EVALUATION OF MARKETING LEADERSHIP IN ORGANIZATIONS

A Dissertation in

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by

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ABSTRACT

The overarching objective of this thesis is to develop insights into whether marketing (sales) executives have an impact on organizational outcomes. In contemporary corporations, a top marketing executive (TME) retains vital responsibility for the design and implementation of marketing policy decisions. Despite the common recognition by practitioners and scholars that top managers are important for firm strategy and performance, few studies in marketing explore the implications of marketing leadership. As an initial step toward learning about the role of marketing leadership, my dissertation would provide insights into the value created by these top marketing executives in organizations. My dissertation research contributes to understanding the importance of marketing leadership which has been a neglected variable in marketing research.
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Chapter 1

INTRODUCTION

In contemporary corporations, a top marketing executive (TME) retains vital responsibility for the design and implementation of marketing policy decisions. Although the role of marketing in organizations has attracted considerable attention from marketing scholars, we know little about the function of those individuals in charge of the marketing function. Despite the common recognition by practitioners and scholars that top managers are important for firm strategy and performance, few studies in marketing explore the implications of marketing leadership.

As large corporations redouble their efforts to find more profitable paths to growth, they’re looking for strategic and operational leadership from the marketing organization more than ever before. Finding a suitable candidate for top marketing executive (TME) jobs, usually entitled chief marketing officers (CMO) or vice presidents of marketing, therefore becomes an important and difficult challenge. According to a report issued by the executive recruiting firm Spencer Stuart, the average tenure of TMEs in the top 100 branded firms is only 23 months—less than half the tenure of CEOs in those same firms.

Managerial succession, such as turnover among TMEs, entails a unique event that results in organization-wide change and shifts in the firm’s strategic direction. Therefore, understanding the change of TMES and its impact on organizational outcomes is imperative. And the overarching objective of this dissertation is to explore this important
phenomenon and to investigate the important ramifications of marketing leadership in organizations.

I structure my dissertation into two essays: in the first essay, I investigate the news announcements of TME change and explore the implications of these announcements for firm shareholder value through an event study. The event study approach examines the effects of top management turnover and succession announcements on stock prices and has been proposed as one way to develop insights into whether leaders affect organizational performance. In the second essay, I apply a social network perspective to investigate the implications of the movement of TMEs among firms derived from these executives’ work experience records. Upper echelon scholars view personnel movement as one mechanism of information transfer and communication and as one mechanism to promote the development of interfirm relationships. This study addresses the benefits organizations obtain through executive migration.
Chapter 2

ESSAY ONE

Marketing capabilities help firms build sustainable competitive advantages and extract economic rents (e.g., Day 1994; Kumar and Petersen 2005; Varadarajan and Jayachandran 1999). As organizations are viewed as reflections of the characteristics, values, and cognitive bases of their top managers (Hambrick 2007; Hambrick and Mason 1984), a firm’s marketing capabilities should be reflected in the quality of its marketing leadership. As firms look for more profitable paths to growth, they eagerly seek creative marketing leadership to help differentiate and strengthen their brands, clarify and satisfy customers’ needs, develop quality products, and build long-term channel relationships (Koleszar and Bernhardt 2000; McGovern and Quelch 2004).

Finding a suitable candidate for top marketing executive (TME) jobs, usually entitled chief marketing officers (CMO) or vice presidents of marketing, therefore becomes an important and difficult challenge. For example, Starbucks Corporation restaffed its head of marketing position five times in seven years, Coca-Cola changed its chief marketing officer four times in six years, and Kinko’s (now FedEx Kinko’s) has staffed the position three times in five years. Moreover, Burger King, Allstate, Circuit City, Avon, Revlon, and Yahoo represent just a handful of notable firms that recently recruited a new TME. Such regular turnover in a top management position, among other things is usually unwelcomed; it is inefficient and can adversely affect employee morale. Therefore, understanding the succession of TMEs and its impact on organizational outcomes is imperative; thus I seek to explore this important phenomenon.¹

¹ Two types of management change events should be distinguished: departure announcements (turnover event) and successor announcements (succession event) (Finkelstein and Hambrick 1996; Worrell, Davidson, and Glascock
Managerial succession entails a unique event that results in organization-wide change and shifts in the firm’s strategic direction (Kesner and Sebora 1994). Because top management plays a key role in determining a firm’s strategy, culture, and performance, both internal and external constituents likely view such succession as informative about the firm’s future directions (Tushman and Rosenkopf 1996). In a similar vein, TME succession should signal impending changes in the firm’s marketing focus, strategies, and capabilities, because a new TME can modify the direction of the company and influence the allocation of resources based on insights gained from a deep understanding of consumer behavior. The logic behind changes in strategic marketing foci often centers on transforming the organizational perception and reality in the marketplace and enhancing financial performance to create shareholder value (Bolton 2004; Rust et al. 2004). Although top managers’ contribution to firm value is not directly observable, stock returns may offer a potentially valuable source of information (Finkelstein and Hambrick 1996). Marketing scholars now emphasize the link between marketing actions and strategies in terms of shareholder value, which seems to “reflect the true value of the firms” (McWilliams and Siegel 1997, p. 626). Consistent with these scholars and emerging research that links marketing actions to shareholder value (e.g., Srinivasan and Bharadwaj 2004; Tellis and Johnson 2007), this study investigates the shareholder value created as a result of TME succession and details the diverse factors that drive such value.

Specifically, I adopt an event study approach because “examination of the effects of top management turnover and succession announcements on stock prices has been proposed as one way to develop insights into whether leaders affect organizational performance” (Worrell, 1993). Turnover involves the termination of a top executive, unlike succession, which has to do with accession or replacement. The searches for news regarding TME change reveal few departure announcements. Most firms tend to publicize only successor announcements or announce TME departure and successor developments together in a press release. Thus, I focus on successor announcements.
Event studies—which rely on the validity of the efficient markets hypothesis that suggests financial markets integrate all relevant knowledge and absorb new information about the current value of uncertain future incomes to arrive quickly at the stock price of a firm (e.g., Fama 1991; Fama et al. 1969)—effectively measure the financial impacts of changes in corporate policy, leadership, or ownership (McWilliams and Siegel 1997). Therefore, marketing scholars use event studies to investigate the financial values of marketing strategies and activities, such as Internet channel additions (Geyskens, Gielens, and Dekimpe 2002), brand extensions (Lane and Jacobson 1995), and new product preannouncements (Sorescu, Chandy, and Prabhu 2007), among others (for review, see Srinivasan and Bharadwaj 2004). Stock market reactions to the announcement of a management succession similarly may indicate whether the capital market considers the event significant.

Event studies seek to explain abnormal returns (McWilliams and Siegel 1997; Srinivasan and Bharadwaj 2004), and thus, I attempt to answer not only “Does TME succession matter?” but also “In what conditions does the succession matter?” I provide an agency theory–based theoretical framework to investigate the determinants of abnormal returns accruing to the firm’s shareholders. Agency theory has a strong focus on aligning the interests of top executives and shareholders, such that shareholders as principals or owners of the firms are naturally interested in detecting and evaluating the succession of TMEs (the agents) (Worrell, Davidson, and Glascock 1993). Relying on the hidden information model (e.g., Bergen, Dutta, and Walker 1992), I suggest that two types of information signals influence shareholders’ (principals’) reactions to and evaluation of TME (agent) succession: outcome-oriented and behavior-oriented. Consistent with open system theory, which argues that industry environment influences organizational behaviors (e.g., Scott 1995), I also explore the role of industry heterogeneity to
determine its impact on shareholder value. Thus, I simultaneously investigate the shareholder value created by outcome- and behavior-oriented information signals associated with the TME succession event, while accounting for industry level heterogeneity in the value created.

With this research, I seek to make two key contributions. First, by examining the relationship of TME succession and firm abnormal returns, I empirically study the implications of marketing leadership in organizations. In contemporary corporations, a TME retains vital responsibility for the design and implementation of marketing policy decisions. Although the role of marketing in organizations has attracted considerable attention from marketing scholars (e.g., Moorman and Rust 1999), I know little about the function of executives in charge of the marketing function (Koleszar and Bernhardt 2000). As an initial step toward learning about the role of marketing leadership, I provide insights into the shareholder value created by TME succession. Second, I introduce a principal–agent information signal framework (i.e., outcome-oriented and behavior-oriented information signals) to explain the link between marketing action and shareholder values. While previous event studies often propose theoretical models specific to the event itself to explain the magnitude of abnormal returns (Srinivasan and Bharadwaj 2004), this agency-theoretical perspective presents a common theoretical basis that can be used in other event studies. This information signal framework provides a theoretical rationale and justification for the choices of event-specific or firm-specific characteristics as explanatory variables in event studies.

In the event study, I use 180 TME succession announcements from Lexis-Nexis over a period of nine years from 1996 to 2004. I estimate a hierarchical random-effects Bayesian model in which the random effects stem from industry heterogeneity (Rossi and Allenby 2003). The results support the theorization; the two types of information signals explain shareholders’
evaluations of the TME succession event. I also find evidence of industry heterogeneity, such that the magnitude of the influence of the explanatory variables on the shareholder value created varies across industries.

I organize the remainder of this article as follows: First, I present the theoretical framework to develop hypotheses that link agency theoretic TME succession constructs to shareholder value created (i.e., cumulative abnormal returns [CAR]). Second, I present the methodology, including details about the research design and data collection and analysis procedures. Third, I detail the results from the event study and the hierarchical random-effects Bayesian model used to test the hypotheses. Fourth, following a discussion of the empirical results and managerial implications, I conclude with suggestions for further research.

THEORETICAL FRAMEWORK AND HYPOTHESES

Marketing has gained increasing prominence as an orientation in that everyone in the organization shares and a function that manages important connections between customers and critical elements within the firm (Kohli and Jaworski 1990; Moorman and Rust 1999). As the need for marketing expertise becomes more pressing, firms look for strategic marketing leadership to provide a better understanding of customers, link customer knowledge to the delivery of products and services, and develop the ability to enhance marketing performance (Clark, Abela, and Ambler 2005; O'Sullivan and Abela 2007). On the basis of the belief that the quality of marketing leadership can differentiate firms through strong marketing capabilities and skills, modern firms set a higher threshold for TMEs (Koleszar and Bernhardt 2000; McGovern and Quelch 2004). To be a good TME, one must have expertise in and feel comfortable with coordinating input from multiple functions; Eric B. Kim, appointed TME of Intel in 2004, serves as a stellar example, as indicated by the following description from The Wall Street Journal:
“The rare executive who knows software and electronics and is also skilled in finance and marketing—and in closing tough deals” (qtd. in McGovern and Quelch 2004, 47-48). Firms have become less tolerant of poor TME performance, which results in a higher turnover rate in this senior position. According to a report issued by the executive recruiting firm Spencer Stuart (Welch 2004), the average tenure of TMEs in the top 100 branded firms is only 23 months—less than half the tenure of CEOs in those same firms. Underlying the high turnover and succession rates is the hope that a new TME can devise and implement strategic changes and add value to the firm. For example, when Coca-Cola named Charles (Chuck) Fruit as its new TME in 2004, its chairman and CEO Neville Isdell cited the TME change in an internal company memo: “I need to find new, innovative ways of addressing our consumers and ensuring the relevance of our brands.”

Such assumptions about the potential value of the TME role and value-adding contributions of new top executives support the study’s basic premise: announcements of new TMEs likely have a signaling effect for organizational shareholders. And it is in shareholders’ natural interest to pay attention to announcements of these new TMEs. According to agency theory, which focuses on aligning the interests of top management and shareholders (Worrell, Davidson, and Glascock 1993), a control approach attempts to curb the self-serving behaviors of managers (agents) that can have negative impacts on owners’ (principals’) wealth (Eisenhardt 1989; Sundaramurthy and Lewis 2003). Therefore, in the event of TME succession announcements, firm investors should react to the news quickly, because this event possibly signals a shift in marketing emphasis, which has important performance implications.

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One of the important underlying mechanisms for managing opportunism relates to the challenge principals face because they labor under conditions of incomplete information (e.g., Bergen, Dutta, and Walker 1992; e.g., Eisenhardt 1989). External shareholders have less information about the firm than do executives, and this information asymmetry can create problems when valuing firms. Literature suggests that problems of information asymmetry decrease by sending and interpreting of signals (Spence 1973). The hidden information model also suggests principals (shareholders) attempt to overcome the problem of information asymmetry by screening and examining information signals from potential agents (managers; e.g., Bergen, Dutta, and Walker 1992; Eisenhardt 1989).

Consistent with agency theory, I propose that there are two kinds of information signals shareholders use to evaluate the value of firm strategies or actions made by top management (the agent): outcome-oriented information to assess the outcomes of the strategies, and behavior-oriented information to assess firms’ ability to implement those strategies. Outcome-oriented information signals resemble outcome-based contracts, in that the principal can use them to curb agent opportunism by assessing whether strategies actually will benefit firm performance.\(^3\) Behavior-oriented information signals, similar to behavior-based contracts, help reveal the agent’s behaviors or capabilities to the principal, who can then evaluate the implementation possibilities associated with top management’s strategies and actions.

In the context of TME appointment events, shareholders (principals) employ outcome-oriented information to evaluate the new TME’s (agent’s) motivation and behavior-oriented information to evaluate his or her ability to perform well. These information signals effectively

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\(^3\) Agency theory uses the metaphor of a contract to describe relationships in which principals delegate work to agents (Fama et al. 1969). There are two types of contracts: outcome-based and behavior-based. Although most agency theory literature addresses explicit, formal contracts, the theory also applies to implicit, social contracts (Bergen, Dutta, and Walker 1992).
curb two agency problems: moral hazard and adverse selection. Moral hazard is the condition in which the shareholders cannot be sure if the new TME has put forth maximal effort (Bergen, Dutta, and Walker 1992); outcome-oriented information signals, such as the performance pressures and responsibilities, about the new TME should help shareholders recognize the TME’s motivation to perform well. Adverse selection pertains to the condition in which shareholders cannot ascertain if the new executive accurately represents his or her ability to do their jobs (Bergen, Dutta, and Walker 1992), but behavior-oriented information, such as the new TME’s characteristics, should help the shareholders evaluate the TME’s abilities better.

Figure 2-1.

Figure 2-1: Conceptual Framework

Outcome-Oriented Information Signals

Agency theory suggests that the risk-bearers (stockholders) of a firm force out inefficient managers and search for qualified ones (Fama et al. 1969). According to the theory, principals (shareholders) are risk neutral because they can own shares in multiple, diverse companies, whereas agents (managers) are risk averse because of their need for stable employment. This difference in the risk profiles of principles and agents poses a moral hazard—the potential for agents to engage in opportunistic behavior—and inspires distrust. Thus, shareholders need outcome-orientated information to ensure that the new TME has the motivation to put forth maximal effort in the new job. Consequently, this information signal can influence shareholders’ reaction to the TME appointment announcements when the new TME appointment event occurs.

4 Outcome-based information does not refer to information about the manager’s actual performance, which is not available to shareholders upon the appointment of this new TME.
According to cognitive evaluation theory, there are actually two motivation systems, extrinsic and intrinsic, that correspond to two kinds of motivators, also called extrinsic and intrinsic (e.g., Ryan and Deci 2000). Extrinsic motivators are external to an individual and involve accolades and punishments, such as work pressure, rewards, and feedback. Intrinsic motivators, which are internal to an individual, involve traits such as responsibility, passion, and accomplishment. Consistent with executive succession literature (Bommer and Ellstrand 1996; Osborn et al. 1981), I suggest that organization performance representing one extrinsic motivator signals the pressure to motivate the new TME extrinsically to perform well, whereas marketing accountability as one intrinsic motivator signals the responsibility to motivate the new hire intrinsically.

Organization Performance. Firm performance clearly influences the wealth effect of managerial succession. Consensus among scholars suggests that the probability of a management change increases when performance falls. Previous research reveals that managerial succession is actually an organizational response to environmental uncertainty and thus appears to be the result of bad organizational situations or performance. (Helmick and Brown 1972; Lieberson and O'Connor 1972). As suggested by Thompson (1967), organizations that fail to buffer themselves from external uncertainty may be ripe for succession. Such poor performance often gets attributed to strategic errors; existing literature argues that organizations that are not able to develop a successful strategy often change their executives (Smith and White 1987). Therefore, pressures for executive successors should increase when the firm previously has performed poorly. Under such circumstances, the new TMEs are highly motivated to perform well. Therefore, when a poorly performing firm announces a new TME, the shareholders should react positively to the announcement. Thus, I propose:
The abnormal stock market returns for TME succession announcements are negatively associated with the firm’s previous organizational performance.

**Marketing Accountability.** More than ever, marketers must convince their firms to invest in new ideas, business processes, and strategies that have great upside growth potential. Today’s firms are demanding greater financial responsibility across the marketing discipline as well as a clearer expectation of forecasted performance. Therefore, marketers face pressures to understand and improve the financial contributions of marketing (e.g., Rust et al. 2004). This responsibility has become one of the main priorities and most challenging tasks for TMEs across all industries (e.g., see the ISBM 2007–2010 trend study and MSI 2006–2008 research priorities). The American Marketing Association defines *marketing accountability* as “responsibility for the systematic management of marketing resources and processes to achieve measurable gains in return on marketing investment and increased marketing efficiency, while maintaining quality and increasing the value of the corporation.” Marketing scholars also highlight the firm’s strategic emphasis on marketing (Mizik and Jacobson 2003) and the importance of marketing in firms (Moorman and Rust 1999). Yet there is a lack of systematic research investigating marketing’s responsibility for financial leverage (i.e., marketing accountability).

I theorize that marketing accountability entails the responsibility of a firm’s marketing function or the firm’s expectation that its marketing function will achieve measurable gains in the return on marketing investment. A firm with high marketing accountability signals that the marketing function is influential and that the marketing team is well regarded and respected. In this context, TME succession represents a serious rather than a symbolic decision and can evoke intense attention from shareholders (e.g., Koleszar and Bernhardt 2000). In addition, the

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expectations and responsibilities for growth and financial leverage laid on the new TME are high; thus, the new hire is intrinsically motivated to put forth the maximal effort in the job. A firm with high marketing accountability also provides the necessary support to the new TME, enables the TME to align new marketing initiatives with the overall corporate mission, and realizes the new TME’s value-adding contribution more fully. The greater resource allocation implied by high levels of marketing accountability also provides the new TME with a means to link marketing with effective customer relationship management, new product performance, and firm financial performance (Moorman and Rust 1999). Thus, I propose:

H₂: The abnormal stock market returns for TME succession announcements are positively associated with the firm’s marketing accountability.

**Behavior-Oriented Information Signals**

Although principals (shareholders) have information signals to evaluate the motivations of the agent (new TME), their knowledge about that agent’s future actions on the job is incomplete. The quality of executives’ behaviors usually gets reflected in their capabilities and characteristics (e.g., Barker 2003; Gupta and Govindarajan 1984; Hambrick and Mason 1984). In the case of TME succession, shareholders likely know the new TMEs’ characteristics, which represent critical information about their capabilities. As widely demonstrated in succession literature, successor origin and work experience offer salient characteristics of an incoming executive (Friedman and Singh 1989). These highly visible attributes often convey an easily perceived signal about the new executive to organizational shareholders and can influence evaluations of the stock wealth effect of the succession event.
**Successor Origin.** Because the succession of a top executive is a critical event, the choice of a successor is crucial. External/outsider successions generally provide a remedy for contemporary firm difficulties (Helmick and Brown 1972; Shenhav and Haberfeld 1992). Proponents of outsider succession argue that organizations change, or adapt, in response to environmental challenges and that executive selection decisions represent an important adaptation mechanism (Pfeffer and Salancik 1978; Thompson 1967). According to the adaptive view, firms should favor outside candidates because outsiders are less committed to current strategies and therefore can objectively evaluate ongoing strategies and initiate strategy shifts (Cannella and Hambrick 1993; Tushman and Rosenkopf 1996). Therefore, firm investors with an adaptive view should react positively to an external marketing succession event, because they believe an external succession will enrich the firm with new perspectives, fresh ideas, and decisive actions. Thus, I propose:

\[ H_3: \text{Compared with internal succession announcements, the abnormal stock market returns for TME succession announcements are higher for external succession announcements.} \]

**Marketing Work Experience.** The functional specialization or experience of top executives influences their cognitive bases and the course of action they adopt in organizational settings (Bandura 1986; Hambrick and Mason 1984). As Hambrick and Mason (1984, p.199) suggest, “functional-track orientation may not dominate the strategic choices an executive makes, but it can be expected to exert some influence.” A functional working background significantly influences executives’ analytical and decision-making perspectives (Young-Ybarra and Wiersema 1999), endows them with tacit knowledge (Brockmann and Simmonds 1997), affects their strategic choices (Song 1982), and even influences firm performance (Avery, Fairbanks,
and Zeckhauser 2003). Thus, it comes as no surprise that organizations often look to hire top executives, including TMEs, with the right mix of prior functional experience. Hiring a new marketing executive with previous working experience in marketing-related areas (e.g., advertising, marketing, sales) gives insights into the new TMEs’ knowledge and experience in dealing with marketing problems, awareness of the complexity associated with market uncertainty, and alertness to market opportunities. For example, Chuck Fruit got appointed as Coca-Cola’s new CMO partly because of his “well connectedness in the media and advertising worlds,” derived from his previous working experience.\(^6\) Such information should provoke a positive reaction from financial markets:

\[ H_4: \text{The abnormal stock market returns for TME succession announcements are positively associated with successors’ marketing experience.} \]

**Integrating Information Signals**

According to the motivation–ability framework, both motivation and ability information signals together affect shareholders’ evaluations of TME appointment announcements (Grewal, Comer, and Mehta 2001). I therefore expect both outcome-oriented and behavior-oriented information signals to influence shareholders’ reaction in combination. According to executive succession literature (Rhim, Peluchette, and Song 2006; Tihanyi et al. 2000), the value of behavior-oriented information such as succession origin should depend on other contextual factors (i.e., outcome-oriented information signals), such as firm performance. For example, there is evidence that poor performance increases the frequency of successions; recent findings also suggest that in such situations, outsider appointments result in more favorable reactions

from the financial markets because an insider is likely to commit to ongoing organizational processes and may not provide breakthrough decisions and policies (Shenhav and Haberfeld 1992; Kesner and Sebora 1994). In addition, during times of poor performance, firms and shareholders tend to prefer people with appropriate work experience records because rich experiences in marketing field equip the new TME with great insight and knowledge of the design and implementation of marketing strategies (Goodstein and Boeker 1991; Miller 1991).

Thus, I propose:

H5: The positive effects of external successor origin and marketing work experience on abnormal stock market returns are moderated by previous firm performance, such that the positive effects are greater when a firm suffers from poor performance.

When marketing accountability imposes high expectations on the TME, the choice of successors imposes a more critical decision on firms. Firms with high marketing accountability seek innovative ways to satisfy their customers, for which purpose they look to the new TME. Thus firms favor a new TME with an external succession origin, in the hope that new thinking from outside the firm will cause innovative shifts in marketing strategies. In contrast, an inertial view of organization theory suggests that organizations tend to resist change and thus favor an internal successor for senior managerial positions especially when faced with non-important positions (Child 1972; Lieberson and O'Connor 1972). In a similar vein, for firms with high marketing accountability, finding a successor with excellent records of marketing experience is a more critical issue because firms believe such successors will initiate effective and efficient marketing policies and strategies and thus bring value to the firm. I propose:
The positive effects of external successor origin and marketing work experience on the abnormal stock market returns are moderated by marketing accountability, such that the positive effects are higher when a firm’s possesses a high degree of marketing accountability than low degree of marketing accountability.

**Methodology**

**Data Collection**

As mentioned before, there are two types of managerial change events: turnover event and successor event. During searches for both managerial events, I found few turnover events and thus I focused on succession announcements in this study. I identified new TME appointment announcements from the Lexis-Nexis Wire Index (News Wire Library) by conducting searches using the keywords “new” or “create” or “appoint as,” along with the following position titles: chief marketing officer, CMO, and vice president of marketing. I found 740 press releases during the time period 1996–2004. Furthermore, I used two major criteria to arrive at the final sample. First, I excluded private firms, reducing the sample to 295 announcements over the nine years, because for us to assess the stock return performance related to each announcement, the firms must be included in the Center for Research for Security Prices (CRSP) daily stock returns file. Second, because of potential confounding effects, I applied a short event window to isolate the effects of an event from the effects of other events (McWilliams and Siegel 1997). The longer the event window, the more difficult it is to claim control over any confounding effects. Therefore, consistent with conventional event studies

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7 Although succession events can be categorized into several types, depending on the reason for the management change, such as retirement, resignation, promotion, or voluntary leave, scholars usually do not differentiate among them (Friedman and Singh 1989), largely because of data availability. In this study, only 25 press releases out of the total 180 announcements that I eventually analyze publicize the reasons for TME succession. Therefore, I also do not differentiate these different types of succession events in this study.
(Chatterjee, Richardson, and Zmud 2001; Srinivasan and Bharadwaj 2004), I focused on the period between the day before the TME appointment announcement and the day after the announcement, that is, an event window of $t = -1$ through $t = 1$. For each TME appointment announcement, I checked the Lexis-Nexis database the day before, the day of, and the day after the TME announcement for news that might contaminate the effects of this announcement (e.g., earnings, dividends, new product, other top executive announcements). I excluded any announcements that contained other news during the three-day window.

The final sample therefore consists of 180 new TME announcements, broadly distributed across the 1996–2004 time period and 33 standard industrial classification (SIC) code two-digit industry groups (see Table 1). I also accessed other data sets, such as COMPSTAT, Hoovers, and Mergent Online, to gather data to measure the constructs.

Table 2-1

<table>
<thead>
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<th>Measures</th>
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<td><strong>Dependent Variables.</strong> I use abnormal or excess stock market returns as a measure of change in firm value due to the new TME and compute the impact of the announcement on stock prices using event study methodology. Although this approach originally appeared only in accounting and finance studies, it is becoming more common in management and marketing research (Bass, Russell, and Horsky 1980; Geyskens, Gielens, and Dekimpe 2002; Lane and Jacobson 1995; for an overview, see Srinivasan and Bharadwaj 2004). Specifically, the abnormal stock market return measures the difference between the actual return and the expected return if the event had not occurred.</td>
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Following Brown and Warner (1980, 1985), I use a market model to estimate abnormal stock returns, that is, 

\[ R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \]

where \( R_{it} \) is the actual rate of return on the common stock of the ith firm on day t, \( R_{mt} \) is the market rate of return using the equally weighted CRSP index (market index) on day t, \( \alpha_i \) is an intercept, \( \beta_i \) is a slope parameter measuring the sensitivity of \( R_{it} \) to the market index, and \( \varepsilon_{it} \) equals the disturbance term. I employ an ordinary least squares market model over a 255-day period prior to the event day to estimate the expected stock return for firm i on day t and then calculate the daily abnormal returns with the formula 

\[ AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt}) \] 

I sum these daily abnormal returns over the three days to arrive at CAR, namely, 

\[ CAR_{it(-1,1)} = \sum_{t=-1}^{1} AR_{it} \] 

Thus, I am able to obtain the abnormal returns for every TME succession event.

**Independent Variables.** The measures I use to describe the TME successors come primarily from news announcements and the D&B Hoovers executive database. I classify a new TME as an internal or external hire according to the text of the news announcement (Chatterjee, Richardson, and Zmud 2001); that is, I read every news announcement and code successor origin as 1 if the new person came from another firm and 0 if the person was promoted to this position. For marketing work experience, I again check the news announcements and assess Hoovers to gather information about the years of working experience of successors who previously worked in marketing, sales, or advertising areas. Those new TMEs who have not worked in those areas are denoted to have no marketing experience.

Regarding the outcome-oriented information signal, I use return on assets (ROA) in the year prior to the news announcement to measure previous organizational performance. A commonly used and well-understood measure of firm performance (Cannella and Shen 2001), ROA shows how profitable a company's assets are in generating revenue. Return on assets also
gives an indication of the capital intensity of the company, which depends on the industry and therefore provides a useful tool for comparing companies in the same industry.

The measure for marketing accountability, require a good understanding of this new construct. Marketing organizations must be accountable to the financial goals of the firm. This responsibility emanates from the financial side of the executive suite in the form of marketing ROI, also known as return-on-marketing-investment (ROMI). Thus I use advertising expenditure in the previous year adjusted for firm sales to capture a firm’s expectations on the ROMI, in which sales as a proxy for return and advertising expenditure as a proxy for marketing investment.

*Control Variables.* I access the Mergent Online and Hoovers databases to gather variables to control for other firm factors: firm age and firm size. I measure firm age as the number of years since incorporation and firm size as the number of employees.

A critical control variable incorporated in the analysis is the industry factor. To examine the extent to which stockholders hold management accountable for stock returns, I must explore the role of industry factors (e.g., Datta and Rajagopalan 1998). According to accounting literature, when firm investors evaluate the stock value of an event, they commonly incorporate industry-specific information (Piotroski and Roulstone 2004). In this sense, industry environments provide critical sources of information.

I theorize that the effect of outcome-oriented and behavior-oriented information signals on managerial succession events should be contingent on the industry. Heterogeneity in industry environments affects the types and range of competitive actions that are considered appropriate in different industry contexts and therefore should influence the cognitive attributes and type of knowledge preferred in a TME succession event (Datta and Rajagopalan 1998). In turn, industry
should influence investors’ beliefs about the influence of outcome-oriented and behavior-oriented information signals on shareholder value. And here the operationalization of this control variable is one variable indicating the membership of the 33 industries in Table 2-1.

I standardize the data to improve the interpretation of the interaction terms, created by multiplying the measures of the requisite variables. Table 2-2 contains the descriptive statistics and the correlation matrix of the measures.

Table 2-2

| Table 2-2: Descriptive Statistics and Bivariate Correlation Coefficients |
| Place Table Here |

**Model Specifications**

On the basis of the preceding discussion, I propose two possible model specifications. First, in the baseline model (M_{BASE}), I specify the model derived from the first five hypotheses. This model overlooks the role of industry factor. Thus, I specify M_{BASE} as:

\[
\begin{align*}
CAR_f &= \delta_0 + \delta_1 \cdot CTRL_f + \delta_2 \cdot PER_f + \delta_3 \cdot MAC_f + \delta_4 \cdot ORG_f + \delta_5 \cdot EXP_f + \\
& \quad \delta_6 \cdot ORG_f \cdot PER_f + \delta_7 \cdot ORG_f \cdot MAC_f + \delta_8 \cdot EXP_f \cdot PER_f + \delta_9 \cdot EXP_f \cdot MAC_f + \varepsilon_f^{M-\text{BASE}},
\end{align*}
\]

where \( \delta \) represent parameters to be estimated; \( f \) indexes firms in the sample; \( \varepsilon \) denotes the error term assumed to be \( iid \) normal distributed with homoskedastic variance; and \( PER, MAC, ORG, EXP, \) and \( CTRL \) stand for firm performance, marketing accountability, successor origin, marketing work experience, and control variables (firm age and firm size), respectively (note that parameters for the influence of control variables are specified as a vector).
Second, building on \( M_{\text{BASE}} \), I introduce the effect of the industry environmental factor, which recognizes that the hypothesized effects in the base model might vary with industry. Thus, in the hypothesized model (\( M_{\text{HYP}} \)):

\[
(2) \quad \text{CAR}_f = \sum_{t=1}^{T} \gamma_{0t} + \sum_{t=1}^{T} \gamma_{1t}^{f} \times \text{CTRL}_f + \sum_{t=1}^{T} \gamma_{2t} \times \text{PER}_f + \sum_{t=1}^{T} \gamma_{3t} \times \text{MAC}_f + \sum_{t=1}^{T} \gamma_{4t} \times \text{ORG}_f + \sum_{t=1}^{T} \gamma_{5t} \times \text{EXP}_f
\]

\[
+ \sum_{t=1}^{T} \gamma_{6t} \times \text{OR}_f \times \text{PER}_f + \sum_{t=1}^{T} \gamma_{7t} \times \text{OR}_f \times \text{MAC}_f
\]

\[
+ \sum_{t=1}^{T} \gamma_{8t} \times \text{EXP}_f \times \text{PER}_f + \sum_{t=1}^{T} \gamma_{9t} \times \text{EXP}_f \times \text{MAC}_f + \epsilon_{f}^{M-HYP}
\]

where \( \gamma_s \) represent parameters to be estimated; and \( t = 1, 2, \ldots, 33 \) refers to the 33 industries. The error term (\( \epsilon_{f}^{M-HYP} \)) is assumed to be iid normal distributed with homoskedastic variance.

**Model Estimation**

I use a hierarchical random-effects Bayesian model that is similar to those in extant marketing literature (e.g., Ding, Grewal, and Liechty 2005; Lenk et al. 1996). I specify the regression likelihood for \( M_{\text{HYP}} \) as:

\[
(3) \quad \text{CAR}_f = \mu_{t} = N(X_{ft} \gamma_{t}^{f} , \sigma_{f}^{2})
\]

where \( \text{CAR}_f \) is the performance of firm \( f \) of industry type \( t \) \( (t = 1, 2, \ldots, 33) \), \( =_{d} \) indicates equal in distribution, \( N \) is the normal density, \( X_{ft} \) describes the explanatory variable for firm \( f \) in industry type \( t \) that includes the intercept term, \( \gamma_{t}^{f} \) is the vector of industry type–specific coefficients, and \( \sigma_{f}^{2} \) denotes the variance of the error term.

I use a hierarchical random-effects specification for the industry type specific coefficients:
(4) \( \gamma_i =_{d} N(\overline{\gamma}, \Lambda_F) \).

This specification allows for industry type–specific estimates and aggregate estimates \( \overline{\gamma} \), as well as heterogeneity represented by \( \Lambda_F \). Because of sample size considerations, I simplify the model by assuming \( \Lambda_F \) to be a diagonal matrix. Furthermore, I assume vague conjugate priors for \( \overline{\gamma} \), \( \Lambda_F \), and \( \sigma^2_F \).

For the base model (\( M_{\text{BASE}} \)), Equation 3 changes to:

(5) \( CAR_{ji} =_{d} N(Z_{ji} \delta , \sigma^2_B) \),

where \( Z_{ji} \) represents the explanatory variables, \( \delta \) are coefficients that are not specific to industry type, and \( \sigma^2_B \) denotes the variance of the error term.

Again, I use a hierarchical random-effects specification of industry type–specific coefficients and hierarchical priors for aggregate coefficients:

(6) \( \delta =_{d} N(\overline{\delta}, \Lambda_B) \).

Because of sample size considerations, I simplify the model by assuming \( \Lambda_B \) to be diagonal matrices and vague conjugate priors for \( \overline{\delta} \), \( \Lambda_B \), and \( \sigma^2_B \).

I conduct Markov chain Monte Carlo (MCMC) sampling for model estimation by simulating two parallel chains, with burn-ins of 5,000 per chain and subsequent sampling of 5,000 per chain. The mixing seems instantaneous, and I assess convergence by examining the Gelman-Rubin statistics.

Results

Model Selection

To compare the two models (\( M_{\text{BASE}} \) and \( M_{\text{HYP}} \)), I use WinBUGS to calculate the deviance information criterion (DIC), a Bayesian method for model comparison (Spiegelhalter et al. 2002).
It is particularly useful in Bayesian model selection problems for which MCMC simulation provides the posterior distributions of the models. Similar to the Akaike information criterion and Bayesian information criterion, DIC becomes an asymptotic approximation as the sample size gets large. The model with the smallest DIC indicates the estimated model that can best predict a replicate data set with the same structure as that currently observed. The value for $M_{\text{BASE}}$ is -56132.5, and the DIC for $M_{\text{HYP}}$ is -83186.3. The hypothesized model thus performs better than the base model, which supports the hypothesis about the critical role of industry heterogeneity in the theoretical model. I therefore discuss the results related to individual coefficients in the hypothesized model. As I have interaction terms, the main effect needs to be interpreted in a contingent manner. Nonetheless for completeness I discuss the results for main effects first.

**Hypotheses Testing**

I present the results for the hypothesized model in Table 3-3.\(^8\) In terms of the hypotheses pertaining to outcome-based information signals, I find significant results for the impact of previous firm performance, but they are in a direction opposite to the proposal, such that firm performance correlates positively with abnormal stock market returns ($\gamma_2=0.638$, $p<.01$). I discuss this surprising result in the next section. I find support for $H_2$, in that marketing accountability relates positively to abnormal stock market returns ($\gamma_3=0.642$, $p<.01$). With regard to the successor characteristics, I find no support for the main effect of successor origin.

---

\(^8\) Although I do not hypothesize either a positive or negative aggregate effect for TME succession, to be consistent with extant marketing event studies (e.g., Sorescu, Chandy, and Prabhu 2007; Srinivasan and Bharadwaj 2004), I estimate the long-term abnormal return. Specifically, I use a calendar-time portfolio model based on a Fama-French three-factor approach (Fama and French 1993) that indicates positive returns in the long run (.85%, $p<.10$). These results suggest that shareholder value, or financial returns on the TME succession event, accrues in the long instead of the short run.
but support for H₄ regarding the positive main effect of marketing work experience (γ₅ = 1.051, p < .01)

Table 2-3

Table 2-3: Model Results for Hypothesized Model

Place Table Here

I find significant results for all four interaction effects between the two types of information signals.⁹ Consistent with the positive result for the main effect of firm performance, I also find support for the positive interaction effect of firm performance on behavior-oriented information signals, which contrasts with H₅ (γ₆ = .879, p < .01 and γ₈ = .747, p < .01). These consistent findings suggest that pressures come not from poor firm performance but from good firm performance. As I suggest in H₆, the positive effects of behavior-oriented information signals (i.e., successor origin and marketing experience) are strengthened by marketing accountability (γ₇ = .612, p < .01, and γ₉ = .541, p < .01, respectively). That is, when a firm’s marketing accountability is high, its shareholders appreciate the firm’s choice of a new TME with an external origin and rich marketing work experience.

These significant results all emerge in the presence of industry heterogeneity. The importance of industry heterogeneity explains why the hypothesized model with industry factor random effects outperforms the base model that overlooks these random effects. Meanwhile, industry heterogeneity influences the magnitude of the proposed main effects and interaction effects. In Figure 2, I illustrate how the four interaction effects vary across the 33 industries.

---

⁹ I mean-center all explanatory variables before creating the interaction terms to provide meaning to the main effects in the presence of the interaction terms (i.e., the effect of one explanatory variable on the dependent variable when the moderator equals its mean value of zero).
Although shareholders in different industries evaluate the information signals in the same direction, their levels vary across industries.

Figure 2-2

Discussion

Because marketing capabilities and market orientation both are critical for firm success, marketing scholars recognize the importance of organizational, and especially marketing, leadership (e.g., Hambrick 2007; Koleszar and Bernhardt 2000; Varadarajan and Jayachandran 1999). Nonetheless, both theoretical developments and empirical research that explicitly focus on the role and importance of top marketing leadership have been scarce. In this research, I provide an information signal framework in examining theoretically important issues related to TME succession.

The results generally support the theoretical conjectures. The valuation of TME succession is actually influenced by the outcome-orientated and behavior-oriented information. The finding shows that marketing accountability seems to increase CAR across all industries. This finding lends credence to the notion that when marketing is a strategically important function in organizations, investors view TME succession as a significant organizational decision to which they must pay special attention. In addition, such firm investors likely emphasize the choice of the right successor for marketing functions and thus prefer certain successor characteristics when evaluating the succession event. Hence, I observe positive interaction effects between marketing accountability and successor characteristics.
However, opposite to the hypothesis the finding shows that previous firm performance is positively associated with abnormal stock market returns. The explanation could be that good organizational performance, rather than poor performance, creates greater pressures for TMEs. The appointment of a new TME to a poorly performing firm probably represents only one of the many approaches to surviving troubled times, which also means the pressure on the new TME to improve firm performance likely is shared by the whole organization. When a strong firm appoints a new TME, the firm may have a focused expectation that the new TME will improve the performance of its marketing function, which actually places greater pressure on the new executive. In addition, as suggested by succession literature, the pattern of poor performance may be theoretically robust, but its explanatory power is not particularly strong (Finkelstein and Hambrick 1996). Researchers also indicate that good firm performance can sometimes precede an executive succession (Fredrickson, Hambrick, and Baumrin 1988).

The result also suggests that firm investors seem to welcome a new TME with rich marketing experience. This indicates that shareholders believe that rich work experience supplies the new executive with tacit knowledge and strategic insights into the market domain. The finding of significant interaction effects of successor origin suggests that the relative value created by the external origin of a new TME depends on other factors (e.g., Datta and Rajagopalan 1998; Friedman and Singh 1989). For example, the significant interaction effect between successor origin and firm performance suggests that previous firm performance affects the choice of external or internal succession. The positive sign indicates that good performance or high pressures on the new TME cause firm investors to prefer an external succession. In addition, when marketing accountability is high, investors again prefer external origins. An outsider may appear more likely to initiate marketing strategy shifts, which are desirable for
firms characterized by great performance expectations and more responsibility for marketing (Helmick and Brown 1972; Kesner and Sebora 1994).

Despite the common recognition by practitioners and scholars that top managers are important for firm strategy and performance, few marketing studies explore the implications of marketing leadership. Although this study contains some limitations, especially those resulting from the sample and the approach, I make several contributions. From a theoretical standpoint, the findings imply that a TME appointment announcement event is important to shareholders. Furthermore, the information signal framework offers a theoretical means to interpret shareholders’ evaluations of this important event. The results support our theory, as well as the conjecture that shareholders (principals) employ the two types of information signals to evaluate TMEs (agents). The importance of TMEs for firms and their role in establishing the marketing function should provide a spur to other researchers to explore TME-related research issues further.
Figure 2-1

Conceptual Framework

Industry Environment

Outcome-oriented information signals
- Organization performance
- Marketing accountability

Behavior-oriented information signals
- Successor origin
- Marketing work experience

Abnormal stock market returns on marketing leadership succession
### Figure 2-2

**Interaction Effect Coefficients across Industries**

<table>
<thead>
<tr>
<th>PANEL A: Successor Origin*Previous Performance</th>
<th>PANEL B Marketing Experience * Previous Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="ORG*PER" /></td>
<td><img src="image2" alt="EXP*PER" /></td>
</tr>
<tr>
<td><img src="image3" alt="ORG*MAC" /></td>
<td><img src="image4" alt="EXP*MAC" /></td>
</tr>
</tbody>
</table>

The graphs illustrate the interaction effect coefficients across industries for various combinations of variables:
- **ORG*PER**
- **EXP*PER**
- **ORG*MAC**
- **EXP*MAC**

Each graph shows the coefficient values across different industries.
### Table 2-1

**TME Announcements by Industry (Two-Digit SIC Code)**

<table>
<thead>
<tr>
<th>SSIC</th>
<th>Industry</th>
<th># of Announcements</th>
<th>SSIC</th>
<th>Industry</th>
<th># of Announcements</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Oil and gas extraction</td>
<td>1</td>
<td>48</td>
<td>Communications</td>
<td>6</td>
</tr>
<tr>
<td>20</td>
<td>Food and kindred products</td>
<td>7</td>
<td>49</td>
<td>Electric, gas, and sanitary services</td>
<td>4</td>
</tr>
<tr>
<td>23</td>
<td>Apparel and other textile products</td>
<td>1</td>
<td>50</td>
<td>Wholesale trade—durable goods</td>
<td>3</td>
</tr>
<tr>
<td>24</td>
<td>Lumber and wood products</td>
<td>1</td>
<td>51</td>
<td>Wholesale trade—nondurable goods</td>
<td>2</td>
</tr>
<tr>
<td>25</td>
<td>Furniture and fixtures</td>
<td>1</td>
<td>53</td>
<td>General merchandise stores</td>
<td>1</td>
</tr>
<tr>
<td>27</td>
<td>Publishing and printing</td>
<td>3</td>
<td>56</td>
<td>Apparel and accessory stores</td>
<td>5</td>
</tr>
<tr>
<td>28</td>
<td>Chemicals and allied products</td>
<td>4</td>
<td>58</td>
<td>Eating and drinking places</td>
<td>7</td>
</tr>
<tr>
<td>30</td>
<td>Rubber and other plastics products</td>
<td>2</td>
<td>59</td>
<td>Miscellaneous retail</td>
<td>8</td>
</tr>
<tr>
<td>33</td>
<td>Primary metal industries</td>
<td>2</td>
<td>60</td>
<td>Depository institutions</td>
<td>1</td>
</tr>
<tr>
<td>35</td>
<td>Industrial machinery and equipment</td>
<td>17</td>
<td>62</td>
<td>Security, commodity brokers, and services</td>
<td>1</td>
</tr>
<tr>
<td>36</td>
<td>Electrical and electronic equipment</td>
<td>28</td>
<td>63</td>
<td>Insurance carriers</td>
<td>6</td>
</tr>
<tr>
<td>37</td>
<td>Transportation equipment</td>
<td>2</td>
<td>67</td>
<td>Holding and other investment offices</td>
<td>2</td>
</tr>
<tr>
<td>38</td>
<td>Instruments and related products</td>
<td>9</td>
<td>72</td>
<td>Personal services</td>
<td>1</td>
</tr>
<tr>
<td>39</td>
<td>Miscellaneous manufacturing industries</td>
<td>2</td>
<td>73</td>
<td>Business services</td>
<td>45</td>
</tr>
<tr>
<td>41</td>
<td>Local and interurban passenger transit</td>
<td>1</td>
<td>79</td>
<td>Amusement and recreational services</td>
<td>1</td>
</tr>
<tr>
<td>45</td>
<td>Air transportation</td>
<td>4</td>
<td>82</td>
<td>Educational services</td>
<td>1</td>
</tr>
<tr>
<td>47</td>
<td>Transportation services</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>S.D.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>----------</td>
<td>-------</td>
<td>-------</td>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>1 CAR</td>
<td>-0.003</td>
<td>0.070</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Firm age</td>
<td>21.911</td>
<td>23.822</td>
<td>-0.005</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3 Employee</td>
<td>13.889</td>
<td>46.752</td>
<td>0.014</td>
<td>273**</td>
<td>1</td>
</tr>
<tr>
<td>4 ROA</td>
<td>-0.091</td>
<td>0.306</td>
<td>0.022</td>
<td>0.024</td>
<td>-.442**</td>
</tr>
<tr>
<td>5 Successor origin</td>
<td>0.800</td>
<td>0.401</td>
<td>0.086</td>
<td>-0.088</td>
<td>-0.096</td>
</tr>
<tr>
<td>6 Marketing experience</td>
<td>17.791</td>
<td>5.476</td>
<td>-0.067</td>
<td>.262**</td>
<td>-0.024</td>
</tr>
<tr>
<td>7 Marketing accountability</td>
<td>0.062</td>
<td>0.075</td>
<td>0.068</td>
<td>-0.004</td>
<td>-0.107</td>
</tr>
</tbody>
</table>

**Correlation is significant at the .05 level (2-tailed).
Notes: N = 180.
### Table 2-3
Model Results for Hypothesized Model

<table>
<thead>
<tr>
<th>Variable Category</th>
<th>Variable Name</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td></td>
<td>0.085</td>
<td>1.894</td>
</tr>
<tr>
<td>Control variables</td>
<td>Firm age</td>
<td>-0.828</td>
<td>0.699</td>
</tr>
<tr>
<td>Control variables</td>
<td>Firm size</td>
<td>0.024</td>
<td>0.069</td>
</tr>
<tr>
<td>Context factors</td>
<td>PER</td>
<td>0.638**</td>
<td>0.194</td>
</tr>
<tr>
<td>Context factors</td>
<td>MAC</td>
<td>0.642**</td>
<td>0.104</td>
</tr>
<tr>
<td>Successor characteristics</td>
<td>ORG</td>
<td>-0.612</td>
<td>1.949</td>
</tr>
<tr>
<td>Successor characteristics</td>
<td>EXP</td>
<td>1.051**</td>
<td>0.099</td>
</tr>
<tr>
<td>Interaction effects</td>
<td>ORG*PER</td>
<td>0.879**</td>
<td>0.095</td>
</tr>
<tr>
<td>Interaction effects</td>
<td>ORG*MAC</td>
<td>0.612**</td>
<td>0.119</td>
</tr>
<tr>
<td>Interaction effects</td>
<td>EXP*PER</td>
<td>0.747**</td>
<td>0.096</td>
</tr>
<tr>
<td>Interaction effects</td>
<td>EXP*MAC</td>
<td>0.541**</td>
<td>0.088</td>
</tr>
</tbody>
</table>

**NOTES:** To summarize the posterior, I use the ratio of the posterior mean to the posterior standard deviation. If this ratio is outside the range [-2, 2], the mean deviates significantly from zero (depicted by **). If the ratio is outside the range [-1.64 1.64] but within the range [-2, 2], the mean also deviates significantly from zero (depicted by *).
Chapter 3

ESSAY TWO

With the emphasis on marketing as exchange (Bagozzi 1975), the role of marketing as a customer facing function is well established in the literature (e.g., Moorman and Slotegraaf 1999; Walker, Kogut, and Shan 1997). In business-to-business (B2B) markets, this role is carried through by the marketing and sales functions, and often different executives lead these two functions (for ease of presentation, we refer to these executives as the CMO for marketing and the CSO for sales).\(^\text{10}\) These executives have considerable influence on the strategy, tactics, operations, and effectiveness of the customer service experience of the firm, thus they are viewed as important organizational strategic assets (Anderson, Fornell, and Mazvancheryl 2004; Coff 1997). For example, Michael MacDonald as president of global accounts and marketing operations at Xerox Corp is complimented as a “change agent” by B-to-B magazine for his effort to steer the company into new markets and profitable growth.\(^\text{11}\) Despite the common recognition that top managers are important for firm strategy and performance, few studies in marketing explore the implications of marketing (sales) executives. Thus, it becomes important to understand how organizational outcomes are related with characteristics of these executives.

Management literature shows that critical organizational outcomes can be influenced by top managers’ values and cognitive bases (Finkelstein and Hambrick 1996; Hambrick and Mason

\(^{10}\) In marketing academic literature, the sales function is subsumed within marketing such that sales represent one means of promotion. However, in practice in B2B markets, the marketing and sales functions are distinct often headed by separate CXO (i.e., CMO – Chief Marketing Officer and CSO – Chief Sales Officer) level executive who reports to either the CEO (Chief Executive Officer) or the COO (Chief Operating Officer).

\(^{11}\) [http://www.btobonline.com/printwindow.cms?articleId=29677&pageType=article&logopath=/images/index](http://www.btobonline.com/printwindow.cms?articleId=29677&pageType=article&logopath=/images/index) (assessed on Dec 2007)
One source of people’s values and belief systems is their *mastery experience*, or *prior experience*, as suggested by social cognitive theory (Bandura 1986). Scholars have emphasized the importance of top managers’ prior experience by showing that it can endow them with tacit knowledge (Brockmann and Simmonds 1997), influence their strategic choice (Song 1982), and even affect firm performance (Avery et al. 2003). Thus, it comes as no surprise that organizations often look to hire employees, including chief marketing and sales officers, with the right mix of prior experience. In fact, top managers’ prior experiences can be seen as indicating the flow of information, knowledge, and resource among organizations as well as a pattern of organizational connection derived from executives’ moving from one firm to another (Coff 1997; Temple and Johnson 1998). Along similar lines, in B2B markets, the experience record of marketing and sales top managers should present the social structure of organization interactions, which is concerned with the exchange of information, knowledge, and resource often relating to customers (as these executives perform the customer facing functions). And it is the main purpose of this research is to understand such social structure and to assess the implication of this social structure.

Relying on research in sociology concerning social networks (Kilduff, Angelmar, and Mehra 2000; Wasserman and Faust 1994), I construct a leadership experience network using the prior work experience records of marketing and sales executives in a B2B industry. A study of such a network would depict a structure of how customer and market related information and knowledge flows among firms. To understand this new form of network, I introduce a theoretical construct, path embedded social capital (PESC), a specific type of social capital deriving from prior experience. It is suggested this specific social capital can represent a set of social resources concerning market information knowledge and thus associates with firm performance. PESC can
provide firms with advantages through two structural positions in the network: prominence and brokerage. Prominence PESC indicates a central position of a firm in the network and such PESC can provide access to tacit and routine information and knowledge, while brokerage PESC indicates a bridging position of a firm spanning across structural holes and such PESC can provide access to diverse information and knowledge (Burt 2000).

Scholars have pointed out that the effectiveness of information and knowledge acquisition is constrained by the assimilation ability. Therefore a firm’s ability to absorb and digest PESC is critical for PESC to take effect. This ability of a firm, PESC absorptive capacity, which has not been studied in social capital literature, is investigated in this study. It is suggested that PESC absorptive capacity moderates the efficacy of the PESC through its two elements, prior knowledge base and amount of effort. Prior market knowledge base delivered by market orientation and selling orientation increase a firm’s ability to make sense of, assimilate, and use externally acquired PESC. Amount of effort represents the amount of time and energy a firm spends to internalize PESC.

I also investigated the influence of upper echelon structure design on the efficacy of PESC. In B2B markets, the presence of marketing and sales executives in the top management team reflects corporate attitude toward these two functions. However, firms have different structure designs regarding these two functions and may choose one of the two customer functions as their strategic emphasis. The findings of the study show that this selective strategic emphasis cannot provide the complete market knowledge base to assimilate PESC and thus the efficacy of PESC cannot be fully executed.

With this research, I seek to make two key contributions. First, this study attempts to provide a nuanced understanding on the important yet unexplored issue of marketing executives’
prior work experience. Although there is extensive research in strategic management over the past two decades investigating the role of top executives (e.g., Meindl, Ehrlich, and Dukerich 1985; Pettigrew 1992), the managerial elite has been a neglected variable in marketing, as has been the study of marketing and sales leaders. By investigating top executives’ work experience from a network perspective, this research endeavors to address the question where top marketing and sales executive matter in the organizations and whether their work experience have performance implications. Second, this research contributes to the social network literature by developing new constructs to capture a specific type of social capital. Unlike the most-studied nondirectional social capital which only indicates the existence of social relations among network actors, PESC describes social relations derived from directed network and illustrates such relations is from a sender to a receiver. Examination of this new construct extends our understanding of social capital.

In this study, I use archival data from 113 semiconductor firms concerning their current marketing and sales executives’ work experience. I build a hierarchical random-effects Bayesian model to incorporate the heterogeneity from different upper echelon structure designs (Rossi and Allenby 2003). The results support the interaction theorization; the effect of PESC on firm performance is moderated by a firm’s ability to absorb the social capital.

I organize the remainder of this article as follows: First, I present the theoretical framework to develop hypotheses that link PESC and capital absorption to firm performance. Second, I present the methodology, including details about the research design and data collection and analysis procedures. Third, I detail the results from the study and the hierarchical random-effects Bayesian model used to test the hypotheses. Fourth, following a discussion of the empirical results and managerial implications, I conclude with suggestions for further research.
Theoretical Framework and Hypotheses

The notion that economic actions can be fully understood only by an examination of the social relations within which actors are embedded has become a widely accepted staple of sociological thought (Granovetter 1985). Upper echelon scholars echo the thought by viewing personnel movement as one mechanism for information transfer and communication and as one mechanism that promotes the development of interfirm linkages (Pfeffer and Leblebici 1973). This personnel movement is associated with prior relations among people and organizations and can result in the current relations among organizations. Some researchers have implicitly recognized that social embeddedness is path-dependent, i.e., past experiences and past relationships are an important basis for current relationships (Gulati and Gargiulo 1999).

It is suggested that the structure of prior relations among people and organizations in a market can affect, and sometimes replace, information and knowledge (Burt 2000). This structure of prior relations embedded in executives’ work experience suggests a social network which, according to Powell (1990), is the most efficient organizational arrangement for sourcing information because information is difficult to price in a market and to communicate through a hierarchical structure. Recruitment of executives from other organizations is also recognized as facilitating the transfer of information, knowledge, and competencies across organizations, because executives’ experiences and relationships in other organizations help to “determine the specific set of knowledge and resources that managers bring to new organizations” (Boeker 1997:215). Therefore, this structure of prior relations, i.e., the work experience network of marketing executives, can represent a set of social resources (i.e., social capital) embedded in relationships and can facilitate value creation (Burt 1992; Tsai and Ghoshal 1998).
Unlike the most-studied nondirectional social capital which only indicates the existence of social relations among network actors, this type of social capital describes social relations from a sender to a receiver. In addition it is embedded and developed from history directed-relations, by tracing the executives moving from their previous firms to the current firm. I theorize this specific social capital as *Path Embedded Social Capital* (PESC), as it specifies social resources as being embedded in and from the history directed-relations. Since I focus on marketing related executives’ work experience, PESC is referred as market related social capital.

Social capital is a productive resource, facilitating actions that range from an individual's occupational attainment (e.g., Lin 2001) to a firm's business operations (e.g., Burt 1992). In addition, it is a metaphor of advantages that network actors have because of their location in social network (Burt 2000). Two types of structural locations are favored in the network, prominent and brokerage positions (Burt 2000). A prominent location in the leadership experience network indicates the occupancy of a central network position while a brokerage location indicates the occupancy of a bridging position between pairs of otherwise unconnected actors in a network (Kilduff, Angelmar, and Mehra 2000). Having a favored position means that an actor may extract better bargains in exchanges, have greater influence, and that the actor will be a focus for deference and attention from those in less favored positions. Therefore, PESC can provide firms with advantages through two structural mechanisms: prominence and brokerage. Prominence PESC is a macro-view of the advantage by understanding how a central location in the whole network can provide firms more information and knowledge, while brokerage PESC is a local-view of the advantage by understanding how a bridging location in a firm’s neighborhood can provide the firm opportunities to broke the flow of information (Hanneman and Riddle 2005). I provide the framework in Figure 3-1 to illustrate the effect of PESC on firm performance.
Main Effect of Prominence PESC on Firm Performance

The literature on social network analysis indicates that network actors can exhibit prominence due to direct ties with other actors (Nooy, Mrvar, and Batagelj 2005; Wasserman and Faust 1994). The prominence of a firm includes its social interactions, involvement and connectedness in its network, and indicates the extent to which an organization occupies a central network position. Thus it is taken as a signal of quality or resources. The network prominence mechanism of PESC “describes a firm’s social capital” and reflects “an advantage for organizations”, such that a high value of a firm’s social connections embedded in its marketing executives’ work experience implies an eminent position in the experience network and therefore results in a greater degree of access to and control over valued resources (Burt 1992; Burt 2000).

An actor’s prominent position in a directional social network is prestige prominence, corresponding to the centrality prominence in undirected social networks (Wasserman and Faust 1994). In directed networks, actors who “receive many positive choices are considered to be prestigious” and in this case social prestige is also “connected to social power and the privilege of not having to reciprocate choices” (Nooy, Mrvar, and Batagelj 2005,p. 187). Firms in the experience network with many receiving relations are prestigious because these relations represent support or influence as well as indicate attraction (Wasserman and Faust 1994). In addition, the prestige prominence conceptualized as prominence PESC allows a firm to
assimilate marketing related information and knowledge from other companies (Mariolis and Jones 1982), particularly about customers in the case of CMOs and CSOs. The knowledge assimilated should help the firm to develop strategies to satisfy customers, develop new products based on customers’ needs, and should eventually enhance firm performance (Joshi and Sharma 2004). Outside sources of knowledge are often critical to the innovation process. A firm with high prominence PESC is more vigilant to market fluctuation, has more opportunities to search out the new directions for firm growth, and thus is more likely to show strong concern for product and market innovation. Thus, I propose:

H1: A firm’s prominence PESC will be positively related with firm performance.

**Main Effect of Brokerage PESC on Firm Performance**

A brokerage position in an experience network indicates structural holes in the social structure of the market. That is, removing this brokerage position creates non-connections, i.e., holes between groups on opposite sides of the position (Burt 1992). Structural hole theory describes that social capital is a function of brokerage opportunities in a network and such opportunities associate with control and information access benefits (Burt 1992; Burt 1997). The control benefit is based on the fact that firms on either side of a structural hole circulate in different flows of information. Structural holes in the experience network are thus an opportunity to broker the flow of market information between firms, and an opportunity to control the links that bring together firms from opposite sides of the hole. Bringing together separate pieces is the essence of entrepreneurship which can eventually benefit firm performance (Zaheer and Bell 2005). A firm’s bridge connections also give it the benefit of information access, that is this firm can reach a higher volume of information because it reaches more firms indirectly. Further, the diversity of its contact firms means that its higher volume of information contains fewer
redundant bits of information. Firms with no structural holes in the neighborhood are cohesive firms which are strongly connected to each other and are likely to have similar information and so provide redundant information, while a firm in a brokerage position can help to separate nonredundant sources of market information, sources that are more additive than overlapping. Structural holes thus capture the extent to which a member has access to alternative opportunities in the network and is less constrained in the ability to forge new connections, all of which is beneficial to innovation and firm performance.

H2: A firm’s brokerage PESC will be positively related with firm performance.

**Moderation Effect of PESC Absorptive Capacity**

Social capital serves as a source of reliable information, which is essential to efficient organizational learning (Liebeskind et al. 1996; Powell 1990). Executive migration is explored as an important mechanism for organization learning (Virany, Tushman, and Romanelli 1992), thus a firm’s PESC in the CMO/CSO experience network indicates its acquisition of market information, knowledge, and resources from other organizations.

Organizational learning is a function of an organization’s absorptive capacity. Most social network scholars tend to ignore the capability of individual actors can play in the network analysis (Kilduff, Angelmar, and Mehra 2000). Yet an network actor’s capability is critical and can determine the effect of social capital and resources because it is a limit to the rate or quantity of externally generated scientific or technological information that a firm can acquire and exploit (Cohen and Levinthal 1990). Marketing scholars also point out that the effectiveness of information and knowledge acquisition on firm performance is constrained by the assimilation and utilization process of information and knowledge (Slater and Narver 1995). Therefore, a firm’s absorptive capacity should constrain the efficacy of PESC on firm performance. In our
context, I extend the construct as *PESC Absorptive Capacity*, to indicate a firm’s ability to absorb or digest the path embedded social capital.

Absorptive capacity has two important elements, prior knowledge base and amount of effort (Cohen and Levinthal 1990; Kim 1998). Prior knowledge base consists of knowledge available within the organization. Accumulated knowledge increases the ability to make sense of, assimilate, and use new knowledge. It is suggested that a firm’s strategic orientation provides the cultural foundation and knowledge base for organizational learning (Slater and Narver 1995). In the context of PESC from the marketing and sales executives’ experience network in B-to-B markets, the relevant strategic orientations are market orientation and selling orientation. Market orientation focuses an organization on collecting information about customers and competitors and disseminating that information and knowledge to create customer value and improve firm performance (Kohli and Jaworski 1990). Selling orientation focuses an organization on sales techniques and marketing efforts to maximize sales performance (Noble, Sinha, and Kumar 2002). These two marketing-related strategic orientations deliver a prior market knowledge base which allows an organization be more quickly familiar with external acquired market practices, strategies and knowledge. The higher level of market orientation and selling orientation a firm has, the greater its market knowledge base is and the more accurate market informant and knowledge the base provides. Therefore, the possession of such market knowledge base may permit the firm to better understand and evaluate the import of external knowledge and technologies. As a result, this market knowledge base provided by market orientation and selling orientation will assist the firm to better absorb and correctly interpret PESC, such that the effectiveness of information and knowledge acquisition on firm performance can be fully displayed.
H3: The greater a firm’s market knowledge base, the stronger will be the positive effects of PESC on firm performance.

Amount of effort, another element of capital absorption, represents the amount of time and energy expended by organizational members to solve problems. Exposure of a firm to relevant external knowledge is insufficient unless an effort is made to internalize it. Hence, considerable time and effort intensifies interaction among organizational members, thus facilitating information and knowledge conversion and creation at the organizational level. In addition, the considerable time and effort is also necessary to establish minimal distance among top management after new executive recruits. Management scholars have emphasized the importance of minimal distance on firm performance because the minimal distance makes it easier for firms to assimilate resources or capital from the hired executives (Wagner, Pfeffer, and O'Reilly III 1984).

Hypothesis 4: The greater of a firm’s intensity of effort, the stronger will be the positive effects of PESC on firm performance.

The Role of Upper Echelon Structure Design

A firm's top management team (TMT), the dominant coalition of individuals responsible for setting firm direction, identifies environmental opportunities and problems, interprets relevant information, considers organizational capabilities and constraints, and formulates and implements strategic change (Wiersema and Bantel 1992). Scholars have pointed out that the presence of a functional leader in the top management team indicates the corporate status and corporate adoption of that function (Hambrick 1994). Therefore, the structure design of the top management team is a reflection of power and resource allocation among different corporate functions and business units (Finkelstein 1992). Marketing scholars also have begun to pay
attention to this design regarding the presence of the chief marketing officer position in TMT and refer to the presence as marketing’s importance and influence at the level of corporate strategy (Nath and Mahajan 2008). In this context of market related PESC, the presence or absence of marketing and sales executives in the top management team reflects corporate attitude toward marketing and sales functions and such TMT design can influence the effects and benefits of PESC.

In B2B markets, marketing and sales are separate functions and have different roles in an organization (Kotler, Rackham, and Krishnaswamy 2006). Marketing tends to boast a long term customer strategy while sales function is more short term and individual customer oriented. Both functions serve as customer facing functions and together provide the basis for market knowledge bases needed to absorb the PESC. However, firms have different structure designs regarding these two functions and may choose one of the two customer functions as their strategic emphasis (Kotler, Rackham, and Krishnaswamy 2006). This selective strategic emphasis of the two customer facing functions entails the different strategic thinking and selective attention of organizations on the market information and knowledge absorbed (Finkelstein and Hambrick 1996), thus cannot provide the complete market knowledge base needed to assimilate market related PESC. Therefore the PESC may not be fully absorbed and the effect of PESC on firm performance can also be influenced.

H5a: Compared to firms with no marketing executive presence in the TMT, the positive effects of PESC on firm performance and the moderation effects of capital absorption would be higher for firms with marketing executive presence in the TMT.
H5a: Compared to firms with no sales executive presence in the TMT, the positive effects of PESC on firm performance and the moderation effects of capital absorption would be higher for firms with sales executive presence in the TMT.

Methodology

Data Collection

To study the construct of PESC and its implication in a B2B market, I chose a single-industry setting so that building a work experience network among all the firms is plausible. I chose the semiconductor industry as the context because this is a small size industry in which the connections among all the firms can be established. In addition, it is an important B2B industry which has a 118 billion dollar sales in 2007 in the US alone. I searched the firms with the SIC industry code of 3674 representing semiconductor industry in COMPSTAT in the year of 2007. Excluding international semiconductor firms, I found 138 US firms, of which 113 firms are chosen after deleting firms that went out of business or were acquired. I collected network data by coding work experiences of current marketing and sales executives for the 113 US semiconductor firms. Data sources regarding executives’ work experience records include companies’ websites, Hoover’s online database, and Lexis-Nexis database.

I developed the leadership experience network from the 113 firm’s current CMOs and CSOs’ (and sometimes CMSO – Chief Marketing and Sales Officer) work experience records, as shown by the earlier example of Chris Seams of Cypress Semiconductor Corp. Chris Seams has worked in Advanced Micro Devices (AMD) prior to joining Cypress. Based on this experience record I assigned a “1” from AMD to Cypress indicating the directed link between the two organizations in the semiconductor industry. “0”s are given to Cypress’s links with other firms in
the semiconductor industry because Chris Seams has not worked in any other semiconductor
firms. I conducted the same procedure for all the other 112 semiconductor firms and obtained a
113*113 asymmetric matrix. Following is the whole picture of all the directed relations among
the 113 firms derived from their current marketing and sales executives.

Figure 3-2

Place Figure Here

Figure 3-2: The Graph of PESC in Semiconductor Industry, 2006

Measures

Independent variables. To measure the network prominence of PESC, I adopt prestige
indices which are usually computed for directed networks only, since for these measures the
direction is an important property of the relation (Wasserman and Faust 1994). There are three
prestige measures to examine the relations received: degree prestige, proximity prestige, and
rank prestige (Nooy, Mrvar, and Batagelj 2005). Degree prestige is measured by the number of
relations a node receives, its indegree \( P_D(n_i) = x_{si} \). Proximity prestige is the analog to closeness
centrality and considers the proximity of actor i to other actors in its influence domain, the set of
all network actors that can reach actor i: \( P_p(n_i) = \frac{I_i}{\sum d(n_j,n_i) / I_i} \), in which \( I_i \) is the influence
domain. Rank prestige defines an actor’s prestige is a function of the prestigious actors of one’s
influence domain. In other words, it’s not what you know but whom you know. The rank of an
actor depends on the ranks of those actors who choose him as

prestigious: \( P_R(n_i) = x_{i1}P_r(n_1) + x_{i2}P_r(n_2) + ... + x_{ig}P_r(n_g) \). An initial examination of these
three prestige measure indicate a high correlation between degree and proximity prestige indices
Similar to closeness centrality, proximity prestige is not accurately defined unless the digraph is strongly connected (directed paths in both directions) (Wasserman and Faust 1994). The experience network illustrated in Figure 3-2 is not strongly connected, thus I discard proximity prestige and choose degree and rank prestige indices to measure the sink capital of PESC.

To measure brokerage PESC, I adopt the measure of constraint for structural holes, which equals the degree to which a firm depends on directly connected neighbors to connect to others in the network. Network constraint is an index that measures the extent to which a firm’s connections are redundant. The higher the measure of constraint for a firm, the fewer structural holes appear in its neighborhood.

Dependent Variables. I use four financial variables to capture firm performance: sales performance (sales), marketing and selling investment (SGA), return on assets (ROA), and market-to-book ratio (MTB). Using financial data from COMPUSTAT in the year of 2006, I divided sales by firm asset in order to adjust for the firm size effect. I used the selling and administrative expense adjusted by firm sales to capture a firm’s investment on marketing and sales functions. Return on assets shows how profitable a company's assets are in generating revenue. To measure a firm’s shareholder value, I use market-to-book ratio by calculating the ratio of a firm’s market value of total assets by its book value of assets (Kerin and Sethuraman 1998).

Moderation Variables. The amount of effort is measured by the marketing and sales executive’s tenure in the current firms which is the number of years that the executive has stayed in the current firm till 2006. The tenure suggests the time of these new executives’ involvement and participation in the current firms’ strategies and activities, and also indicates the considerable
time and effort that the firms spending to absorb and utilize the PESC and other resources from these executives since they join in the firms.

To obtain the data for the strategic orientations to measure the market knowledge base, I used the cognitive mapping method (Noble, Sinha, and Kumar 2002). I assessed the corporate annual reports for all 113 semiconductor firms and conducted coding based on the text through NVIVO, a qualitative data analysis software. I applied a two-step approach to code market orientation and selling orientation. Specifically, based on the definitions of these four strategic orientations, I first used key word searching to identify sentences possibly containing these orientations. Sentence-by-sentence coding was conducted afterwards to evaluate whether the sentences can represent the orientations. Finally, I counted the total number of sentences as a quantitative measure for each orientation. The measure of market orientation is a sum of number of sentences for all the three sub market orientations. Following are samples of statement that were coded in each of the orientations in the study.

Table 3-1.

Table 3-1: Illustrations of Annual Report Coding by Strategic Orientation Type

| Place Table Here |

To measure the different upper echelon structure design, I inspected the existence of marketing and sales executives in the C-suite positions in the semiconductor firms, in which 34 firms have the CMSO position in the C-suite (type 1), 38 firms put the both marketing and sales executives in the top management team (type 2), 20 firms emphasize the sales executive (type 3) and 12 firms emphasize the marketing executives (type 4), and 9 firms do not have either of the

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12 Three elements of market orientations (i.e., customer orientation, competitor orientation, and interfunctional coordination) are coded to measure market orientation.
two executives in the C-suite (type 5). For testing H5a, I compared firms from type 1, 2, and 4 with firms from type 3 and 5. For testing H5b, I compared firms from type 1, 2, and 3 with type 4 and 5 firms.

Control Variable. The literature on social network analysis indicates that network actors can exhibit prominence due to direct ties with other actors, and an actor’s prominence in a directional social network can be based on either centrality (visibility due to extensive involvement in relations) or prestige (visibility based on the extensive relations directed at them) (Nooy, Mrvar, and Batagelj 2005; Wasserman and Faust 1994). The centrality prominence is studied as a measure of influence and a significant structural source of social power (Brass and Burkhardt 1992; Ibarra 1993). This measure of influence and power could have an impact on firm performance and therefore I measured degree centrality in the study as control variable (Wasserman and Faust 1994). Degree centrality is the number of nodes that a given node is connected to. For the directed relations, the outdegree centrality represents the number of relations going out of a given node and is appropriate measure for source capital: \( C'_D(n_i) = x_{i+} \), in which \( n_i \) is the actor \( i \) (organization), \( x_{i+} \) is the number of relations sending out for each actor.

I also used previous year’s performance data to control for other firm factors’ effects on firm performance. I mean-centered all explanatory variables before creating the interaction terms to provide meaning to the main effects in the presence of the interaction terms (i.e., the effect of one explanatory variable on the dependent variable when the moderator equals its mean value of zero). Table 3-2 contains the descriptive statistics and the correlation matrix of the measures.

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Table 3-2: Descriptive Statistics and Bivariate Correlation Coefficients

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Model Specifications

On the basis of the preceding discussion, I propose two possible model specifications. First, in the baseline model (M_{AGG}), we specify the model derived from the first four hypotheses. This model overlooks the role of organizational structures. Thus, we specify M_{AGG} as:

\[ P \text{e} \text{r}_f = \delta_0 + \delta_1 \times \text{IND}_f + \delta_2 \times \text{HOLE}_f + \delta_3 \times \text{RANK}_f + \delta_4 \times \text{TIME}_f + \delta_5 \times \text{MO}_f + \delta_6 \times \text{SELL}_f + \delta_7 \times \text{TIME}_f \times \text{IND}_f + \delta_8 \times \text{TIME}_f \times \text{HOLE}_f + \delta_9 \times \text{TIME}_f \times \text{RANK}_f + \delta_{10} \times \text{MO}_f \times \text{IND}_f + \delta_{11} \times \text{MO}_f \times \text{HOLE}_f + \delta_{12} \times \text{MO}_f \times \text{RANK}_f + \delta_{13} \times \text{SELL}_f \times \text{IND}_f + \delta_{14} \times \text{SELL}_f \times \text{HOLE}_f + \delta_{15} \times \text{SELL}_f \times \text{RANK}_f + \delta_{16} \times \text{OUT}_f + \delta_{17} \times \text{PreSales}_f + \delta_{18} \times \text{PreSGA}_f + \delta_{19} \times \text{PreMTB}_f + \delta_{20} \times \text{PreROA}_f + \epsilon_{f-AGG} \]

where \( \delta \) represent parameters to be estimated; \( f \) indexes firms in the sample; \( \epsilon_{f-AGG} \) denotes the error term assumed to be iid normal distributed with homoskedastic variance; \( \text{IND, OUT, HOLE, RANK, TIME, MO} \) and \( \text{SELL} \) stand for indegree, outdegree, structural hole, rank prestige, intensity of time, market orientation, an selling orientation respectively; and \( \text{PER} \) represent the four performance variables. \( \text{PreSales, PreSGA, PreMTB, and PreROA} \) represent firm performance in previous years.

Second, building on \( M_{AGG} \), I introduce the heterogeneity effect of the upper echelon structure factor, which recognizes that the hypothesized effects in the aggregate model might vary with structure designs. Thus, in the hypothesized model (\( M_{HET} \)):
where \( \gamma \)s represent parameters to be estimated; and \( t = 1, 2 \) refers to the two structure designs for marketing and sales executives (i.e., type 1 stands for firms having marketing (sales) executives in top management team, 2 for firms with no presence of marketing (sales) executives in TMT. ) \( \varepsilon^{M-HET}_f \) denotes the error term assumed to be iid normal distributed with homoskedastic variance.

**Model Estimation**

To analyze the data, I use a hierarchical random-effects Bayesian model that is similar to those in extant marketing literature (e.g., Ding, Grewal, and Liechty 2005; Lenk et al. 1996). I specify the regression likelihood for \( M_{HET} \) as:

\[
PER_{ft} = \sum_{t=1}^{T} \gamma_{ft} \cdot \text{IND}_f + \sum_{t=1}^{T} \gamma_{2t} \cdot \text{HOLE}_f + \sum_{t=1}^{T} \gamma_{3t} \cdot \text{RANK}_f + \sum_{t=1}^{T} \gamma_{4t} \cdot \text{TIME}_f + \sum_{t=1}^{T} \gamma_{5t} \cdot \text{MO}_f + \sum_{t=1}^{T} \gamma_{6t} \cdot \text{SELL}_f + \sum_{t=1}^{T} \gamma_{7t} \cdot \text{TIME}_f \cdot \text{IND}_f + \sum_{t=1}^{T} \gamma_{8t} \cdot \text{TIME}_f \cdot \text{HOLE}_f + \sum_{t=1}^{T} \gamma_{9t} \cdot \text{TIME}_f \cdot \text{RANK}_f + \sum_{t=1}^{T} \gamma_{10t} \cdot \text{MO}_f \cdot \text{IND}_f + \sum_{t=1}^{T} \gamma_{11t} \cdot \text{MO}_f \cdot \text{HOLE}_f + \sum_{t=1}^{T} \gamma_{12t} \cdot \text{MO}_f \cdot \text{RANK}_f + \sum_{t=1}^{T} \gamma_{13t} \cdot \text{SELL}_f \cdot \text{IND}_f + \sum_{t=1}^{T} \gamma_{14t} \cdot \text{SELL}_f \cdot \text{HOLE}_f + \sum_{t=1}^{T} \gamma_{15t} \cdot \text{SELL}_f \cdot \text{RANK}_f + \sum_{t=1}^{T} \gamma_{16t} \cdot \text{OUT}_f + \sum_{t=1}^{T} \gamma_{17t} \cdot \text{Pr eSales}_f + \sum_{t=1}^{T} \gamma_{18t} \cdot \text{Pr eSGA}_f + \sum_{t=1}^{T} \gamma_{19t} \cdot \text{Pr eMTB}_f + \sum_{t=1}^{T} \gamma_{20t} \cdot \text{Pr eROA}_f + \varepsilon^{M-HET}_f
\]

where \( \gamma \)s represent parameters to be estimated; and \( t = 1, 2 \) refers to the two structure designs for marketing and sales executives (i.e., type 1 stands for firms having marketing (sales) executives in top management team, 2 for firms with no presence of marketing (sales) executives in TMT. ) \( \varepsilon^{M-HET}_f \) denotes the error term assumed to be iid normal distributed with homoskedastic variance.

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\[
PER_{ft} = \sum_{t=1}^{T} \gamma_{ft} \cdot \text{IND}_f + \sum_{t=1}^{T} \gamma_{2t} \cdot \text{HOLE}_f + \sum_{t=1}^{T} \gamma_{3t} \cdot \text{RANK}_f + \sum_{t=1}^{T} \gamma_{4t} \cdot \text{TIME}_f + \sum_{t=1}^{T} \gamma_{5t} \cdot \text{MO}_f + \sum_{t=1}^{T} \gamma_{6t} \cdot \text{SELL}_f + \sum_{t=1}^{T} \gamma_{7t} \cdot \text{TIME}_f \cdot \text{IND}_f + \sum_{t=1}^{T} \gamma_{8t} \cdot \text{TIME}_f \cdot \text{HOLE}_f + \sum_{t=1}^{T} \gamma_{9t} \cdot \text{TIME}_f \cdot \text{RANK}_f + \sum_{t=1}^{T} \gamma_{10t} \cdot \text{MO}_f \cdot \text{IND}_f + \sum_{t=1}^{T} \gamma_{11t} \cdot \text{MO}_f \cdot \text{HOLE}_f + \sum_{t=1}^{T} \gamma_{12t} \cdot \text{MO}_f \cdot \text{RANK}_f + \sum_{t=1}^{T} \gamma_{13t} \cdot \text{SELL}_f \cdot \text{IND}_f + \sum_{t=1}^{T} \gamma_{14t} \cdot \text{SELL}_f \cdot \text{HOLE}_f + \sum_{t=1}^{T} \gamma_{15t} \cdot \text{SELL}_f \cdot \text{RANK}_f + \sum_{t=1}^{T} \gamma_{16t} \cdot \text{OUT}_f + \sum_{t=1}^{T} \gamma_{17t} \cdot \text{Pr eSales}_f + \sum_{t=1}^{T} \gamma_{18t} \cdot \text{Pr eSGA}_f + \sum_{t=1}^{T} \gamma_{19t} \cdot \text{Pr eMTB}_f + \sum_{t=1}^{T} \gamma_{20t} \cdot \text{Pr eROA}_f + \varepsilon^{M-HET}_f
\]

where \( \gamma \)s represent parameters to be estimated; and \( t = 1, 2 \) refers to the two structure designs for marketing and sales executives (i.e., type 1 stands for firms having marketing (sales) executives in top management team, 2 for firms with no presence of marketing (sales) executives in TMT. ) \( \varepsilon^{M-HET}_f \) denotes the error term assumed to be iid normal distributed with homoskedastic variance.
I use a hierarchical random-effects specification for the organizational structure type specific coefficients:

\[ \gamma_i = \text{d} \ MVN(\bar{\gamma}, \Lambda_F). \]  

This specification allows for organizational structure type–specific estimates and aggregate estimates \( \bar{\gamma} \), as well as heterogeneity represented by \( \Lambda_F \). Because of sample size considerations, I simplify the model by assuming \( \Lambda_F \) to be a diagonal matrix. Furthermore, I assume vague conjugate priors for \( \bar{\gamma}, \Lambda_F, \) and \( \sigma_F^2 \).

For the aggregate model (\( M_{\text{AGG}} \)), Equation 3 changes to:

\[ \text{PER}_i = \text{d} \ MVN(Z_\beta \delta, \sigma^2_\beta), \]

where \( Z_\beta \) represents the explanatory variables, \( \delta \) are coefficients that are not specific to organizational structure type, and \( \sigma^2_\beta \) denotes the variance of the error term.

Again, I use a hierarchical random-effects specification of industry type–specific coefficients and hierarchical priors for aggregate coefficients:

\[ \delta = \text{d} \ MVN(\bar{\delta}, \Lambda_B). \]

Because of sample size considerations, I simplify the model by assuming \( \Lambda_B \) to be diagonal matrices and vague conjugate priors for \( \bar{\delta}, \Lambda_B, \) and \( \sigma_B^2 \).

I conduct Markov chain Monte Carlo (MCMC) sampling for model estimation by simulating two parallel chains, with burn-ins of 5,000 per chain and subsequent sampling of 5,000 per chain. The mixing seems instantaneous, and I assess convergence by examining the Gelman-Rubin statistics.

Results
Model Selection

To compare the two models (M_{AGG} and M_{HET}), I use WinBUGS to calculate the deviance information criterion (DIC), a Bayesian method for model comparison (Spiegelhalter et al. 2002). DIC is particularly useful in Bayesian model selection problems for which MCMC simulation provides the posterior distributions of the models. Similar to the Akaike information criterion and Bayesian information criterion, DIC becomes an asymptotic approximation as the sample size gets large. The model with the smallest DIC indicates the estimated model that can best predict a replicate data set with the same structure as that currently observed. The DIC for M_{AGG} is -12124.6, and the DIC for M_{HET} is -20331.3 for heterogeneity model regarding sales executive presence in TMT design and -14028.5 for heterogeneity model regarding marketing executive presence in TMT design. The heterogeneity model thus performs better than the aggregate model, which supports our hypothesis about the critical role of upper echelon structure design heterogeneity in the theoretical model. I therefore discuss the results related to individual coefficients in the heterogeneity model.

Hypothesis Testing

I present the results for both heterogeneity models in Table 3-3 and Table 3-4. Table 3-3 is the heterogeneity model regarding sales executive presence in TMT design, and the CSO column refers to firms with this presence and the Non-CSO column represent firms without this presence. Similarly, Table 3-4 is the heterogeneity model regarding marketing executive presence in TMT design and the CMO column refers to firms with this presence and the Non-CMO column represent firms without this presence.

Table 3-3

| Table 3-3: Model Results for Heterogeneity Model- CSO |
Regarding the main effect of prominence PESC and brokerage PESC on firm performance, the results provide minimal support for H₁ and H₂. Only in the heterogeneity model regarding marketing executive presence in TMT design, rank prestige, one indicator of prominence PESC, has significantly positive effect on firm SGA performance (γ = 1.891, p < .01). This does not suggest that both PESC have no performance implications for firms. The evidence of strong interaction effects in the result indicates that the performance implications of PESC need conditions to take effect.

As suggested in H₃ and H₄, the results show strong support for the interaction effects of PESC absorptive capacity with PESC on firm performance for all the four performance variables, which further verifies the critical role of firms’ ability to absorb PESC. Here I will illustrate the result for one performance variable, i.e., SGA. In the CSO heterogeneity model, both elements of PESC absorptive capacity positively influence the performance implications of PESC for firms with sales executive presence in TMT. Amount of effort positively interact with prominence PESC (γ = .757, p < .01 for indegree prestige and γ = .796, p < .01 for rank prestige). The market knowledge bases provided by market orientation and selling orientations positively influence the effects of both PESC on firm SGA performance. Specifically, market orientation has a positive interaction effect for prominence PESC (γ = 1.070, p < .01 for indegree prestige and γ = .973, p < .01 for rank prestige).
< .01 for rank prestige ) and brokerage PESC ( \( \gamma =1.111, p < .01 \) ); selling orientation has a positive interaction effect for prominence PESC ( \( \gamma =.839, p < .01 \) for indegree prestige and \( \gamma =.860, p < .01 \) for rank prestige ) and brokerage PESC ( \( \gamma =.665, p < .01 \) ). For firms with no sales executive presence in TMT, the result shows that only market knowledge base has the moderation effect. Specifically, market orientation has a positive interaction effect for rank prominence PESC ( \( \gamma =1.203, p < .01 \) ) and brokerage PESC ( \( \gamma =1.111, p < .01 \) ); selling orientation has a positive interaction effect for prominence PESC ( \( \gamma =.763, p < .01 \) for indegree prestige and \( \gamma =.725, p < .01 \) for rank prestige ).

In the CMO heterogeneity model, I find a similar pattern for firms with different TMT design regarding the marketing executive. That is only market knowledge base has the significant moderation effect. Specifically, for firms with marketing executive in TMT, market orientation has a positive interaction effect for prominence PESC ( \( \gamma =.942, p < .01 \) for indegree prestige and \( \gamma =.892, p < .01 \) for rank prestige ) and brokerage PESC ( \( \gamma =.996, p < .01 \) ); selling orientation has a positive interaction effect for prominence PESC ( \( \gamma =.697, p < .01 \) for indegree prestige and \( \gamma =.586, p < .01 \) for rank prestige ) and brokerage PESC ( \( \gamma =.592, p < .01 \) ). For firms with no marketing executive in TMT, market orientation has a positive interaction effect for prominence PESC ( \( \gamma =.719, p < .01 \) for indegree prestige and \( \gamma =1.12, p < .01 \) for rank prestige ) and brokerage PESC ( \( \gamma =.944, p < .01 \) ); selling orientation has a positive interaction effect for prominence PESC ( \( \gamma =.876, p < .01 \) for indegree prestige and \( \gamma =.567, p < .01 \) for rank prestige ) and brokerage PESC ( \( \gamma =.472, p < .01 \) ). These results present consistent findings for all the other three performance variables. It is suggested that the market knowledge bases provided by the two marketing related strategic orientations are necessary conditions for
organizations to enable their PESC to have an impact on firm performance. Without the prior knowledge base and cultural foundation regarding market information and knowledge, organizations may not be able to utilize their learning ability to assimilate the external acquired market practices, strategies, and knowledge conveyed by their marketing and sales executives.

Finally for the two heterogeneity models, I compare the coefficients among firms with different TMT design and the result is shown in Table 3-5. The significant comparison results are indicated with a check sign. In the CSO heterogeneity model with SGA as performance variable, the interaction effects of indegree prominence PESC with time and market orientation are different among firm with different TMT design regarding sales executive. In the CMO heterogeneity model, the comparisons show a consistent pattern for the different effects regarding market orientation’s moderation effects on rank prominence PESC among firm with different TMT design regarding marketing executive. To investigate the effect of all five upper echelon designs, I also run another heterogeneity model including all the five types and compare the coefficients. I find no significant differences for the coefficients between each pair of the five TMT designs. This examination suggests the heterogeneity effect of TMT design on PESC comes from the presence of marketing or sales executives in TMT, no matter what title firms use for these executives.

Table 3-5

<table>
<thead>
<tr>
<th>Table 3-5: Comparison of Coefficients</th>
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<tbody>
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<td>Place Table Here</td>
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Discussion
When organizations are not satisfied with their current performance or are not able to develop a successful strategy, they often replace their senior executives. CEOs have recruited CMOs/CSOs as direct reports to bolster their marketing and sales strength. A common but critical recruiting criterion is executives’ previous working experience. The question remains: how important are these work experience for firms when they look for the new CMOs/CSOs? By answering the question through a leadership experience network, this research provides strong managerial implications.

The results of this study imply the importance of marketing and sales executives in organizations, which reiterate the theme of upper echelon theory in strategic management (Hambrick and Mason 1984). Particularly, the PESC derived from these executives’ work experience addresses the benefits organizations obtain through executive migration. The benefits include a firm’s social learning regarding the market information, practice, and strategies from the other organizations. Along with direct types of organizational interaction such as alliances, this work experience network indicates another type of indirect organizational interaction and organizational learning approach. In addition, the significant interaction results emphasize the critical role of PESC absorptive capacity which is often neglected in social capital research. PESC absorptive capacity influences the efficacy of PESC and also highlights the important issue of compatibility of external acquired resources and the firm. The compatibility issue suggests a managerial implication that the success of marketing and sales executives is to fit the new company’s marketing culture and structure (McGovern and Quelch 2004). A marketing executive who fits well within a firm, has a clear mission, and possesses the right skills can have a transformational, far-reaching effect on the way the company performs the marketing and sales functions.
This complicatedness and richness of top management experience network involves a lot of issues beyond the scope of this current study. For example, one possible direction for future research is to disentangle the extent of multiple relationships between two organizations in the experience network i.e., relationship complexity. The relations between two firms can serve multiple interests and represent multiple kinds of relations. The notion of relationship complexity focuses attention to “multi-vocal features of social structures that comprise the embedding context” (Dacin, Marc, and Brent 1999:337). In the context of leadership experience network, two firms have a multiplex tie if they have both links from marketing and sales executives, or intertwined links in which Firm A’s sales executive come to Firm B as a marketing executive. The complexity in the leadership experience network is determined by the different roles of the marketing and sales functions in typical B2B markets: marketing executives tend to take the long-term and broad view of customer relationships, while sales managers tend to focus on the short-term have an individual customer orientation (Kotler, Rackham, and Krishnaswamy 2006). One data structure of multiple relations is the multi-valued matrix (Hanneman and Riddle 2005). The values, however, don’t represent strength on ties, but rather distinguish the qualitative type of tie that exists between each pair of actors. A research on this multi-valued matrix will help to provide an understanding on such interesting questions as “how firms absorb the externally acquired sales expertise in the marketing function? Does this practice help to solve the conflicting interests and views between marketing and sales functions?”

In conclusion, this research presents a nuanced understanding on the important issue of executives’ prior working experience. Although this research only focuses on the semiconductor industry, its result may provide some insights of the favorable executive selection strategy for

13 The multi-valued matrix will only be used to measure the tie multiplexity, or path embeddedness complexity. A normal matrix is used for measure the degree centrality and tie strength.
firms in similar high technology industry settings. This study should deliver a message to firms
that besides direct types of organizational interaction such as alliances, recruiting executives with
rich work experience is another approach of indirect organizational interaction and
organizational learning.
Figure 3-1

Theoretical Framework

Upper Echelon Structure Design

PESC
- Prominence PESC
- Brokerage PESC

PESC Absorptive Capacity
- Market Knowledge Base
- Amount of effort

Firm Performance
Figure 3-2

The Graph of PESC in Semiconductor Industry, 2006
<table>
<thead>
<tr>
<th>Strategic Orientation</th>
<th>Example of Coded Sentence from Annual Reports</th>
</tr>
</thead>
</table>
| Competitor Orientation      | - Our strategy is to offer innovative solutions to markets in which our nonvolatile technologies have an inherent competitive advantage. (ACTL).  
- We believe our advanced component design and manufacturing facilities, which would be prohibitively expensive to replicate in the current market environment, is a significant competitive advantage. (BKHM)  
- This environment is characterized by potential erosion of product sale prices over the life of each product, rapid technological change, limited product life cycles and strong domestic and foreign competition in many markets. Our ability to compete successfully depends on many factors. (CY) |
| Customer Orientation        | - We offer products at various levels of integration, allowing our customers flexibility to create advanced computing and communications systems and products. (INTC)  
- We will need to devote substantial resources to educate customers and end users about the benefits of VoIP telephony solutions in general and our services in particular. (EGHT)  
- We intend to drive the adoption of our next generation CSP and MCP technologies by collaborating with our customers to develop chip-scale and multi-chip packages to meet their specific product requirements.(TSRA) |
| Interfunctional Coordination| - To manage our business effectively, we may need to implement additional and improved management information systems, further develop our operating, administrative, financial and accounting systems and controls, add experienced senior level managers, and maintain close coordination among our executive, engineering, accounting, marketing, sales and operations organizations. (AXTI)  
- The acquisition requires integration of product offerings, manufacturing relationships and coordination of sales and marketing and research and development efforts. (VIRL) |
| Selling orientation         | - Our net sales increase was driven by continued price increases on both sales of our excess polysilicon raw material and wafers combined with increased volumes. (WFR)  
- We expect to fund any increases in inventory caused by sales growth or manufacturing planning requirements from our cash balances and operating cash flows. (WEDC) |
### Table 3-2
Descriptive Statistics and Bivariate Correlation Coefficients

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**Correlation is significant at the .01 level (2-tailed).**

*Correlation is significant at the .05 level (2-tailed).

Notes: $N = 113$. 
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<td>1.033(.491) **</td>
<td>-1.302(.492) **</td>
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<td>1.296(.510) **</td>
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</tr>
<tr>
<td></td>
<td>MO</td>
<td>1.044(.054) **</td>
<td>1.098(.054) **</td>
<td>1.096(.055) **</td>
<td>1.065(.303) **</td>
<td>.515(.251) **</td>
<td>1.133(.253) **</td>
<td>1.149(.263) **</td>
<td>1.130(.492) **</td>
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<tr>
<td></td>
<td>SELL</td>
<td>.881(.093) **</td>
<td>.930(.087) **</td>
<td>.927(.101) **</td>
<td>.954(.315) **</td>
<td>.395(.220) **</td>
<td>.575(.228) **</td>
<td>.559(.230) **</td>
<td>.554(.336) *</td>
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</tr>
<tr>
<td>Interaction Effects</td>
<td>TIME*IND</td>
<td>.757(.282) **</td>
<td>.791(.305) **</td>
<td>.787(.295) **</td>
<td>.652(.278) **</td>
<td>-.899(.568)</td>
<td>.752(.557)</td>
<td>.855(.554)</td>
<td>.630(.634)</td>
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<tr>
<td></td>
<td>TIME*HOLE</td>
<td>.194(.746)</td>
<td>.239(.781)</td>
<td>.289(.784)</td>
<td>.477(.835)</td>
<td>1.035(.776)</td>
<td>.204(.811)</td>
<td>.230(.814)</td>
<td>.537(.852)</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>TIME*RANK</td>
<td>.796(.348) **</td>
<td>.839(.376) **</td>
<td>.847(.363) **</td>
<td>.763(.256) **</td>
<td>.217(.429)</td>
<td>.922(.417) **</td>
<td>.919(.403)</td>
<td>.823(.254) **</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MO *IND</td>
<td>1.070(.052) **</td>
<td>1.125(.071) **</td>
<td>1.122(.056) **</td>
<td>1.080(.243) **</td>
<td>.236(.264)</td>
<td>.933(.277) **</td>
<td>.955(.277) **</td>
<td>.870(.365) **</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>MO *HOLE</td>
<td>1.111(.196) **</td>
<td>1.161(.205) **</td>
<td>1.154(.201) **</td>
<td>1.117(.337) **</td>
<td>1.111(.275)</td>
<td>1.164(.275) **</td>
<td>1.163(.288)</td>
<td>.988(.507) *</td>
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<td></td>
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<tr>
<td></td>
<td>MO *RANK</td>
<td>.973(.085) **</td>
<td>1.022(.077) **</td>
<td>1.021(.090) **</td>
<td>1.024(.321) **</td>
<td>1.203(.124) **</td>
<td>.939(.140) **</td>
<td>.930(.128) **</td>
<td>.914(.187) **</td>
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<td></td>
<td>SELL *IND</td>
<td>.839(.062) **</td>
<td>.885(.073) **</td>
<td>.882(.061) **</td>
<td>.865(.172) **</td>
<td>.763(.231) **</td>
<td>.806(.236) **</td>
<td>.774(.238) **</td>
<td>.816(.316) **</td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>SELL *HOLE</td>
<td>.665(.224) **</td>
<td>.690(.230) **</td>
<td>.697(.235) **</td>
<td>.785(.357) **</td>
<td>.470(.298)</td>
<td>.451(.310)</td>
<td>.432(.313)</td>
<td>.596(.405)</td>
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<tr>
<td></td>
<td>SELL *RANK</td>
<td>.860(.091) **</td>
<td>.907(.104) **</td>
<td>.903(.094) **</td>
<td>.855(.187) **</td>
<td>.725(.116) **</td>
<td>1.068(.114) **</td>
<td>1.071(.122) **</td>
<td>1.050(.325) **</td>
<td></td>
<td></td>
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</tbody>
</table>

NOTES: 1. To summarize the posterior, I use the ratio of posterior mean to posterior standard deviation. If this ratio is outside the range [-2, 2], the mean deviates significantly from zero (depicted by **). If the ratio is outside the range [-1.64 1.64] but within the range [-2, 2], the mean also deviates significantly from zero (depicted by *).
2. Standard deviations are in the parentheses.
## Table 3-4 Model Results for Heterogeneity Model-CMO

<table>
<thead>
<tr>
<th>Variable Category</th>
<th>Variable Name</th>
<th>CMO</th>
<th>Non-CMO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SGA</td>
<td>ROA sales</td>
</tr>
<tr>
<td>Dependent Variable</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
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<td>.355(.665)</td>
<td>-.200(.767)</td>
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<tr>
<td>Controls</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OUT</td>
<td></td>
<td>.565(.512)</td>
<td>.353(.599)</td>
</tr>
<tr>
<td>PreSALES</td>
<td></td>
<td>-.158(1.023)</td>
<td>-.343(1.144)</td>
</tr>
<tr>
<td>PreSGA</td>
<td></td>
<td>-.084(1.218)</td>
<td>-.434(1.470)</td>
</tr>
<tr>
<td>PreMTB</td>
<td></td>
<td>.315(.227)</td>
<td>.440(.266)</td>
</tr>
<tr>
<td>PreROA</td>
<td></td>
<td>-.182(1.072)</td>
<td>.800(1.230)</td>
</tr>
<tr>
<td>Path-embedded Social Capital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IND</td>
<td></td>
<td>.364(847)</td>
<td>.695(1.039)</td>
</tr>
<tr>
<td>HOLE</td>
<td></td>
<td>-.112(892)</td>
<td>.175(1.005)</td>
</tr>
<tr>
<td>RANK</td>
<td></td>
<td>1.891(851) **</td>
<td>-.273(954)</td>
</tr>
<tr>
<td>PESC Absorptive Capacity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIME</td>
<td></td>
<td>.213(310)</td>
<td>.546(368)</td>
</tr>
<tr>
<td>MO</td>
<td></td>
<td>.870(087) **</td>
<td>1.060(091) **</td>
</tr>
<tr>
<td>SELL</td>
<td></td>
<td>.729(158)</td>
<td>.944(164)</td>
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<tr>
<td>Interaction Effects</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>TIME*IND</td>
<td></td>
<td>.277(256)</td>
<td>.494(319)</td>
</tr>
<tr>
<td>TIME*HOLE</td>
<td></td>
<td>-.570(658)</td>
<td>.353(769)</td>
</tr>
<tr>
<td>TIME*RANK</td>
<td></td>
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<td>.488(392)</td>
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<td>MO *IND</td>
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<td>.942(057) **</td>
<td>1.173(058) **</td>
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<tr>
<td>MO *HOLE</td>
<td></td>
<td>.996(220) **</td>
<td>1.149(230) **</td>
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<td>MO *RANK</td>
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<td>.892(084) **</td>
<td>1.059(041) **</td>
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<td>SELL *IND</td>
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<td>.697(085) **</td>
<td>.858(090) **</td>
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<tr>
<td>SELL *HOLE</td>
<td></td>
<td>.592(194) **</td>
<td>.727(229) **</td>
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<tr>
<td>SELL *RANK</td>
<td></td>
<td>.586(064) **</td>
<td>.849(088) **</td>
</tr>
</tbody>
</table>

**NOTES:**
1. To summarize the posterior, I use the ratio of posterior mean to posterior standard deviation. If this ratio is outside the range [-2, 2], the mean deviates significantly from zero (depicted by **). If the ratio is outside the range [-1.64 1.64] but within the range [-2, 2], the mean also deviates significantly from zero (depicted by *).
2. Standard deviations are in the parentheses.
### Table 3-5
Comparisons of Coefficients

<table>
<thead>
<tr>
<th>Interaction Effects</th>
<th>Variable Name</th>
<th>CSO vs Non-CSO</th>
<th>CMO vs Non-CMO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SGA</td>
<td>ROA</td>
</tr>
<tr>
<td>TIME*IND</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>TIME*CONST</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>TIME*RANK</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>MO *IND</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>MO *CONST</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>MO *RANK</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>SELL *IND</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>SELL *CONST</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>SELL *RANK</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

**NOTES:**
1. To summarize the posterior, I use the ratio of posterior mean to posterior standard deviation. If this ratio is outside the range [-2, 2], the mean deviates significantly from zero (depicted by **). If the ratio is outside the range [-1.64, 1.64] but within the range [-2, 2], the mean also deviates significantly from zero (depicted by *).
2. Standard deviations are in the parentheses.
Chapter 4

CONCLUSION

My dissertation contributes to understanding the importance of marketing leadership which has been a neglected variable in marketing research. Although there is extensive research in strategic management over the past two decades investigating the role of top executives (e.g., Meindl, Ehrlich, and Dukerich 1985; Pettigrew 1992), the managerial elite has been a neglected variable in marketing, as has been the study of marketing and sales leaders. As an initial step toward learning about the role of marketing leadership, this study provides insights into the value created by TMEs by exploring an important phenomenon, i.e., TME change.

This dissertation provides two different perspectives on this phenomenon of TME change. The first essay provides a snapshot view of the phenomenon by examining the shareholders’ reaction to the announcements of new TME succession. The finding of the event study shows that the capital market considers the event of TME succession significant. In addition, the proposed agency-based theoretical framework provides a good understanding on what other related information can influence the shareholders’ reaction. The result suggests that shareholders welcome a new marketing executive from outside of the firm and with rich marketing experience especially when the firm performs poorly and when the firm has a high expectation on return-on-marketing-investment.

The second essay provides a network view of the phenomenon by understanding the social structure of organization interaction derived from the work experience records
of their top marketing and sales executives. It is shown that these executives’ migration benefit organizations through the flow of market related information, knowledge, and resource among organizations. A firm’s structural position in this social network determines the amount of PESC it can obtain and further influences its firm performance.

This dissertation only addresses the performance implication of marketing executives from the phenomenon of TME change and migration. The role of today’s top marketing executive is fast becoming one of the riskiest jobs in North America. It’s jarring to note that the average tenure for TMEs at the top 100 branded companies is just 22.9 months. With such high turnover numbers and a shortage of industry-focused executives — coupled with the continued importance that marketing will play in the business world — companies need to quickly determine how to slow down the TME turnover rate. Therefore more research is needed to study this important phenomenon. For example, a study on the reasons underlying the phenomenon of the short TME tenure can provide helpful insights on this critical practical phenomenon.

The notion that the characteristics of senior management, or the upper echelon of an organization, can influence the decisions made and practices adopted by an organization dates back to early upper echelon theory (Hambrick and Mason 1984). Managers’ characteristics (e.g., demographic) influence the decisions that they make and therefore the actions adopted by the organizations that they lead. Including this dissertation, marketing scholars has just realized the importance of top management in marketing strategy area (Nath and Mahajan 2008). However, more research is needed to apply the upper echelon theory in marketing to investigate the relationship between TME characteristics and marketing strategies and performance. In conclusion, the importance
of TMEs for firms and the role of a TME in establishing the marketing function should provide a spur to other researchers to explore upper echelon research issues further in strategic marketing area.
Bibliography


Ding, Min, Rajdeep Grewal, and John Liechty (2005), "Incentive-Aligned Conjoint Analysis," Journal of Marketing Research, 42 (1), 67-82.


Hanneman, Robert A. and Mark Riddle (2005), Introduction to Social Network Methods. Riverside, CA: University of California, Riverside


Nooy, Wouter de, Andrej Mrvar, and Vladimir Batagelj (2005), Exploratory Social Network Analysis with Pajek: Cambridge University Press


Spieglerhalter, DJ, NG Best, BP Carlin, and Linde A. Van der (2002), "Bayesian Measures of Model Complexity and Fit (with Discussion)," Journal of the Royal Statistical Society, 64 (4), 583-616.


Appendix

Illustrative Example of the Leadership Experience Network

This exhibit is only part of the whole network, in which

- The network is structured based on the experience records of current top marketing (sales) executives at all the 113 semiconductor firms.
- Some semiconductor firms such as AMD, Semtech and Cypress structures one position for marketing and sales function. Some other firms such as Exar have separate top positions for these two functions.
- AMD has source capital of PESC while Cypress has sink capital of PESC based on Chris Seams’ work experience.
- Following is a sample of matrix developed from the above examples

<table>
<thead>
<tr>
<th></th>
<th>AMD</th>
<th>CYPRESS</th>
<th>EXAR</th>
<th>TI</th>
<th>SEMTECH</th>
</tr>
</thead>
<tbody>
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<td>AMD</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>CYPRESS</td>
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<td>0</td>
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<td>0</td>
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<td>EXAR</td>
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<td>1</td>
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</tr>
<tr>
<td>TI</td>
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<td>0</td>
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<tr>
<td>SEMTECH</td>
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<td>0</td>
<td>0</td>
<td>1</td>
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</tbody>
</table>
VITA

Rui Wang

Rui Wang was born in China and completed her undergraduate degree in International Business from Nanjing University in 2000. In May 2003, she earned a master degree in World Economy from Fudan University. Several months later, she was admitted to the Doctor of Philosophy program in Business Administration at the Pennsylvania State University.

Rui Wang will be joining the marketing department at Peking University in China as an assistant professor in the fall of 2008.