 1982). This compilation of management processes was followed by semi-structured interviews with strategic planning executives from six *Fortune* 500 firms. The interviews provided corroborating support for the management processes that the literature review had identified, while also suggesting a few additional processes that were not described in the literature.

Ultimately, the review of the diversification literature and the field interviews produced a list of 24 survey items to assess executive beliefs about the management of diversification, and these items formed the core of the survey instrument. CEO recipients of the survey would be asked to provide their assessments of each of the 24 items on a five-point scale (from "1" for *I believe this would almost always be an inappropriate policy* to "5" for *I believe this would almost always be an appropriate policy*). Three top planning officers and a CEO – all from diversified *Fortune* 500 firms – agreed to pretest the survey.

They offered many suggestions that were incorporated into the final draft of the questionnaire. Table 1 categorizes and identifies the source of each of the 24 items and also provides the wording of the items as they appeared in the questionnaire.

Insert Table 1 about here

Dependent and Control Variables

The choice of the specific strategic decision variables included in the study was quite deliberate. The influential articles by Hambrick and Mason (1984) and Prahalad and Bettis (1986) both refer to diversification strategy, acquisition and divestment activity, new product development, and research and development efforts as the key corporate strategy decisions that managers must make. All of these decisions are included in this study as dependent variables.

Diversification strategy was assessed by the entropy measure of diversification (Palepu, 1985) using data from Compustat. The entropy measure is calculated using the following formula:

$$\text{Diversification} = \sum [P_j \ln(1/P_j)]$$

where P_j is the share of sales in each segment j and $\ln(1/P_j)$ is the relative weight of each segment j , so that higher values indicate greater diversification.

To measure acquisition, divestment, and new product development activity, we obtained the number of acquisitions, divestments, and new product introductions made over the five-year period 1987 through 1991 from Moody's *Industrial Manuals* and *The Wall Street Journal Index*. Any shorter time frame seemed to be too narrow a window to assess whether a particular firm was actively acquiring or divesting businesses, and a five-year period also seemed sufficient to capture trends in new product development efforts. R&D spending data, coded as a percentage of firm sales, were gathered for 1991 from Compustat.

Three control variables were also included in the analyses. Because CEO beliefs may be reinforced and their decisions more strongly manifested in their firms over time, CEO tenure was included. Firm success may also reinforce managerial thinking, so mean return on assets was included as a control variable. And, because firm size is an influence on many of the dependent variables, the

natural logarithm of sales was included in the analyses. Data for the control variables were also gathered for 1991.

Sample

Because diversification is a critical issue for large firms, the starting point for sample selection was the largest 1,000 U.S. companies. As 85 of these firms were privately owned or owned by another firm or had filed for bankruptcy at the time of the study, they were dropped, leaving a sample of 915 firms. Questionnaires were mailed to the CEOs of these firms because CEOs are ultimately responsible for their firms' diversification decisions and because no other single officer is likely to have the same degree of responsibility for and involvement in the planning and execution of diversification decisions. The use of CEOs as informants is consistent with the research questions posed in this study, and many other studies examining the influence of top executives have also relied on CEOs as informants (Hitt & Ireland, 1986; Hoskisson & Hitt, 1988; Zajac & Shortell, 1989).

From the 915 CEOs who received the mail survey and two follow-up mailings, 174 completed and usable responses were received, for a response rate of just under 20 percent. This compares favorably with most mail surveys reported in the strategy literature that have been addressed to the executives of large firms (Hambrick, Geletkanycz, & Fredrickson, 1993; Hoskisson & Hitt, 1988; Tootelian & Gaedeke, 1987). Statistical analyses comparing total assets, sales revenues, and return on assets of the responding and nonresponding CEOs' firms revealed no significant differences.

Data Analysis

Respondents' ratings of the 24 management belief variables were factor analyzed to identify a more finite set of underlying dimensions, or, in this case, patterns of beliefs about the management of diversification (Hair, Anderson, Tatham, & Black, 1998). Factor analysis is the ideal method for analyzing the survey data. It reduces the 24 variables included in our survey into a more finite set of factors that show central tendencies in executives' beliefs about how to manage diversification. Moreover, while factor analysis shows central tendencies, it does not preclude the possibility that executives might hold unique or hybrid sets of beliefs or that the resulting orientations are mutually exclusive.

Due to the exploratory nature of the study, principal components analysis was employed to factor analyze the data and identify patterns of beliefs. With 174 respondents evaluating the 24 management variables, the study falls well within recommended guidelines for conducting factor analyses, which suggest that the number of observations should be greater than 100 and that the ratio of observations to variables should be at least four to one (Hair *et al.*, 1998). The resulting factors were rotated using the varimax transformation, since orthogonal transformations tend to be easier to interpret and are recommended when factor scores are to be used in subsequent statistical analyses (Hair *et al.*, 1998). The factor scores are standardized (i.e., their means = 0 and their standard deviations = 1) statistical composites representing each of the factors that were used in regression analyses to assess relationships among executives' orientations, their demographic characteristics, and their firms' strategies and structural attributes.

RESULTS

Executives' Beliefs and Understandings about the Management of Diversification

The first research question asked whether top executives have discernable beliefs about the management of diversification. Analysis of the survey data showed that they do. Initial factor analyses revealed that up to eight factors had eigenvalues greater than one and might therefore be considered distinct sets of beliefs. Any solutions that contained more than three factors had a number of problems, however, including factors with only two or three significant variable loadings as well as a number of cross-factor loadings. The original three-factor solution included three variables that did not load significantly on any of the factors. Following the recommendation of Hair *et al.* (1998), the three-factor solution was rerun omitting these three variables. The resulting solution (shown in Table 2) produced a very straightforward and interpretable factor matrix with no cross-factor loadings and all but one of the remaining 21 variables loading significantly on one of the three factors. Given the number of items and observations included in the factor analysis, factor loadings with absolute values greater than .30 can be considered significant and are shown in bold print (Hair *et al.*, 1998).

Loading significantly on the first factor were beliefs that businesses should use the same

manufacturing processes, distribution channels, and marketing methods; that businesses should sell to the same customer groups; that manufacturing and marketing should be coordinated at the corporate level; and that businesses should be in the same industry. These beliefs are consistent with the view that executives should try to capture synergies by coordinating activities across their firms' businesses (Goold *et al.*, 1994; Jones & Hill, 1988; Porter, 1985; Rumelt, 1974, 1982). And, this factor is also similar to the strategic planning management style identified by Goold and Campbell (1987). This factor is labeled *core business* orientation.

Insert Table 2 about here

This core business orientation emphasizes the importance of the core business, having other businesses closely related to it, and having all businesses tightly integrated. Synergies are obtained by sharing common functional skills across businesses with similar product or process attributes (Goold *et al.*, 1994; Jones & Hill, 1988; Kazanjian & Drazin, 1987; Kiechel, 1982; Lauenstein, 1984; Porter, 1985; Robertson & Ulrich, 1998; Rumelt, 1974, 1982). Porter (1985) urged executives of diversified firms to develop "horizontal strategies," which he defined as "a coordinated set of goals and policies" to be applied across business units in order to integrate their value-adding activities. Kanter (1989) has also emphasized "the horizontal dimension" and the importance of getting business units to cooperate in an effort to realize synergies.

Loading on the second factor are beliefs that products and services should have strong brand name recognition and that businesses should be market share leaders; that businesses should emphasize R&D, product line extensions, the development of new products, and the reallocation of cash to support product development; that businesses should be in different life cycle stages; and that acquisitions should redirect the firm into new areas of opportunity. These beliefs are consistent with the view that the effective management of diversification results from applying a common set of marketing and product development skills to all businesses (Farjoun, 1998; Kazanjian & Drazin, 1987; Porter, 1985, 1987; Prahalad & Bettis, 1986; Stewart, 1997). This factor is labeled *marketing* orientation.

Executive beliefs emphasizing the importance of marketing may be reinforced by the continued popularity of portfolio planning models, which specifically advocate an emphasis on market share and

sales growth. Other support for the existence of a marketing orientation comes from a study by Stimpert and Duhaime (1997), which found many executives who considered their firms to be pursuing related diversification strategies because they were applying a common set of marketing and differentiation skills (i.e., new product, advertising, and brand equity development) across their firms' businesses, even though these businesses shared few product or process characteristics.

Finally, beliefs that all businesses should consistently meet financial goals and that businesses should be evaluated primarily by financial criteria; that acquisitions should not necessarily be in the same industry nor strengthen firms' existing businesses; and that financial targets should not be missed even if other strategic goals are being met load on the third factor. These beliefs are consistent with the view that diversification is best managed by emphasizing financial controls and financial performance objectives (Grant, 1988; Jones & Hill, 1988; Williamson, 1975). Similar to the financial control management style identified by Goold and Campbell (1987), this factor is labeled *financial control* orientation.

Relationships between Executives and Strategic Decision Making

Table 3 shows the means, standard deviations, and correlation coefficients among the dependent, control, and independent management belief variables. The second research question asked to what extent executives' beliefs about the management of diversification would be associated with their strategic choices, and regression analysis was used to evaluate the existence of relationships between the independent management belief variables and the strategic decision variables. All regression models examined the influence of the independent variables in a hierarchical sequence. The control variables were entered first and the management orientation variables were included second. For all of the dependent variables except the number of new products, the control variables produced a significant model. The addition of the cognitive variables significantly improved all of the models except for the number of acquisitions, and so only the results for the complete regression models are shown here. Overall, the results show that the cognitive variables are associated with many key strategic choices.

Insert Table 3 about here

As summarized in Table 4, regression analyses found that the cognitive factors are associated with four of the five strategic decision variables considered here, including the extent of diversification, the number of divestments, the number of new product introductions, and the level of R&D spending. The core business orientation is negatively associated with the extent of diversification, indicating that executives who hold a core business orientation tend to pursue more focused diversification strategies. The core business orientation is also negatively associated with the number of divestments and the number of new product introductions. The marketing orientation factor is positively associated with the number of new product introductions and the level of R&D spending. (The control variable, log of sales, was not included in the model examining the variation in R&D spending because this variable is already adjusted for firm size.)

Insert Table 4 about here

Interestingly, the financial control orientation was *negatively* associated with the extent of diversification, indicating that firms whose executives hold a financial control orientation are likely to be *less* rather than *more* diversified. In addition, the results suggest that firms whose executives hold a financial control orientation are *not* more likely to make acquisitions and divestments, introduce fewer new products, or spend less on R&D, all quite contrary to the concerns of Hayes and Abernathy (1980) and the view that a financial control orientation would result in an emphasis on acquisition at the expense of new product development and R&D spending.

DISCUSSION

Limitations of the Study

This study is obviously exploratory in that it is one of the first, if not the first, to seek to determine the nature of top executives' beliefs about the management of diversification and to ask whether these

beliefs will have an influence on strategic decision making. Thus it has many of the limitations that are common to new avenues of research, especially field research. So, before highlighting the study's findings, its limitations should be acknowledged.

First, our survey response rate is low relative to some other types of mail survey research (targeting consumers, for example). Yet, our response rate compares favorably with other mail surveys that have targeted the CEOs of large companies. For example, mail survey research by Cycyota and Harrison (2002) targeted CEOs and made use of a variety of techniques to improve the response rate; their survey had a response rate of 18 percent.

Second, even a carefully designed and administered survey cannot provide the same richness of insight into executive beliefs as personal interviews or detailed content analyses of statements or other texts. Yet these research methodologies also have their limitations; they are very laborious and time intensive and can rarely offer the sample size that permits generalization beyond a limited set of cases.

Finally, because the study relies on data from a single respondent at each sample firm, it cannot claim to have captured dominant logics as described by Prahalad and Bettis (1986) since they specifically described dominant logic as understandings that would be shared by top management teams (Bunderson & Sutcliffe, 2002).

Contributions to the Cognition and Diversification Literatures

In spite of these limitations, this study offers important and interesting findings that contribute to our understanding of the key role of top executives in large diversified firms:

- First, analysis of the survey data revealed three broad patterns of beliefs about the management of diversification – core business, marketing, and financial control orientations – that are commonly held by executives.
- Subsequent data analysis also found that these management orientations were associated with key strategic choices. Specifically, the core business orientation is negatively associated with the extent of firms' diversification strategies, the number of divestments, and the number of new products introduced. The marketing orientation is positively associated with the introduction of new products and R&D spending. The financial control orientation is negatively associated with

the extent of firms' diversification strategies. These findings lend empirical support to the arguments of Prahalad and Bettis (1986), who claimed that executives' knowledge structures would be an important influence on their strategic choices.

Implications

Managing the diversified firm is an exceedingly complicated task (Hall, 1987; Prahalad & Bettis, 1986). The executives of a diversified company must develop a conceptualization of their firm and must create and foster what Porter (1987) calls a "corporate theme" that describes the firm and how its various businesses are related. Executives of diversified firms must also develop a set of beliefs about how diversification should be managed. The aim of this study was to learn more about these management beliefs and how they influence strategic decision making.

The findings suggest that there are three patterns of beliefs about the management of diversification that are commonly held by executives, and that these beliefs are associated with firms' key strategic choices. The findings of this study offer empirical support not only for a cognitive perspective on the management of diversification, but also for a key proposition of Bettis and Prahalad, that firms are not merely a "faceless abstraction" but that their executives are an important influence on strategic decision making (Bettis & Prahalad, 1995).

Given the exploratory nature of this research study, we cannot presume that the three orientations described in this paper constitute a comprehensive set of executive beliefs about the management of diversification. Nor can we rule out the possibility that executives might combine various elements from these three orientations and other sources to create unique understandings about how they should manage their firms (Barney, 1992). Future research can explore the nuances, and subsequent studies can also build on the findings offered here to explore dominant logic, or the extent to which the views of CEOs (and other top officers), which are summarized in this paper, are shared among members of firms' top management teams.

Based on the findings of this study that show such significant links between executives' beliefs about the management of diversification and their firms' strategies, it is reasonable to assume that the quality of senior executives' knowledge structures may be a significant source of advantage for diversified

firms. Though CEO performance likely to be highly dependent on a variety of contextual factors (Karaevli, 2007), Barney (1992) has argued that if executives' beliefs about the management of diversification are effective and difficult to imitate, then they may be an important source of advantage. For some diversified firms, executives' knowledge structures may foster the creation of unique and valuable sets of administrative practices or the ability to make especially effective decisions (Teece, 1982). These effective decisions and administrative practices are surely an important source of advantage for some diversified companies, and they offer a plausible explanation for the considerable performance variation across samples of large diversified firms.

This raises the question of how executives come to have an especially effective (and valuable) set of beliefs about the management of diversification. Does the experience gained from trial and error learning help? If so, we might hypothesize that longer-serving executives would be more effective leaders of diversified firms. Also, while managers may share broad views or beliefs about the management of diversification with the managers of other diversified firms, many management practices, routines, and standard operating procedures that are based on those beliefs might be quite idiosyncratic to specific firms. Thus, we could hypothesize that effectiveness results from experience within a specific firm. Do top executives of diversified firms who are insiders enjoy a level of effectiveness not shared by outsiders who have had less time to develop sophisticated sets of process beliefs about effective management practices? Research on these questions would build on the study reported in this paper, offering significant theoretical and practical value.

REFERENCES

- Barney, J. B. 1992. Integrating organizational behavior and strategy formulation research: A resource based analysis. *Advances in Strategic Management*, 8, 39-61.
- Bettis, R. A., & Prahalad, C. K. 1995. The dominant logic: Retrospective and extension. *Strategic Management Journal*, 16, 5-14.
- Boisot, M., & Child, J. 1999. Organizations as adaptive systems in complex environments: The case of China. *Organization Science*, 10, 237-252.
- Bunderson, J. S., & Sutcliffe, K. M. 2002. Comparing alternative conceptualizations of functional diversity in management teams: process and performance effects. *Academy of Management Journal*, 45, 875-893.
- Cycyota, C. S., & Harrison, D. A. 2002. Enhancing survey response rates at the executive level: Are employee- or consumer-level techniques effective? *Journal of Management*, 28, 151-176.
- Datta, D. K., Rajagopalan, N., & Rasheed, A. M. A. 1991. Diversification and performance: Critical review and future directions. *Journal of Management Studies*, 28, 529-558.
- Dess, G. G., Gupta, A., Hennart, J. F., & Hill, C. W. L. 1995. Conducting and integrating strategy research at the international, corporate, and business levels: Issues and directions. *Journal of Management*, 21, 357-393.
- Duhaime, I. M., & Schwenk, C. R. 1985. Conjectures on cognitive simplification in acquisition and divestment decision making. *Academy of Management Review*, 10, 287-295.
- Dundas, K. N. M., & Richardson, P. R. 1982. Implementing the unrelated product strategy. *Strategic Management Journal*, 3, 287-301.
- Dutton, J., & Dukerich, J. 1991. Keeping an eye on the mirror: Image and identity in organizational adaptation. *Academy of Management Journal*, 34, 517-554.
- Farjoun, M. 1998. The independent and joint effects of the skill and physical bases of relatedness in diversification. *Strategic Management Journal*, 19, 611-630.
- Fligstein, N. 1987. The interorganizational power struggle: Rise of finance personnel to top leadership in large corporations, 1919-1979. *American Sociological Review*, 52, 44-58.

- Fligstein, N. 1990. *The transformation of corporate control*. Cambridge, MA.: Harvard University Press.
- Garg, V. K., Walters, B. A., & Priem, R. L. 2003. Chief executive scanning emphases, environmental dynamism, and manufacturing firm performance. *Strategic Management Journal*, 24, 725-744.
- Ginsberg, A. 1990. Connecting diversification to performance: A sociocognitive approach. *Academy of Management Review*, 15, 514-535.
- Gioia, D. A., & Chittipeddi, K. 1991. Sensemaking and sensegiving in strategic change initiation. *Strategic Management Journal*, 12, 433-448.
- Goold, M., & Campbell, A. 1987. *Strategies and styles: The role of the center in managing diversified corporations*. New York: Basil Blackwell.
- Goold, M., Campbell, A., & Alexander, M. 1994. *Corporate level strategy: Creating value in the multibusiness company*. New York: John Wiley & Sons.
- Goold, M., & Luchs, K. 1993. Why diversify? Four decades of management thinking. *Academy of Management Executive*, 7(3), 7-25.
- Grant, R. M. 1988. On "dominant logic," relatedness and the link between diversity and performance. *Strategic Management Journal*, 9, 639-642.
- Hair, J. R., Anderson, R. E., Tatham, R. L., & Black, W. C. 1998. *Multivariate data analysis* (5th ed.). Upper Saddle River, NJ: Prentice Hall.
- Hall, G. E. 1987. Reflections on running a diversified company. *Harvard Business Review*, 65(1), 84-92.
- Hambrick, D. C. 1982. Environmental scanning and organizational strategy. *Strategic Management Journal*, 3, 159-174.
- Hambrick, D. C., Geletkanycz, M. A., & Fredrickson, J. W. 1993. Top executive commitment to the *status quo*: Some tests of its determinants. *Strategic Management Journal*, 14, 401-418.
- Hambrick, D. C., & Mason, P. A. 1984. Upper echelons: The organization as a reflection of its top managers. *Academy of Management Review*, 9, 193-206.
- Hayes, R. H., & Abernathy, W. J. 1980. Managing our way to economic decline. *Harvard Business Review*, 58(4), 67-77.

- Hill, C. W. L. 1994. Diversification and economic performance: Bringing structure and corporate management back into the picture. In R. P. Rumelt, D. E. Schendel, & D. J. Teece (Eds.), *Fundamental issues in strategy*. Boston: Harvard Business School Press, 297-321.
- Hitt, M. A., & Ireland, R. D. 1986. Relationships among corporate level distinctive competencies, diversification strategy, corporate structure and performance. *Journal of Management Studies*, 23, 401-416.
- Hoskisson, R. E., & Hitt, M. A. 1988. Strategic control systems and relative R&D investment in large, multiproduct firms. *Strategic Management Journal*, 9, 605-621.
- Hoskisson, R. E., & Hitt, M. A. 1990. Antecedents and performance outcomes of diversification: A review and critique of theoretical perspectives. *Journal of Management*, 16, 461-509.
- Huff, A. S. 1982. Industry influences on strategy reformulation. *Strategic Management Journal*, 3, 119-131.
- Johnson-Laird, P. N. 1983. *Mental models*. Cambridge, MA: The University Press.
- Jones, G. R., & Hill, C. W. L. 1988. Transaction cost analysis of strategy-structure choice. *Strategic Management Journal*, 9, 159-172.
- Kanter, R. M. 1989. *When giants learn to dance*. New York: Simon & Schuster.
- Karaevli, A. 2007. Performance consequences of new CEO "outsiderness:" Moderating effects of pre- and post-succession contexts. *Strategic Management Journal*, 28, 681-706.
- Kazanjian, R. K., & Drazin, R. 1987. Implementing internal diversification: Contingency factors for organization design choices. *Academy of Management Review*, 12, 342-354.
- Kiechel, III, W. 1982. Corporate strategists under fire. *Fortune*, December 27, 34-39.
- Kor, Y. Y., & Leblebici, H. 2005. How do interdependencies among human-capital deployment, development, and diversification strategies affect firms' financial performance? *Strategic Management Journal*, 26, 967-985.
- Lamont, B. T., & Anderson, C. R. 1985. Mode of corporate diversification and economic performance. *Academy of Management Journal*, 28, 926-934.
- Lauenstein, M. C. 1984. Cutting companies down to size. *Harvard Business Review*, 62(5), 6-14.
- Leavy, B. 2001. Creating value in the multi-business firm. *Journal of General Management*, 27, 51-66.

- Levy, O. 2005. The influence of top management team attention patterns on global strategic posture of firms. *Journal of Organizational Behavior*, 26, 797-819.
- Lounsbury, M., & Glynn, M. A. 2001. Culture entrepreneurship: Stories, legitimacy, and the acquisition of resources. *Strategic Management Journal*, 22, 545-564.
- March, J. G., & Simon, H. A. 1958. *Organizations*. New York: Wiley.
- Mason, K., & Harris, L. C. 2005. Pitfalls in evaluating market orientation: An exploration of executives' interpretations. *Long Range Planning*, 38, 373-391.
- Miller, D. J., Fern, M. J., & Cardinal, L. B. 2007. The use of knowledge for technological innovation within diversified firms. *Academy of Management Journal*, 50, 208-326.
- Nayyar, P. R. 1993. Stock market reactions to related diversification moves by service firms seeking benefits from information asymmetry and economies of scope. *Strategic Management Journal*, 14, 569-591.
- Neill, S., & Rose, G. M. 2006. The effect of strategic complexity on marketing strategy and organizational performance. *Journal of Business Research*, 59, 1-10.
- Palepu, K. 1985. Diversification strategy, profit performance and the entropy measure. *Strategic Management Journal*, 6, 239-255.
- Pehrsson, A. 2006. Business relatedness and performance: A study of managerial perceptions. *Strategic Management Journal*, 27, 265-282.
- Piscitello, L. 2004. Corporate diversification, coherence and economic performance. *Industrial and Corporate Change*, 13, 757-787.
- Pitts, R. A. 1980. Toward a contingency theory of multibusiness organization design. *Academy of Management Review*, 5, 203-210.
- Porter, M. E. 1985. *Competitive advantage*. New York: The Free Press.
- Porter, M. E. 1987. From competitive advantage to corporate strategy. *Harvard Business Review*, 65(3), 43-59.
- Prahalad, C. K., & Bettis, R. A. 1986. The dominant logic: A new linkage between diversity and performance. *Strategic Management Journal*, 7, 485-502.

- Ramanujam V., & Varadarajan, P. 1989. Research on corporate diversification: A synthesis. *Strategic Management Journal*, 10, 523-551.
- Robertson, D., & Ulrich, K. T. 1998. Planning for product platforms. *Sloan Management Review*, 39(4), 19-31.
- Rumelhart, D. E. 1984. Schemata and the cognitive system. In R. S. Wyer, & R. K. Srull (Eds.), *Handbook of social cognition*. Hillsdale, NJ: Lawrence Erlbaum Associates, 161-188.
- Rumelt, R. P. 1974. *Strategy, structure and economic performance*. Cambridge, MA: Harvard University Press.
- Rumelt, R. P. 1982. Diversification strategy and profitability. *Strategic Management Journal*, 3, 359-370.
- Song, J. H. 1982. Diversification strategies and the experience of top executives of large firms. *Strategic Management Journal*, 3, 377-380.
- Spender, J. C. 1989. *Industry recipes*. Oxford: Basil Blackwell.
- Starbuck, W. A., & Milliken, F. J. 1988. Executives' perceptual filters: What they notice and how they make sense. In D. C. Hambrick (Ed.), *The executive effect: Concepts and methods for studying top managers*. Greenwich, CT: JAI Press, 35-65.
- Stewart, T. A. 1997. *Intellectual capital: The new wealth of organizations*. New York: Doubleday.
- Stimpert, J. L., & Duhaime, I. M. 1997. In the eyes of the beholder: Conceptualizations of relatedness held by the managers of large diversified firms. *Strategic Management Journal*, 18, 111-125.
- Tanriverdi, H., & Venkatraman, N. 2005. Knowledge relatedness and the performance of multibusiness firms. *Strategic Management Journal*, 25, 1131-1153.
- Teece, D. J. 1982. Towards an economic theory of the multiproduct firm. *Journal of Economic Behavior and Organization*, 3, 39-63.
- Tootelian, D. H., & Gaedeke, R. M. 1987. Fortune 500 list revisited 12 years later: Still an endangered species for academic research? *Journal of Business Research*, 15, 359-363.
- Vanhaverbeke, W., & Peeters, N. 2005. Embracing innovation as strategy: Corporate venturing, competence building and corporate strategy making. *Creativity and Innovation Management*, 14: 246-257.

- Walsh, J. P. 1995. Managerial and organizational cognition: Notes from a trip down memory lane. *Organization Science*, 6, 280-321.
- Weick, K. E. 1995. *Sensemaking in organizations*. Newbury Park, CA: Sage.
- Williamson, O. E. 1975. *Markets and hierarchies: Analysis and antitrust implications*. New York: The Free Press.
- Woodruff, R. B. 1997. Customer value: The next source for competitive advantage. *Journal of the Academy of Marketing Science*, 25, 139-153.
- Zajac, E. J., & Shortell, S. M. 1989. Changing generic strategies: Likelihood, direction, and performance implications. *Strategic Management Journal*, 10, 413-430.

TABLE 1
Summary of the Sources of Questionnaire Items to Assess Executive Beliefs about the Management of Diversification

<i>Category</i>	<i>Source or Reference</i>	<i>Representative Questions from the Mail Survey</i>
Relatedness and sharing of functional skills	Goold & Luchs (1993) Kazanjian & Drazin (1987) Lauenstein (1984) Porter (1985, 1987) Rumelt (1974, 1982) Field interviews	All or most of a firm's businesses should... be in the same industry as the firm's core business sell to the same customer groups use the same marketing and promotion methods emphasize research and development use the same manufacturing process use the same distribution channel or most of a firm's acquisition candidates should... be in the same industry as the firm's existing businesses
All		
Common generic strategies	Porter (1987) Field interviews	All or most of a firm's businesses should... be cost leaders be market share leaders have strong brand name recognition
Management controls	Dundas & Richardson (1982) Goold & Campbell (1987) (1982) Williamson (1975) Field interviews	All or most of a firm's businesses should... receive corporate level coordination on sales or marketing receive corporate level coordination on manufacturing or distribution be able to miss their financial performance objectives if other strategic objectives are being met be required to always meet their financial performance objectives be required to meet the same financial performance objectives be divested if they perform poorly and do not respond to management initiatives be in different stages of the product life cycle have surplus cash flows reallocated to support other businesses or most of a firm's acquisitions should... be evaluated primarily on their financial performance characteristics
Teece		
All		

TABLE 1, continued
 Summary of the Sources of Questionnaire Items to Assess Executive Beliefs about the Management of Diversification

<i>Category</i>	<i>Source or Reference</i>	<i>Representative Questions from the Mail Survey</i>
Mode of diversification	Lamont & Anderson (1985) Pitts (1980)	All or most of a firm's businesses should... develop extensions of existing product lines
Pehrsson	(2006)	develop totally new products
Pis	citello (2004) All	or most of a firm's acquisitions should...
	Song (1982)	offer opportunities to strengthen the firm's existing businesses
	Field interviews	offer opportunities to move the firm in new strategic directions
Size of acquired businesses	Field interviews	All or most of a firm's acquisitions should... be at least some minimum size

TABLE 2
Executive Orientations or Beliefs and Understandings about the Management of Diversification

VARIABLE	FACTOR 1	FACTOR 2	FACTOR 3
Businesses should use the same marketing methods	.8222	-.0569	.0399
Businesses should use the same distribution channels	.7953	.1136	.0850
Marketing should be coordinated at the corporate level	.7126	.1435	-.0982
Businesses should sell to the same customer groups	.7098	-.0098	-.0751
Businesses should use the same manufacturing processes	.6902	-.1441	.0258
Manufacturing should be coordinated at the corporate level	.6415	.1794	-.1006
All businesses should be in the same industry	.4676	.2743	-.0003
Products and services should have strong brand name recognition	.1767	.6335	-.0265
Businesses should develop totally new products	.0425	.6132	.1133
Businesses should be market share leaders	-.0017	.6053	.0321
Businesses should emphasize research and development	.1986	.5774	-.0824
Businesses should be in different stages of the life cycle	.0914	.5134	.0871
Businesses should develop extensions of existing products	-.0744	.4982	-.0716
Cash should be reallocated to support new product development	-.0004	.4894	.0054
Acquisitions should offer opportunities to redirect the firm	.0394	.3372	.2219
Businesses should always meet financial goals	.0413	.1551	.7629
Businesses should be evaluated primarily by financial criteria	-.0167	.0722	.6197
Acquisitions should be some minimum size	-.0173	.0800	.2939
Acquisitions should be in the same industry	.2634	.1582	-.3115
Acquisitions should strengthen the firm's existing businesses	.1074	.1674	-.3187
Businesses can miss financial goals if other objectives are met	-.0858	-.0071	-.7346
EIGENVALUES	3.60	2.60	1.91
FACTOR NAME	Core Business Orientation	Marketing Orientation	Financial Control Orientation

TABLE 3
Correlations among the Management Beliefs and Strategic Decisions Variables

VARIABLES:	Mean	S.D.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Core Business Orientation	0	1.000										
2. Marketing Orientation	0	1.000	.000									
3. Financial Control Orientation	0	1.000	.000	.000								
4. Tenure	22.343	12.577	.018	.038	.040							
5. Return on Assets	0.062	0.056	.158 [*]	.004	-.068	.189 [*]						
6. Log(Sales) 6.864		1.451	-.086	-.038	.002	.193 [*]	.088					
7. Extent of Diversification	0.434	0.426	-.360 ^{***}	-.045	-.154	.031	-.183 [*]	.377 ^{***}				
8. Number of Acquisitions	1.816	0.968	-.135	-.068	-.093	-.015	.076	.297 ^{***}	.266 ^{**}			
9. Number of Divestments	1.595	0.730	-.233 ^{**}	.060	-.085	.021	-.129	.313 ^{***}	.287 ^{***}	.185 [*]		
10. Number of New Products	3.616	1.755	-.173 [*]	.158 [*]	-.083	-.009	.172 [*]	.030	.096	.173 [*]	.017	
11. R&D Spending	0.030	0.029	.120	.248 [*]	-.011	-.061	.329 ^{***}	.076	-.040	.048	.107	.256 ^{**}

* p < .05 ** p < .01 *** p < .001

TABLE 4
 Relationships among Executives' Beliefs about the
 Management of Diversification and Their Firms' Strategic Decisions
 (Standardized beta estimates are reported; t-statistics are shown in parentheses)

<i>INDEPENDENT VARIABLES:</i>	<i>DEPENDENT VARIABLES:</i>				
	<i>Extent of Diversification</i>	<i>Number of Acquisitions</i>	<i>Number of Divestments</i>	<i>Number of New Products</i>	<i>R&D Spending</i>
Tenure	.078 (.99)	-.096 (-1.15)	-.015 (-.19)	-.103 (-1.22)	-.117 (-1.24)
Return on Assets	-.211** (-2.74)	.062 (.76)	-.159* (-2.01)	.169* (2.04)	.305** (3.06)
Log(Sales)	.347*** (4.41)	.281** (3.30)	.344*** (4.21)	.033 (.38)	
Core Business Orientation	-.302*** (-3.97)	-.115 (-1.44)	-.189* (-2.44)	-.177* (-2.18)	.028 (.29)
Marketing Orientation	-.052 (-.70)	-.050 (-.63)	.074 (.98)	.167* (2.09)	.245* (2.59)
Financial Control Orientation	-.179* (-2.37)	-.090 (-1.13)	-.079 (-1.03)	-.060 (-.75)	.004 (.04)
F	6.94***	2.49*	4.12***	2.25*	3.76**
Adjusted R ²	.26	.07	.14	.06	.16

* p < .05 ** p < .01 *** p < .001