The Influence of CEO Characteristics on the International Diversification of Manufacturing Firms: An Empirical Study in the United States

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Educational level, age, functional background, and international experience of CEOs of large, public, and nondiversified firms are examined using secondary data. The sample consists of 173 U.S. manufacturing firms with international operations. The results indicate that younger CEOs with higher levels of education and with international experience are likely to be associated with organizations with greater degrees of international diversification. Additionally, in firms with higher levels of performance, the education and international experience of the top managers appear to match more closely the extent of international diversification.

The rapid development of a new globalized competitive landscape has created the need for top managers to effectively exercise strategic leadership in organizations (Ireland & Hitt, 1999). To react to the greater complexity and rapid changes associated with internationalization, top managers need a strategic understanding of different national markets as increased numbers of firms are forced to diversify and compete in a global arena (Bartlett & Ghoshal, 1989). The study of international diversification is particularly relevant at this time, given the growing importance of new world markets.

Reviews of the various antecedent factors associated with international diversification (e.g., Kochhar & Hitt, 1995) reveal that little consideration has been paid to the role of CEOs. The primary objective of this research is to address this gap in the literature by investigating the relationships of CEO characteristics -educational level, age, and international experience- to the extent of international diversification. Additionally, I study the association of the fit between CEO characteristics and international diversification to superior performance. In other words, do firms that align CEO characteristics with international strategy exhibit better performance?

CEO Demographic Characteristics

A number of studies have explored the relationship between demographic characteristics of top managers and strategic outcomes (Finkelstein & Hambrick, 1996; Park, Hema, & Klekamp, 1997). Also, the fit between the experience and characteristics of top managers and strategic direction has been shown to impact firm performance (Gupta, 1984). This study adopts a strategic leadership perspective, which focuses on the characteristics of the executives who have overall responsibility for an organization. This perspective stresses the fact that major organizational choices are made by

individuals, who act on the basis of their idiosyncratic experiences and motivations (Finkelstein & Hambrick, 1996). However, other arguments contradict this perspective. Population ecologists (Hannan & Freeman, 1977) and institutional theorists (DiMaggio & Powell, 1983), for instance, have argued that the role of managers is inertial and conforming to institutional pressures. In contrast, strategic leadership, which is based on the strategic choice perspective (Child, 1972), attributes an essential role to the autonomous choices of managers and their influence in directing and shaping institutions.

Strategic leadership may help explain why top managers make specific internationalization decisions. Managers' decisions are influenced by their personal experiences, training, and perceptions (Finkelstein & Hambrick, 1996). These decisions, influenced by the managers' attributes, have effects on the main strategic choices of firms, including diversification (Hambrick & Mason, 1984).

The strategic decisions that managers make are influenced by beliefs, models, and perceptions that reflect their cognitive bases. A manager's cognitive base influences the perceptual process and evolves from past experiences, training, and background (Hambrick & Mason, 1984). Research on CEO characteristics has predominantly used observable managerial demographic characteristics such as educational level, age, and functional background as proxies for underlying cognitive orientations and knowledge base. The use of observable characteristics offers several advantages over psychological analogues and has direct practical implications for executive selection and competitor analysis (Finkelstein & Hambrick, 1996).

CEO Characteristics and International Diversification

The empirical literature on executives' demographic characteristics, strategic choices, and firm performance has been largely based on the upper echelons theory advocated by Hambrick and Mason (1984). Studies belonging to this stream typically reflect the contingency argument — that the appropriateness of particular managerial skills depends on contextual conditions, including firm strategy. Smith and White (1987), for example, observed systematic relationships between firms' diversification strategies and the functional backgrounds of newly selected CEOs. Likewise, Chaganti and Sambharya (1987) and Govindarajan (1989) found significant relationships between top managers' functional backgrounds and firms' competitive strategies. In addition, research by Miller and Toulouse (1986) indicates that a CEO's personality is closely linked to strategy-making behavior. These studies provide descriptive validity to the proposition that systematic relationships exist between CEO characteristics and firm strategies. Internationally, however, most studies (e.g., Sambharya, 1996) have focused on TMT characteristics. Because the CEO is the top executive with ultimate responsibility and has a fundamental role in the strategic decisions of a firm (Brady & Helmich, 1984), this study analyzes the influence of CEOs on international diversification. International diversification requires the search for new and multiple ways to compete and continued development of new markets and products. Managers who take the challenges of diversifying their firms internationally face increasing complexity and must be able to

discriminate among a variety of alternatives. Therefore, they should be able to process information and make decisions. Because international diversification requires novelty, adaptability, and innovation (Sambharya, 1996), managers who work in international markets should be able to lead innovative efforts and more eagerly assume international tasks. They should also be better prepared to evaluate alternatives and process information competently. Managers in these uncertain environments must be ready to attempt a novel approach, take risks, and be flexible in seeking these challenges of international diversification. Managers in firms with international operations also need a specific type of knowledge to comfortably and successfully deal with the ambiguity of doing business in different (and often very diverse) areas of the world.

Hypotheses

The demographic variables chosen for this study were educational level, age, and functional background, because previous research has shown their relevance to an examination of relationships between CEO characteristics and strategy (Finkelstein and Hambrick, 1996). In addition, executive international experience, which has also been studied in recent research (Sambharya, 1996), has been shown to be closely associated with a firm's level of international diversification.

CEO Educational Level

Educational level reflects an individual's cognitive ability, particularly open mindedness and propensity to identify and evaluate newer alternatives (Datta & Rajagopalan, 1998). Education is positively associated with high capacity for information processing and tolerance for ambiguity (Wiersema & Bantel, 1992). Research has also shown that higher educational level is associated with greater receptivity to innovation (Kimberly & Evanisko, 1981). International diversification can not only increase the potential to achieve greater returns on innovation, but can also help lower the risks associated with substantial R&D investments. International diversification provides firms with a larger market base, offering greater opportunities to profit from innovation (Hitt, Hoskisson, & Kim, 1997), but it also requires managers to go through the process of evaluating a more complex and more ambiguous set of circumstances. Higher educational level will allow managers to more easily evaluate these various options. Managers with higher levels of education are also more likely to have accumulated more comprehensive knowledge about foreign cultures and environments and to be more tolerant of perceived differences. Thus,

> *Hypothesis 1: CEO educational level will be positively associated with international diversification.*

CEO Age

Age has been associated with one's predisposition to risk taking. It has been argued that the age of an individual influences strategic decision-making. With advancing age, flexibility decreases and rigidity and resistance to change increase (Wiersema & Bantel, 1992). Young managers are more likely to take risks and try new approaches whereas

older managers are likely to prefer financial security and avoid risk taking (Rajagopalan & Datta, 1996). International diversification typically involves a high level of uncertainty and requires the understanding of different environmental conditions. The higher risks associated with competing in environments in which varying degrees of political threats exist are more likely to be undertaken by younger managers. In contrast, older managers will be more likely to avoid decisions that entail international diversification because they feel more comfortable in a familiar environment. Younger managers are also expected to be more confident than older managers in making decisions to internationalize their companies and to be better prepared to integrate more sources of information (Hambrick & Mason, 1984). Older executives may be more reluctant to accept new ideas and learn the new behaviors (Chown, 1960) required for doing business in diverse international settings. Consequently, they are less likely to favor international diversification. The above arguments lead to the following hypothesis,

Hypothesis 2: CEO age will be negatively associated with international diversification.

CEO Functional Background

When managers spend considerable amounts of their careers in certain functional areas, they develop specific techniques, models, and perceptions that are common to those areas. Managers are usually functionally specialized and operate according to the models they have developed over time (Gupta, 1984). Research evidence suggests that the career specialization of CEOs is associated with diversification strategy (Smith & White, 1987). Functional backgrounds may lead to specific strategic choices, because individuals are attracted to areas that suit their personalities, aptitudes, and cognitive models. Training in a functional area leads managers to have a tendency to generate solutions with which they are familiar, even if they are working in management positions outside their functional areas (Finkelstein & Hambrick, 1996). Output functions, namely, marketing, sales, and product R&D, are related to growth and the search for new domain opportunities. Backgrounds in product R&D or engineering have been related to progress, invention, and improvement (Wiersema & Bantel, 1992). Research suggests that throughput functions such as manufacturing, finance, administration, and accounting mainly emphasize improving the efficiency of operations (Hambrick & Mason, 1984). Output functions have been related to prospector strategies, by which firms enact more dynamic environments. Prospectors try to coordinate diverse operations and exploit new products and market opportunities (Chaganti & Sambharya, 1987). Throughput functions have been associated with defender strategies, by which firms try to create a stable set of products and markets and to maintain strict control of the organization to ensure its efficiency (Finkelstein & Hambrick, 1996). CEOs with output function experience develop skills that allow them to match organizational strengths with opportunities and direct investment into feasible projects that will successfully position the company into new markets. Thus we can expect managers who have most of their

experiences in output functions to have the skills set necessary to identify new and attractive markets, which in turn will lead to greater international diversification. Thus,

Hypothesis 3: CEO experience in output functions will be positively associated with international diversification.

CEO International Experience

The international experience of executives can be expected to have an impact on their overall knowledge base and cognitive orientation. Because international experience implies learning new business practices and discerning differently coded information, executives with foreign experience can be expected to have greater information processing ability, which is especially relevant to managing activities in international operations (Black, Gregersen, & Mendenhall, 1992). Research suggests that former experiences shape values and cognitive models and affect decision making and behavior (Hitt & Tyler, 1991). Hambrick and Mason (1984) argue that career experiences should affect the types of actions taken by top managers, because they become part of the cognitive makeup of executives and help define their search boundaries in the face of the new or uncertain. When executives gain international experience, they increase their awareness and expand their boundaries, becoming more attuned to business opportunities in different countries. Sambharya (1996) found that the international experience of TMTs was significantly associated with degree of internationalization, arguing that international experience is a proxy for the reduction of uncertainty, a surrogate for accumulating cultural knowledge, and a reflection of the need of firms to internationalize their top managers in response to the forces of globalization. According to Black, Gregersen, and Mendenhall (1992), the international assignments of executives help companies in their efforts to achieve global competitiveness, because managers are able to learn and transfer knowledge about foreign markets and competitors. International experience additionally helps executives in formulating and implementing international strategies (Tung & Miller, 1990). Thus,

Hypothesis 4: The international experience of CEOs will be positively associated with international diversification.

Methods

Sample

To be included in the sample, firms had to be in manufacturing industries (two-digit SIC codes 20-39); to have international sales, to ensure firms that compete internationally; to satisfy a minimum sales criterion of $250 million in 1997, to ensure firms of adequate size to achieve international diversification; and to have at least 50 percent of sales in one business segment, identified with a single four-digit SIC. CEOs in less diversified firms are expected to have greater involvement in international decisions than in highly diversified firms. Additionally, firms had to be publicly traded so that data on CEOs and firm variables could be obtained from published sources. The 371 firms that satisfied these requirements had an average number of 15,728 employees (median of 5,100);

$3,850 million in average sales, (median of $903 million); and foreign sales accounting for an average of 30 percent. Data availability reduced the sample to 173 firms.

Definition and Measurement of Variables

International diversification was operationalized using the entropy measure that accounts for the extent of sales outside the domestic market and their distribution globally: ID = $\sum i$ [Pi x ln (1/Pi)], where Pi is the percentage of sales attributed to global market region i and ln (1/Pi) is the weight given to each global market region, or the natural logarithm of the inverse of its sales (Hitt et al., 1997). The data on CEO characteristics (educational level, age, functional background), was drawn from several sources: the *Dun & Bradstreet Reference Book of Corporate Management*; *Standard & Poor's Register of Corporations, Directors and Executives*; and *Who's Who in Finance and Industry*.

Educational level of the CEO was defined as the number of years of schooling (Wiersema & Bantel, 1992) and measured on a seven-point scale based on the highest degree earned. CEO age was measured in number of years. CEO international experience was operationalized as a categorical variable indicating whether a CEO has or has not spent time abroad on assignment and/or higher education, or in a international division (Sambharya, 1996). CEO functional background was also coded as a categorical variable to reflect output or throughput experience. The area in which the CEO had spent the most of time was used to determine his or her functional background (Rajagopalan & Datta, 1996). Functional experience was categorized into one of seven different categories. Throughput functional orientation included production/operations, finance and accounting, general management, planning and development, and law or secretary. Output functional orientation included sales and marketing, research and development, and entrepreneurial.

Several control variables were included after determining those variables found to have an impact on international diversification. Firm size was measured by taking the logarithm of each firm's average number of employees (Rajagopalan & Datta, 1996). TMT size was also included as a control variable because of its potential impact on the team outcomes (Finkelstein & Hambrick, 1996). Industry R&D intensity was measured as the ratio R&D expenses/sales (Caves & Mehra, 1986). Firm sales growth was operationalized as the average growth in sales over the last three years (Bühner, 1987). Return on assets (ROA) was used as a measure of previous organizational performance, with data drawn from the Standard & Poor's COMPUSTAT database.

Results

Table 1 presents the means, standard deviations, and correlations among variables on the relationships between CEO characteristics and international diversification. The data was analyzed using OLS regression. The results of the regression analysis on the relationships between CEO characteristics and international diversification are presented in Table 2. Hypothesis 1 was supported; CEOs with higher levels of education are

Table 1. CEO Characteristics

Means, Standard Deviations, and Correlations[a]

Variables	Means	s.d.	1	2	3	4	5	6	7	8	9
1. International diversification	0.45	0.19									
2. CEO educational level	4.00	1.47	.20								
3. CEO age	57.16	8.13	-.11	-.15							
4 CEO international experience	.27	0.52	.23	.07	-.10						
5. CEO throughput orientation	0.82	0.38	-.01	-.12	.13	-.10					
6. Firm size	8.83	1.14	.44	.03	.11	.19	-.12				
7. TMT size	6.35	2.62	.09	-.09	-.05	-.05	-.04	.05			
8. Ind. R&D intensity	2.28	7.52	.19	.09	-.05	-.04	.08	.17	-.07		
9. Firm ROA	1.10	10.24	-.02	-.05	-.02	-.08	.00	.13	-.07	-.04	
10.Firm sales growth	12.67	16.18	-.10	.06	-.21	-.06	.01	-.21	.00	-.02	-.04

[a] Correlations greater than .12 are significant at $p < .05$, correlations greater than .15 are significant at $p < .01$,correlations greater than .18 are significant at $p < .001$.

Table 2. Results of OLS Regression

CEO Characteristics and International Diversification[a]

Variables	Model 1	Model 2
Firm size	.010***	.069***
TMT size	.007	.008#
Ind. R&D intensity	.004#	.003#
Firm previous performance (ROA)	-.001	-.001
Firm growth sales	.001	.003
CEO educational level		.023**
CEO age		-.028#
CEO throughput orientation		.042
CEO international experience		.051*
Intercept	-.211	-.186
F	9.663***	7.890***
R^2	.22	.30
ΔR^2		.08
N	173	173

[a] Standard errors are in parentheses.

#$p < .10$ *$p < .05$ **$p < .01$ ***$p < .001$

likely to be associated with organizations with greater degrees of international diversification. Hypothesis 2 was also supported; CEO age is negatively associated with international diversification. However, no significant relationships were observed for functional background and consequently, Hypothesis 3 was not supported. Hypothesis 4 was supported; CEOs with international experience are likely to be associated with companies with higher degrees of international diversification. Additionally, based on a median split on the firm's performance measure, OLS regression models (results not shown) indicated that educational level, functional background,and international experience were significantly associated with international diversification in the subgroup of high performers but not in the subgroup of low performers.

Discussion

The primary purpose of this study was to investigate the relationships between the characteristics of CEOs and international diversification. Two sets of findings emerged from the results. First, the results indicate that CEOs who are younger and who have higher levels of education and international experience, are likely to be associated with firms characterized by greater international diversification. Second, firms with higher levels of performance appear to match the education, age, functional background, and international experience of their top managers more closely to the extent of international diversification

From a practical managerial perspective, firms could benefit from a better conceptualization of the CEO characteristics required for achieving desired degrees of international diversification. Firms seeking involvement in international markets are likely to recruit executives who are younger and who have higher levels of education. The higher levels of uncertainty, ambiguity, and change associated with a competitive international business arena require managers who are trained in processing greater amounts of information in making key decisions. Firms that are striving to diversify internationally could also benefit from having top executives who have international experience. Managers in firms that diversify internationally need to be involved in business transactions with their foreign counterparts. They have to deal with managers who speak different languages and have different cultures, beliefs, and objectives. Managers with international experience seem to be better positioned to understand and deal with such differences and lead their firms to compete in the global economy.

It is also important to note the lack of support for the hypothesis that functional background is related to international diversification. One possible reason may be the nature of the sample, which consisted exclusively of large firms. Large size restricts the likelihood that strong executive influences on organizational outcomes will be observed (Finkelstein & Hambrick, 1996). Additionally, managers who become CEOs of these large firms are likely to be individuals with boundless energy who have self-confidence and a tendency to take risks (Hitt & Tyler, 1991). In such managers, energy

and ambition might be the driving forces that most influence their decisions, so that the influence of functional experience is dissipated. Hambrick and Mason (1984) warned that non-findings would be possible, contending that because it takes a certain kind of person to rise to the top, CEOs are more homogeneous than would otherwise be expected. In the sample selected in this study, a large majority of CEOs had throughput experiences, making it more difficult to establish differences with CEOs with output experiences. In addition, most executives spend long periods of time in senior managerial positions before becoming CEOs, and this similarity in their previous experience might contribute to this apparent homogeneity and thus to the lack of findings.

These findings and their interpretation should be considered in the context of the limitations of the study. First, the sample was restricted to large, nondiversified firms based in the manufacturing sector in the United States, which limits the generalizability of the findings. To address this limitation, future research needs to examine these relationships in different settings (e.g., other countries) and with different samples (e.g., firms from other sectors and, possibly, more diversified firms). Additionally, demographic data only represents proxies for underlying cognitive orientations and may not fully capture the cognitive variables of interest. Future research may complement the interpretation of these findings through use of psychological measures, values, cognitive structures, and personality variables. Finally, given its cross-sectional nature, this study was only able to examine a causal association between CEO and top management characteristics and international diversification. This issue of causality in strategic leadership may have been answered by Miles and Snow (1978), who argued that a reinforcing spiral probably occurs: Managers choose strategies according to their beliefs and preferences, CEOs are selected according to how much their characteristics fit the strategy, and so on.

Footnote

A previous version of this paper was presented at the 2000 National Academy of Management Meetings in Toronto. The author thanks Sanjeev Agarwal and Sam DeMarie for their helpful comments on earlier drafts of this paper.

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