

**CEOs With Marketing Backgrounds:
When Are They Appointed And Do They Improve Firm Performance?**

Raji Srinivasan
Associate Professor of Marketing
Red McCombs School of Business
University of Texas at Austin
CBA 7.248, Austin, TX 78712-1176
Tel: 512-471-5441; fax: 512-471-1034
Email: raji.srinivasan@mcombs.utexas.edu

Robert Parrino
Lamar Savings Centennial Professor of Finance
Red McCombs School of Business
University of Texas at Austin
CBA 6.246 Austin, TX 78712-1176
Tel: 512-471-5788; fax: 512-471-5073
Email: parrino@mail.utexas.edu

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Abstract

We investigate how the extent to which a firm pursues a differentiation strategy affects the likelihood that an executive with a marketing background is appointed Chief Executive Officer (CEO). Evidence from 552 CEO appointments over the 1990 to 2005 period indicates that an executive with a marketing background is more likely to be appointed CEO at a firm with a greater differentiation emphasis. Moreover, a greater differentiation emphasis, in conjunction with greater R&D intensity, diversity of businesses, emphasis on organic growth, financial leverage, or past performance, increases the likelihood that a CEO with a marketing background is appointed. Changes in stock and accounting performance, as well as in the volatility of the appointing firm's stock returns, are generally similar following the appointment of CEOs with marketing and non-marketing backgrounds. However, not appointing a CEO with a marketing background can adversely affect accounting performance where differentiation emphasis is high. Also, market shares tend to increase more under CEOs with marketing backgrounds at firms with high differentiation emphasis. The evidence is consistent with the idea that marketing skills are more valuable in some circumstances than in others, but that boards tend to appoint CEOs whose skills are best suited for that position.

Keywords: CEO appointment, CEO experience, corporate governance, firm performance, differentiation emphasis, advertising, research and development.

Introduction

The selection of a new Chief Executive Officer (CEO) is perhaps the most important decision that a board of directors makes. The CEO is responsible for implementation of the firm's strategy, including its investment, financing, operating, and marketing policies (Bertrand and Schoar 2003). Some authors argue that the relative importance of different functional areas within a firm is determined by its strategy (Hitt, Ireland, and Palia 1982) and that the CEO selection decision reflects which function has the most influence on the strategic direction of a firm (Pfeffer 1981; p. 254). If these authors are correct, the appointment of a CEO with a marketing background indicates that the marketing function plays an important role in the strategic direction of the firm.

We report evidence on the factors that affect the likelihood that an executive with a marketing background is appointed CEO and the implications of such an appointment for firm performance. While several studies have reported indirect evidence on the appointment of CEOs with marketing backgrounds (Fligstein 1987; Ocasio and Kim 1999; Smith and White 1987), we know of no study that has focused on such appointments.

A study of the appointment of executives with marketing backgrounds to CEO positions is relevant to managerial practice. CEOs with marketing backgrounds are more likely to be strong advocates for marketing activities. This notion is captured in a quote by Rick Lenny, Chairman and CEO of The Hershey Company and a former marketing executive, who said:

“Until the CEO is a strong advocate for marketing and sees it as a source of competitive advantage, marketing will never have a seat at the table.”¹

Both academics (e.g., Nath and Mahajan 2008; Verhoef and Leeflang 2009; Webster, Malter, and Ganesan 2005) and practitioners have asserted that it is important that marketing have a role in the top echelon of decision making.

¹ See http://content.spencerstuart.com/sswebsite/pdf/lib/2005_CEO_Study_JS.pdf accessed on July 29, 2010.

We use the extent to which a firm pursues a differentiation strategy (its differentiation emphasis) as an indicator of the importance of marketing to its overall strategy. We expect that an executive with a marketing background is more likely to be appointed CEO when a firm's strategy places a greater emphasis on differentiation.

The contingency theory proposed by Zeithaml, Varadarajan, and Zeithaml (1988) suggests that interactions between a firm's strategy and its characteristics influence its performance. We expect these interactions to also influence CEO choice. Therefore, we develop and test hypotheses relating the interactions between a firm's differentiation emphasis and three other elements of its strategy, 1) R&D intensity, 2) diversity of businesses, and 3) emphasis on organic growth, and three resource-related characteristics, 1) firm size, 2) financial leverage, and 3) past firm performance, to the likelihood that a CEO with marketing background is appointed.

Evidence from a sample of 552 CEO appointments at 412 large public U.S. firms between 1990 and 2005 indicates that a CEO with a marketing background is more likely to be appointed at a firm that has higher differentiation emphasis, as proxied by its advertising intensity. We classify a CEO as having a marketing background if that executive has spent more years working in the marketing area than in any other functional area. We also find that a higher differentiation emphasis in conjunction with greater R&D intensity, greater diversity of businesses, greater emphasis on organic growth, higher financial leverage, or stronger past performance increases the likelihood that a CEO with a marketing background is appointed.

A question that follows from this evidence is whether firm performance following CEO turnover differs across firms that appoint CEOs with different backgrounds. There is no evidence in the literature on how firm performance varies with the functional background of the CEO. However, arguments by some researchers suggest that we should not expect firm performance following CEO turnover to vary with CEO backgrounds (Demsetz and Lehn 1985; Demsetz and Villalonga 2001; Hermalin and Weisbach 1998; 2003). They argue that governance choices,

including CEO selection, are endogenously determined. In this view, boards consider the strengths and weaknesses of their firms, as well as their overall objectives, when selecting CEOs. This view is no different from the idea that CEO succession is a response to a situation that needs managerial attention (Beatty and Zajac 1987). While we might not observe systematic cross-sectional variation in post-appointment performance if the executives who are appointed CEO tend to be those whose skills best complement the skills of the other managers in their firms, it is still possible for individual boards to make poor CEO appointment decisions.

We examine abnormal stock returns around the CEO appointment announcements for evidence on the market's assessment of the impact of these appointments on the firms' future financial performance. We find that the average abnormal stock return associated with the announcement that an executive with a marketing background is appointed CEO is no different from the average abnormal return associated with the announcement that an executive with a non-marketing background is appointed CEO.

We also examine direct measures of changes in performance over the three years following CEO appointments and find no evidence of general relations between CEO backgrounds and buy-and-hold abnormal returns or changes in accounting performance or the volatility of stock returns. However, sample firm market shares tend to increase more following the appointment of CEOs with marketing backgrounds, than following the appointment of CEOs with other backgrounds, at firms with a greater differentiation emphasis. This latter finding suggests that CEOs with marketing backgrounds are more valuable at firms where growing market share is an important part of a firm's strategy. An examination of the post-appointment change in performance at firms with a high differentiation emphasis suggests that appointing a CEO with marketing skills can lead to better accounting performance at such firms.

The remainder of the paper is organized as follows. We first review the relevant literatures on CEO appointments and on the marketing function's influence in the firm. We then

develop hypotheses relating differentiation emphasis, both independently and in conjunction with other elements of firm strategies and firm resources, to the appointment of CEOs with marketing backgrounds. Next, we describe the data and methods that we use to test the hypotheses. We follow with an examination of the performance implications of the appointment of CEOs with marketing backgrounds. We conclude with a discussion of this study's contributions, its limitations, and opportunities for further research.

Literature Overview

In this section we discuss relevant parts of the literatures on CEO appointments, how CEO appointments affect firm performance, and the marketing function's influence in the firm.

CEO Appointments

A considerable body of research in accounting, economics, finance, and management has examined the determinants of CEO turnover. The evidence indicates that firm performance affects the likelihood of CEO turnover and the choice of the new CEO. For example, CEOs of poorly performing firms, as measured by either accounting performance or stock returns, are more likely to be replaced than CEOs of other firms (Huson, Parrino, and Starks 2001; Warner, Watts, and Wruck 1988). CEOs of poorly performing firms are also more likely to be replaced by outsiders because outsiders are perceived as being more likely to make changes that are necessary to improve firm performance (Borokhovich, Parrino, and Trapani 1996; Cannella, Lubatkin, and Kapouch 1991).

Board characteristics also affect CEO turnover characteristics. Boards with a larger proportion of outside directors are more likely to replace a poorly performing CEO (Weisbach 1988) and appoint an outsider to the CEO position (Borokhovich et al. 1996). Powerful boards tend to appoint CEOs who are similar to the board members (Zajac and Westphal 1996).

A few studies report relevant evidence on the role of executive backgrounds in CEO appointments, but none of these focus specifically on the appointment of CEOs with marketing

backgrounds. Fligstein (1987) reports evidence suggesting that greater product-market diversification increased the likelihood that a CEO with a marketing background was appointed between 1950 and 1979, but it is unclear whether this relation still holds in light of the trend toward more focused firms that began in the 1980s. Smith and White (1987) also report evidence on the determinants of CEO backgrounds, but they group both marketing and R&D executives as “core specialists” and, as a result, do not provide direct evidence on CEOs with marketing backgrounds. Datta and Guthrie (1994) find that CEOs with advanced education and technical backgrounds are more likely to be appointed at firms with R&D intensive strategies. Finally, Ocasio and Kim (1999) find that CEOs with finance backgrounds are more likely to be appointed than CEOs with other backgrounds following acquisitions.

CEO Appointments and Firm Performance

The impact of CEO succession on firm performance varies with whether the succession is forced or voluntary (Denis and Denis 1995; Huson, Malatesta, and Parrino 2004) and whether the new CEO is an insider or an outsider (Borokhovich, Brunarski, and Parrino 1996) or a member of the founding family (Perez-Gonzalez 2006). On average, performance improves more following forced successions and when the new CEO is an outsider. In addition, the appointment of a founding family member tends to be followed by poorer firm performance than the appointment of a non-family member. Overall, the evidence suggests that forced turnover is associated with an improvement in CEO quality, that outsiders are more likely to make the changes necessary to improve performance, and that ability is not always the overriding selection criteria when a founding family member is a CEO candidate. There is also some evidence that governance characteristics, such as institutional shareholdings and the presence of an outsider-dominated board, are related to post-appointment performance changes (Huson et al. 2004).

The Marketing Function’s Influence and Appointment of CMOs

The scope and nature of the marketing function’s influence in the firm has been examined

in the marketing literature (Webster 1992; Webster et al. 2005). A primary approach that has been used to measure this influence relies on the assumption that the presence of senior marketing executives indicates that the marketing function has a strong influence in the firm. Consistent with the assertion by Rick Lenny from The Hershey Company, Homburg, Workman, and Krohmer (1999) find that the presence of a CEO with a marketing background increases the influence of the firm's marketing function. Pasa and Shugan (1996) find that marketing expertise is especially highly valued at firms with CEOs with marketing backgrounds.

Recent studies of Chief Marketing Officer (CMO) appointments also provide insights. Nath and Mahajan (2008) argue that the presence of a CMO is a good proxy for the marketing function's influence in a firm. They find that some firm characteristics, including differentiation emphasis, as measured by advertising intensity, increase the likelihood of appointment of a CMO. Consistent with the idea that the appointment of a CMO is endogenously determined, they also find that the appointment of a CMO does not affect the firm's subsequent performance.

In a subsequent paper, Nath and Mahajan (2010) report that under some conditions, such as where there are more divisions in the firm and where the CMO is responsible for sales, the appointment of a CMO increases sales growth. In contrast, under other conditions, such as where the firm pursues unrelated diversification, the appointment of a CMO decreases profits.

Boyd, Chandy, and Cunha (2010) also report evidence that marketing experience in the senior management team matters. They find that abnormal stock returns associated with CMO appointment announcements tend to be lower for firms with higher customer power, but that this negative relation is weaker for CMOs with greater role-specific and firm-specific experience and at better-performing firms. In contrast, the negative relation is stronger at larger firms.

Summary

The CEO turnover, marketing influence, and CMO literatures leave some key issues related to the appointment of CEOs with marketing backgrounds unresolved. First, studies of CEO appointments have provided little evidence on the factors that influence the appointment of

CEOs with marketing backgrounds. Second, while the presence of one or more senior marketing executives appears to be a good indicator of the marketing function's relative influence in the firm, no evidence has been reported on whether the appointment of CEOs with marketing backgrounds affects firm performance.

Hypotheses: The Appointment of CEOs with Marketing Backgrounds

In this section we develop hypotheses concerning the likelihood that an executive with a marketing background is appointed CEO. A key assumption underlying these hypotheses is that corporate boards appoint senior executives who have expertise in areas that are critical to the firm's competitive advantage and, therefore, its performance. This follows from both the *resource dependence* (Pfeffer and Salancik 1978) and *strategic staffing* (Guthrie and Olian 1991) perspectives in the management literature, which suggest that a firm's characteristics, including its strategy and performance, influence the profile of its CEO. Consistent with the notion that CEO backgrounds are related to firm strategies, Yadav, Prabhu and Chandy (2007) find that the extent of a CEO's external and future focus, which indicates a tendency to innovate, is positively related to the extent to which a firm adopts an innovation.

Differentiation Emphasis

Developments in the strategy (e.g., Bettis 1981) and industrial organization (e.g., Comanor and Wilson 1971) literatures suggest that firms with a strong differentiation emphasis use marketing programs, including advertising and brand management, to create value (Dickson and Ginter 1987). In other words, a firm's differentiation emphasis reflects the importance of its marketing strategy in achieving competitive advantage and, thereby, securing rents.

Since a strong differentiation emphasis calls for marketing competencies (Miller 1986; Nath and Mahajan 2008), an executive with a marketing background is likely to be an especially attractive candidate for the CEO position at a firm with a strong differentiation emphasis. In contrast, an executive with a different background, such as operations or finance, is likely to be a

relatively more attractive candidate at a firm with a strategy that places less emphasis on differentiation. This suggests hypothesis **H₁**:

H₁: The greater a firm's differentiation emphasis, the higher the likelihood that a CEO with a marketing background will be appointed.

Interaction Effects of Differentiation Emphasis with Firm Characteristics

Contingency theory proposes that there are complementarities among elements of a firm's strategy and resources and its performance (Zeithaml, Varadarajan, and Zeithaml 1988). We next develop hypotheses concerning how interactions between a firm's differentiation emphasis and other key elements of its strategy and resource-related characteristics affect the likelihood that an executive with a marketing background is appointed CEO. We begin by considering interactions between differentiation emphasis and three strategy elements: R&D intensity, diversity of businesses, and emphasis on organic growth.

R&D intensity: A firm's R&D intensity reflects its emphasis on developing new technologies, processes, and products in order to secure a competitive advantage. Substantial technical knowledge is often necessary to manage a strategy which relies heavily on R&D activities. This suggests that boards of firms with greater R&D intensities place high value on technical skills when they select executives to oversee technical managers (Hambrick, Black, and Fredrickson 1992). In fact, functional backgrounds in sciences or engineering are often well represented in senior management teams at R&D intensive firms (Wiersema and Bantel 1993).

However, marketing skills can also be especially valuable at R&D intensive firms. Mizik and Jacobson (2003) propose that while R&D programs create value through the innovation, production, and delivery of products, differentiation activities directly impact the rents that are ultimately realized from R&D efforts. This perspective proposes an implicit complementarity between a firm's R&D and differentiation activities—R&D creates the portfolio of products, whose value is then leveraged through a differentiation emphasis. To the extent that the marginal

value of marketing activities is greater where new products represent a larger share of the firm's overall product portfolio, this suggests **H₂**:

H₂: The effect of differentiation emphasis on the likelihood that a CEO with a marketing background is appointed is greater when the firm's R&D intensity is higher.

Note that hypothesis **H₂** can hold even if the likelihood that an executive with a technical background is appointed CEO also increases with R&D intensity. As we discuss later, CEOs with technical and marketing backgrounds represent only a relatively small fraction of all CEOs.

Differentiation emphasis and diversity of businesses: We define a firm with business units that compete in multiple markets as having diverse businesses (Palepu 1985). Marketing skills are likely to be especially valuable in such a firm because successfully managing it requires managers to adapt to different customer needs across the different markets. However, management research suggests that it can be especially valuable for the CEO to have operations or finance skills in a firm with diverse businesses. Baysinger and Hoskisson (1989) note that diversified firms are managed using control systems that emphasize efficiency and budgets that facilitate efficient resource allocation across the different businesses. Rumelt (1974) argues that managing diversified firms is similar to managing a financial portfolio.

While marketing, operations, and finance skills can all be more valuable in diverse firms than in focused firms, the relative value of different CEO skill sets is likely to vary across diverse firms. This is because the similarities and differences between the individual business units vary across such firms. We expect that marketing skills will be especially important in firms where individual business units are considerably different from each other and where a greater differentiation emphasis is necessary for success. In contrast, in diverse firms where a differentiation emphasis is less important, operations or finance skills are likely to be relatively more important to the CEO. These arguments suggest hypothesis **H₃**:

H₃: The effect of differentiation emphasis on the likelihood that a CEO with a marketing background is appointed is greater when the diversity of the firm's businesses is greater.

Differentiation emphasis and organic growth emphasis: Organic, or internal, growth

results from the development of new products and taking existing products to new markets (Bahadir, Bharadwaj, and Parzen 2009). This contrasts with inorganic growth, which involves growth through acquisition. Disseminating firm-specific information and responding to market information are important activities in a firm which is emphasizing organic growth (Bharadwaj, Clark, and Kulviwat 2005). In fact, since the information collected by market-oriented firms can enable them to provide superior service to their customers (Jaworski and Kohli 1993), they are likely to grow at higher rates than their competitors (Gotteland and Boule 2006).

Marketing expertise will be especially important in firms that are pursuing an organic growth strategy and that are using a differentiation emphasis to inform customers of new products or to highlight superior product/service attributes as a source of competitive advantage. Therefore, we expect CEOs who have expertise in marketing to be especially highly valued in such firms. Given these arguments, we propose **H₄**:

H₄: The effect of differentiation emphasis on the likelihood that a CEO with a marketing background is appointed is greater when the firm's emphasis on organic growth is greater.

We next consider how interactions between differentiation emphasis and three key resource-related firm characteristics, firm size, financial leverage, and past performance, affect the likelihood that a CEO with a marketing background is appointed.

Differentiation emphasis and firm size: The skills possessed by CEOs with operations or finance backgrounds are well-suited for managing large firms with complex operating and financing requirements. However, the benefits of operations and finance skills can be outweighed by the benefits of marketing skills where marketing decisions have high marginal values, such as at firms with a high differentiation emphasis. If marketing decisions are especially valuable at a large firm that has a high differentiation emphasis, the appointment of a marketing executive as CEO might be more likely at such a firm. This leads to hypothesis **H₅**:

H₅: The effect of differentiation emphasis on the likelihood that a CEO with a marketing background is appointed is greater when the firm's size is greater.

Differentiation emphasis and financial leverage: Financial leverage is a measure of the

amount of debt that a firm has used to purchase its assets. We measure the financial leverage at a firm as the ratio of the book value of its debt capital to the book value of its assets.

A firm with high financial leverage has non-discretionary interest and principal obligations which represent a large fraction of its expected cash flows from operations. Failure to make these interest and principal payments in a timely manner (due, for example, to an unexpected drop in cash flows from operations) can adversely affect the firm's access to capital and its relationships with suppliers and customers and, possibly, lead to bankruptcy. Therefore, managers have strong incentives to ensure that all debt payments are made when they are due.

The successful implementation of a differentiation strategy can provide additional cash from operations which is crucial to a highly levered firm which is struggling to meet its commitments to creditors. Since strong marketing skills are necessary to successfully implement such a strategy, the appointment of a CEO with a marketing background is more likely in a highly levered firm with a high differentiation emphasis.² Thus, we propose hypothesis **H₆**:

H₆: The effect of differentiation emphasis on the likelihood that a CEO with a marketing background is appointed is greater when the firm's financial leverage is higher.

Differentiation emphasis and past performance: CEO candidates whose abilities are especially well suited for a continuation of a firm's current policies are more attractive when the firm has been performing well than when it has been performing poorly. Where marketing activities, as indicated by a high differentiation emphasis, are important contributors to firm performance, we expect that a marketing executive is more likely to be appointed CEO. Hence, we propose hypothesis **H₇**:

H₇: The effect of differentiation emphasis on the likelihood that a CEO with a marketing background is appointed is greater when the firm's past performance is better.

² On the other hand, even if the marketing coalition is dominant in such a firm, it can be in the best interest of the stockholders for the board to appoint a CEO who can effectively liaise with its key financial stakeholders. We subsequently examine whether firms with high financial leverage and differentiation emphasis are less likely to appoint a CEO with a marketing background than a CEO with a finance background.

Method: Appointment of Marketing CEOs

To construct our sample, we first identified a set of new CEOs by identifying all CEOs who were reported in an annual *Forbes* compensation survey between 1990 and 2005 as having been in office for one year or less. Because our tests require the precise dates on which the new CEOs are appointed and information on their predecessors, we then excluded all observations for which the new CEO's appointment was not reported in *The Wall Street Journal* and for which the new CEO's predecessor was not included in a previous *Forbes* compensation survey. This left us with a total of 910 CEO appointments at 608 large public U.S. firms.³

We obtained information on the experience of the new CEOs and their predecessors from various sources, including company proxy statements, *The Wall Street Journal*, *Marquis Who's Who* publications, and *Dun and Bradstreet's Reference Book of Corporate Managements*.⁴ We were able to collect sufficient data on the backgrounds of both predecessor and successor CEOs to classify the backgrounds of both of these individuals in 852 of the 910 successions.

We use dominant professional experience to identify CEO backgrounds. All CEOs whose dominant professional experience, in terms of number of years, is in either the marketing or sales function are classified as having marketing backgrounds. CEOs that do not have a marketing background are classified as having either an operations background (dominant operations, production, or research and development experience) or a finance background (dominant finance or legal experience).⁵ Dominant experience has been used to identify functional backgrounds of CEOs before (Fligstein 1987) and is more accurate than background information reported in the *Forbes* surveys (Pasa and Shugan 1996).

We also separately identified CEOs who have only marketing experience, CEOs who

³ Three hundred sixty four firms had one CEO succession event, 192 firms had two CEO succession events, 46 firms had three CEO succession events, and six firms had four CEO succession events.

⁴ The *Forbes* compensation surveys reported information on CEO functional backgrounds until 1994, but we decided not to use this source for the early years in our sample in order to ensure consistency.

⁵ Since there are few CEOs with technical/research and development backgrounds in our sample (3%), we include them in the operations category. We subsequently find that the results are robust to an alternative classification procedure in which CEOs with technical backgrounds are distinguished from CEOs with operations backgrounds.

have only sales experience, and CEOs who have both marketing and sales experience. This allows us to investigate differences between CEOs with marketing and sales experience. In addition, we noted whether the marketing experience was obtained early (first half) or later (second half) in the executives' careers so that we could investigate whether the CEO selection decision is affected by when the marketing experience was obtained.⁶

Financial data were obtained from the Standard and Poor's *Compustat* database. We use the natural logarithm of its sales (DATA12) as a measure of firm size and compute the firm's financial leverage as the ratio of its long-term debt (DATA9) to its total assets (DATA6).

Like Nath and Mahajan (2008), we use the firm's advertising intensity as a proxy measure for its differentiation emphasis. The advertising intensity at each firm is computed as the ratio of advertising expenditures (DATA45) to sales (DATA12). R&D intensity is similarly computed as the ratio of R&D expenditures (DATA46) to sales (DATA12).

We measure the diversity of each firm's businesses using the entropy measure proposed by Jacquemin and Berry (1979) and that was also used by Palepu (1985). This entropy measure is defined as follows:

$$\text{Diversity of Businesses} = \sum_{i=1}^N P_i \times \ln(1 / P_i)$$

where N is the number of industry segments the firm operates in and P_i is the share (fraction) of total firm sales represented by the i th segment. This measure is a weighted average of the shares of the firm's different segments, the weight for each segment being the natural logarithm of the inverse of its share. We obtain business segment data from the *Compustat* segments database.⁷

We use an adjusted measure of sales growth over the three year period ending the year before the CEO appointment as an indicator of the firm's emphasis on organic growth. To isolate

⁶ We thank two anonymous reviewers for suggesting that we investigate the nature of the marketing experience and when it was obtained in the executive's career.

⁷ This measure of diversity of businesses has been decomposed into related and unrelated diversity of businesses. We subsequently examine the robustness of the results to the related and unrelated diversity measures.

the effects of organic growth, we adjust for the effects of inorganic growth. We do this by subtracting an estimate of the sales that are attributable to acquisitions over the t-3 to t-1 period from the sales in year (t-1) before computing the sales growth. The calculation is as follows:

$$\text{Organic Sales Growth} = \frac{S_{t-1, \text{adjusted}} - S_{t-3}}{S_{t-1}}$$

where

$$S_{t-1, \text{adjusted}} = S_{t-1} - \left(\text{Dollar Value of Acquisitions}_{t-3 \text{ to } t-1} \times \frac{S_{t-1}}{\text{Enterprise Value}_{t-1}} \right)$$

The adjustment to sales in year (t-1), S_{t-1} , assumes that sales per dollar spent on acquisitions over the three year period is the same as sales per dollar of firm value for the entire firm in year t-1. Enterprise value_{t-1} is the sum of the value of the firm's liabilities and the market value of its equity as of the last day of year (t-1).

We measure past accounting performance as the change in an adjusted measure of the firm's return on assets (ROA) over the three years preceding the succession (Huson et al. 2004). We first compute each firm's ROA as the ratio of earnings before interest and taxes (DATA13 less DATA14) to total assets (DATA6). We then use the control group matching method described by Barber and Lyon (1996) to isolate firm-specific accounting performance.⁸

Control Variables. In our analysis we include control variables that have been found to predict CEO appointments. These include dummy variables indicating whether the predecessor (outgoing) CEO's functional background is in marketing or finance. There are conflicting theories on how predecessor CEO backgrounds might be related to new CEO backgrounds. The *institutionalization of power theory* (Salancik and Pfeffer 1980) stresses the ability of powerful individuals in firms to increase their control over time by selecting executives with similar

⁸ In the Barber and Lyon procedure, each sample firm is matched to control firms having the same two-digit Compustat Standard Industrial Classification (SIC) code and whose ROA in the year before the CEO appointment is within 10% of the sample firm's ROA. If there are no such firms, we match ROA within the 10% filter using all firms with the same one-digit SIC code. For sample firms without matches at the one-digit level, we use all firms with ROA within 10%, regardless of their SIC code. Ninety two percent of the sample firms are industry-matched at the two-digit level and for all but 2%, the sample and control firms have the same one-digit SIC code. Each sample firm's ROA is adjusted by subtracting the median ROA for firms in its control group.

ideologies. This suggests similarities in predecessor and successor CEO backgrounds (Smith and White 1987). On the other hand, the *circulation of power theory* (Ocasio 1994) holds that while individuals and groups are in positions of authority in the short run, the dominant coalition in firms is inherently unstable causing fluctuations in executive power over time. This argument suggests differences in the backgrounds of predecessor and successor CEOs.

The control variables also include the number of business segments in the firm, whether the CEO succession is forced or voluntary, whether the new CEO is promoted from inside the firm or hired from outside, and whether the succession is takeover-related or not (Huson et al. 2004). We lag all explanatory variables by one year to preclude concerns about reverse causality.

Descriptive Statistics

Incidence of CEOs with Marketing Backgrounds: CEOs with marketing, finance, and operations backgrounds account for 8%, 10%, and 82% of successor CEOs, respectively, over our entire sample period. The relative proportions are similar when we partition the sample into two or three sub-periods of equivalent length.

We cross-checked the validity of our classification of CEO functional backgrounds by examining the proportions of CEOs identified as having marketing and finance backgrounds in the *Forbes* annual compensation surveys over the 1990 to 1994 period. This is the only part of our sample period for which these data are available in the *Forbes* surveys. CEOs with marketing and finance backgrounds represent 10% and 15% of all CEOs in the *Forbes* surveys between 1990 and 1994. These percentages are reasonably consistent with our figures of 11% and 12%, respectively, for the period from 1990 through 1995.

The percentage of CEOs with marketing backgrounds in our sample is lower than the 27% reported by Pasa and Shugan (1996) for 1989 and 19% reported by Ocasio and Kim (1999) for the 1981 to 1992 period. This may be because we study a more recent period, and there may have been a change in the skills required of CEOs over time. Differences in the classification methodologies may also contribute to the lower percentage in our sample.

Thirty seven percent of the CEOs in our sample who are classified as having marketing backgrounds have only marketing experience, 33% have only sales experience, and 30% have both sales and marketing experience. Most of these CEOs have spent more than 50% of their total career in marketing or sales. Sixty three percent have over 70% of their experience in marketing or sales, while only 5% have less than 50% of their experience in either of these areas. Their experience is not more likely to have been obtained early (first half) or later (second half) in their careers with 38%, 36%, and 26% obtaining most of their marketing or sales experience early, later, or both early and later in their careers, respectively.

We also examined whether the top management team included a CMO at the time of CEO appointment. Following Nath and Mahajan (2008, p. 71), we define a CMO as an executive who holds one of the following titles: CMO, vice president marketing, senior vice president marketing, or executive vice president marketing. We determine whether each firm has a CMO by examining the list of officers provided in the firm's 10K filings with the Securities and Exchange Commission (SEC). Forty seven percent of the firms which appointed a CEO with marketing background had a CMO at the time of the appointment, a figure which is consistent with the 40% reported by Nath and Mahajan (2008). As we subsequently discuss, the evidence on CEO appointments is robust to whether or not the firm had a CMO at the time of the appointment of CEO with a marketing background.

Cross-functional experience: An examination of our entire sample reveals that CEOs with marketing backgrounds are more exposed to other functions than CEOs of other functions are exposed to marketing. Approximately 73% of CEOs with marketing backgrounds have some operations experience and 11% have some finance experience. In contrast, only 14%, and 7% of CEOs with operations and finance experience, respectively, have any marketing experience.

Industry characteristics: We also examined the incidence of CEOs with marketing experience, as a proportion of the total CEOs, by industry using the Fama-French ten industry classification (<http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/>). This analysis, which is

summarized in Table 1 for the 852 successions in our sample, reveals systematic differences across industries in the appointment of CEOs with marketing and non-marketing backgrounds. CEOs with marketing backgrounds are more commonly appointed in consumer durables, consumer non-durables, retail, telecommunications, and utility firms.

---- Insert Table 1 here ----

Predecessor CEO background: Consistent with the *circulation of power theory* between backgrounds of predecessor and successor CEOs (Ocasio 1994), CEOs with marketing and finance backgrounds tend to follow CEOs with operations backgrounds (81% of marketing, 87% of finance respectively) and CEOs with operations backgrounds tend to follow CEOs with marketing and finance backgrounds (82% and 80%, respectively). A chi-square test indicates that the presence of a CEO with a marketing background is not associated with a higher probability that a CEO with a marketing background is appointed (Chi-square (degree of freedom = 1) = .02, which is not statistically significant).

Data for all of the explanatory variables necessary to estimate the CEO appointment models are available for 552 CEO appointments. These 552 successions occurred at 412 unique firms which, on average, are relatively large with mean (median) total assets of \$25.387 billion (\$5.824 billion), sales of \$11.356 billion (\$5.305 billion), and 32,867 (23,655) employees. Table 2 presents additional descriptive statistics for the 552 successions. Consistent with the statistics for the larger sample of 852 successions, we find that CEOs with marketing and finance backgrounds account for 8% and 10% of all CEOs, respectively, in the 552 successions.

---- Insert Table 2 here ----

Method

We estimate binomial logit and multinomial logit regression models of CEO appointments. In the binomial logit model, the baseline group consists of all CEOs who are not classified as having a marketing background. The baseline group in the multinomial model

consists of all CEOs who have an operations background. The general form of models is:

$$P(i / z, C, \beta) = \frac{e^{z_i \beta}}{\sum_{j \in C} e^{z_j \beta}}$$

where $P(i/z, C, \beta)$ is the probability that the board, when faced with choice set C (CEO backgrounds) having attributes z (explanatory attributes) will choose CEO type i . Because there are multiple CEO appointments for some firms, a violation of the assumption of independence of observations, we cluster the standard errors by firms, a procedure that is robust in the presence of violations of independence of observations.⁹ We estimate the binomial and multinomial models using the procedures `logit` and `mlogit`, respectively, in STATA 11.0.

Results: Appointment of Marketing CEOs

We first estimated a binomial logit model to test the hypotheses developed earlier. This model provides evidence on the relations between the explanatory variables and the likelihood that an executive with a marketing background is appointed CEO. In addition to the primary explanatory variables, we include control variables for all firm characteristics suggested by the hypotheses and for number of business segments and CEO appointment characteristics, including whether the CEO appointment was related to a takeover, whether it was forced, and the functional background of the predecessor CEO. As the frequency of the appointment of CEOs with marketing backgrounds varies across industries, we also include dummy variables for the retailing (single digit SIC = 5) and consumer industries (single digit SIC = 2).¹⁰ The coefficient estimates for this model are presented in Column 1 of Table 3. The model fits the data well, with a Chi-square test indicating significance at the 1% level.

⁹ Three hundred one firms had one CEO succession, 89 firms had two CEO successions, 19 firms had three CEO successions, and four firms had four CEO successions.

¹⁰ We only include two industry dummy variables to preserve degrees of freedom in our estimation. We do not include dummy variables for telecommunications, utilities, or “other” industries, for which there are significant differences in Table 2, because there are only four CEO appointments in the telecommunications and utilities industries combined and the “other” industry is simply a catch-all for many diverse industries.

---- Insert Table 3 here ----

Beginning with the control variables for firm characteristics, the evidence in Column 1 of Table 3 indicates that the likelihood that a CEO with a marketing background is appointed, increases with the diversity of businesses ($p < .01$) and decreases with firm size ($p < .05$), financial leverage ($p < .01$), and past performance ($p < .05$). Examination of the other control variables reveals that a CEO with a marketing background is less likely to be appointed when the CEO succession is related to a takeover ($p < .05$), when it is forced ($p < .05$), and when the predecessor CEO had a marketing background ($p < .05$).

Examination of the coefficient estimates for the hypothesis test variables in Column 1 reveals that the evidence is consistent with six of the seven hypotheses. Consistent with **H₁**, a higher differentiation emphasis is associated with a higher likelihood that a CEO with a marketing background is appointed ($p < .01$). Consistent with **H₂**, **H₃**, **H₄**, **H₆** and **H₇** the likelihood that a CEO with marketing background is appointed is positively related to the interactions between differentiation emphasis and R&D intensity ($p < .05$), diversity of businesses ($p < .05$), emphasis on organic growth ($p < .01$), financial leverage ($p < .05$), and past performance ($p < .01$). Contrary to hypothesis **H₅**, the likelihood that a CEO with marketing background is appointed is not related to the interaction between differentiation emphasis and firm size.

We next estimated a multinomial logit model which provides evidence on the likelihoods that a CEO with a marketing background and that a CEO with a finance background are appointed, relative to the likelihood that a CEO with an operations background is appointed. The evidence from this model provides insights on whether the evidence from the binomial logit model is driven by the subsample of CEOs with an operations background, which comprises 89.1% (82% operations/92% operations and finance) of all CEOs who do not have a marketing background. The results from this model are presented in Columns 2 and 3 of Table 3.

The coefficient estimates for the hypothesis test variables in Column 2 of Table 3 are

relatively similar to those in Column 1, which indicates that the relations observed in the binomial logit model are also present when the baseline group consists only of CEOs with operations backgrounds.

The evidence in Column 3, for the likelihood that a CEO with a finance background is appointed relative to the likelihood that a CEO with an operations background is appointed, is consistent with hypotheses **H₂**, **H₂**, **H₃**, **H₄** and **H₇**, but inconsistent with **H₅**, on the interaction between differentiation emphasis and firm size and, possibly, **H₆**, on the hypothesis on the interaction between differentiation emphasis and financial leverage. The likelihood that a CEO with a financial background is appointed at a large firm with a high differentiation emphasis is even closer to the likelihood that a CEO with a marketing background is appointed than the likelihood that a CEO with an operations background is appointed. A CEO with a financial background is more likely to be appointed than a CEO with an operations background at a firm with a high differentiation emphasis and high financial leverage. This suggests that both financial and marketing skills can help firms with a high differentiation emphasis manage high debt levels.

To confirm our interpretation of the evidence in Column 3, we estimated a multinomial logit model of CEO appointments where CEOs with finance backgrounds serve as the baseline functional background. The evidence from this model, which is not tabulated in the paper in the interest of brevity, is consistent with the above discussion. A marketing executive is more likely to be appointed CEO than a finance executive in a firm with high differentiation emphasis ($p < .01$). Furthermore, with the exception of the interaction between differentiation emphasis and financial leverage (the coefficient estimate is insignificant for this variable), the evidence with regards to the hypotheses concerning the interactions between differentiation emphasis and other factors is qualitatively similar to that in Column 1.

We next report evidence on the robustness of these results.

Robustness Analyses

Hit ratio: To further examine the fit of the binomial logit model, we computed the

percentage of all CEOs in a hold-out sample that the model correctly predicts to have a marketing background. To estimate this hit ratio, we randomly chose 150 CEO appointments as a hold out sample and then estimated the binomial logit model in Column 1 of Table 3 using the remaining 402 observations. This model correctly identified 76% of the CEOs in the hold-out sample who have a marketing background, an outcome that is statistically significantly different from the random chance percentage of 50% (significant at $p < .01$).

Sub-period comparisons: Since CEO turnover characteristics have changed over time (Huson et al. 2001), we estimated the binomial logit model in Column 1 of Table 3, for the 1990-99 and 2000-05 sub-periods, to examine whether the different economic environments during these two periods affected CEO selection decisions. Column 1 in Table 4 presents the coefficient estimates for the model estimated using data from the full sample period (this is the same as the first column in Table 3). Columns 2 and 3 present the coefficient estimates for each of the two sub-periods. Comparison of Column 1 with Columns 2 and 3 reveals that the coefficient estimates for each of the sub-periods are qualitatively similar to those for the total sample period in column 1. Although not presented in the paper, the results are also similar to those in Table 4 when we split the sample into two sub-periods of equal length.

---- Insert Table 4 here ----

Model comparisons: We also compared the model in Column 1 of Table 3 to an otherwise similar model that excludes differentiation emphasis and the related interaction effects and to a third model that excludes only the interaction effects. The explanatory power of the model in Table 3 is greater than that of either of these alternative models. Chi-square tests of differences in log-likelihoods reject the hypotheses that the explanatory powers of the models are equal ($p < .01$ for both comparisons).

Definitions of CEOs with marketing backgrounds: We examined the sensitivity of the results to whether CEOs with marketing backgrounds have experience in marketing or sales and to whether they obtained their experience in marketing or sales earlier (first half of career) or

later (second half) in their careers. We did this by estimating the binomial logit model four times, once each with the following subsamples: 1) excluding CEOs who have only marketing experience, 2) excluding CEOs who have only sales experience, 3) excluding CEOs whose marketing or sales experience was obtained earlier in their careers, and 4) excluding CEOs whose marketing or sales experience was obtained later in their careers. The estimates from these models, which are not tabulated in the paper, indicate that the results in Column 1 of Table 3 are robust to whether the CEO does not have sales or marketing experience and whether the marketing or sales experience was obtained earlier or later in the CEO's career.

We also estimated the binomial logit model with all CEOs who have any (as opposed to only dominant) marketing experience classified as CEOs with marketing experience. This alternative model is not statistically significant, which increases our confidence in defining a CEO with marketing background as one who has dominant marketing experience.

Presence of a CMO: We examined whether the presence of a CMO in the firm at the time of the CEO appointment affects the likelihood that a CEO with a marketing background is appointed. To do this, we estimated the binomial logit model with a dummy variable that equals one if the firm had a CMO at the time of the succession and zero otherwise. The results from this model, which are not tabulated in the paper, indicate that the presence of a CMO is not related to the likelihood that a CEO with a marketing background is appointed.

Our interpretation of this evidence is that the presence of a CMO in the firm does not significantly increase the likelihood of the appointment of a CEO with a marketing background because, in some cases, a CMO might very well provide sufficient representation for the marketing function in the firm's top management team. To the extent that a well rounded top management team is desirable, even if the firm has a strong differentiation emphasis, it might not be optimal to have two senior marketing executives on that team. Ocasio and Kim (1999) discuss the importance of having a portfolio of skills in the top management team.

Number of businesses: Because advertising (differentiation proxy) and R&D intensities

are not available at the business unit level, we, like other researchers working in this area (e.g., Boyd et al. 2010; Nath and Mahajan 2008) are forced to use firm-level data to estimate these two variables. However, we do examine the robustness of the evidence to this constraint in two ways.

First, we re-estimated the binomial logit model in Table 3 using only observations for single-industry firms (i.e. those with only one primary business segment (n=249)). The results for this model, which are reported in Column 4 of Table 4, indicate that the evidence in Table 3 is robust to the number of business segments served by the firm.

Second, we estimated abnormal differentiation emphasis, as measured by advertising intensity, and R&D intensity for each sample firm and then used these values in the binomial logit model to check the robustness of the results. To estimate the abnormal differentiation emphasis (R&D intensity), we first computed the expected differentiation emphasis (R&D intensity) at the time of each succession as the weighted average of the median differentiation emphasis (R&D intensity) at single-unit firms that operate in the industries in which the sample firm operates. For example, if a sample firm has 70% of its assets in SIC XXXX, 20% in SIC YYYYY, and 10% in SIC ZZZZ, we weighted the median differentiation emphasis (and R&D intensity) at single segment firms in SIC industries XXXX, YYYYY, and ZZZZ by 70%, 20%, and 10%, respectively, to compute the weighted average. The abnormal differentiation emphasis (R&D intensity) for each sample firm was then computed as the difference between each sample firm's actual differentiation emphasis (R&D intensity) and its expected differentiation emphasis (R&D intensity). These abnormal measures are firm-level indicators of the relative differentiation emphasis (R&D intensity) in a multi-segment firm. When we use these abnormal values instead of the actual firm-level measures, the results, not tabulated in the paper, are consistent with those presented in Column 1 in Table 3.

Diversity of businesses: We have computed the diversity of the firm's businesses using a total diversity measure, which incorporates both the related and unrelated diversification of the firm (Palepu 1985, p. 252). Following the suggestion of an anonymous reviewer, we re-estimated

the binomial logit model in Table 3 using measures of related and unrelated diversity. The estimation results we report are robust to these alternative measures of diversity, and are consistent with the results for the effects of diversity of the firms on the appointment of CMOs reported by Nath and Mahajan (2008, p. 71).

We also performed all of the above robustness checks on the multinomial logit model in Columns 2 and 3 of Table 3 and find that the results reported for this model are similarly robust.

In sum, the empirical evidence supports six of the seven hypotheses we developed earlier and is generally consistent with the idea that CEOs with marketing backgrounds are appointed when marketing skills are valuable to the firm. This evidence leads to the question of whether the appointment of a CEO with a marketing background results in different performance than the appointment of a CEO with another background. We examine this issue next.

Appointment of CEOs with Marketing Backgrounds and Firm Performance

We next address whether and, if so, how firm performance following the appointment of marketing CEOs differs from firm performance following the appointment of CEOs with other backgrounds. As discussed earlier, other studies have reported evidence that the effect of CEO succession on firm performance differs between forced and voluntary successions (Denis and Denis 1995; Huson et al. 2004), between successions in which the new CEO is an insider or an outsider (Borokhovich et al. 1996), and between successions involving the appointment of founding family and non-founding family members (Perez-Gonzalez 2006). However, we know of no study that has reported evidence on how post-succession firm performance varies with the functional background of the new CEO.

Normative models of CEO selection often suggest that the board should match CEO characteristics with the specific demands of the job when selecting a CEO (Gibbons and Murphy 1992). This view holds that CEO appointments, firm performance, and other firm characteristics are all endogenous. In other words, firm performance and other firm characteristics affect CEO

selection, and are, in turn, affected by the actions of the new CEO (Demsetz and Lehn 1985; Hermalin and Weisbach 2003). Under such circumstances there is no reason to expect to observe a cross-sectional relation between CEO functional background and firm performance.

Stock Price Reactions to Appointment Announcements

We begin our investigation of how the new CEO's background affects post-succession firm performance by examining abnormal stock price returns around succession announcements. These returns reflect investors' expectations regarding the likely impact of the appointments on the level and the risk of the firms' future cash flows.

We compute cumulative abnormal stock returns over a three day period (day -1 to day +1 relative to the announcement) using both 1) the standard market model (Huson et al. 2004) and 2) the three factor Fama-French model augmented with the momentum factor, as suggested by Carhart (1997) (the four factor model). Both the standard market model and four factor model parameters are estimated over the 200-day period ending 60 days before the announcement date. Sufficient daily stock return data are available to compute abnormal stock returns for 629 CEO appointment announcements in our sample.

The average cumulative abnormal three-day announcement return across all 629 observations is positive and significantly different from zero when we adjust the raw returns using the standard market model (mean of .636% with $t = 2.872$), but is insignificantly different from zero when we adjust using the four factor model (mean of .033% with $t = .012$).

The mean abnormal returns around the appointment of CEOs with marketing and non-marketing backgrounds are .590% ($n = 48$) and .640% ($n = 581$), respectively, when the standard market model is used. The difference in these means is not significant ($t = .658$). With the four factor model, the corresponding means around announcements of the appointments of CEOs with marketing and non-marketing backgrounds are .023% ($n = 48$) and .034% ($n = 581$), respectively. The difference in these means is also insignificant ($t = .386$).

Since performance improvements tend to be greater after forced CEO turnover than after

voluntary CEO turnover, we examined the mean abnormal returns for the subsample of forced successions. Again, we found no difference in abnormal returns around the appointment of CEOs with marketing and non-marketing backgrounds. The differences are .002% ($t = 1.098$) using the standard market model and .004% ($t = .377$) using the four factor model.

Overall, the evidence indicates that the mean abnormal stock price reaction to the appointment of CEOs with marketing backgrounds is not significantly different from the corresponding reaction to the appointment of CEOs with other functional backgrounds.

Post-Appointment Firm Performance

We examine the performance effects of CEO appointments using four direct measures of long term performance: buy and hold abnormal returns, and changes in accounting performance, the volatility of stock returns, and market share. We use a three year window for all of our post-appointment firm performance analyses to provide adequate time for a new CEO to change the firm's strategy, and for that change to be reflected in the firm's performance.

We use the Barber and Lyon (1997) buy-and-hold abnormal return approach to measure the effects of CEO background on firm *stock performance* over the three years following the CEO appointment. This approach measures the excess buy-and-hold return on a sample firm's stock relative to the return on the stock of a control firm which is matched on both size and book-to-market ratio.¹¹ We compute the return on a buy-and-hold investment in the sample firm less the return on a buy-and-hold investment in the matched firm as follows:

$$BHAR_i = \prod_{t=1}^{36} (1 + R_{it}) - \prod_{t=1}^{36} (1 + R_{st})$$

Where $BHAR_i$ is the control-firm adjusted buy and hold return in month t , R_{it} is the return on the sample firm's stock in month t and R_{st} is the return on the matched firm's stock in month t . Using

¹¹ The control firms are identified as follows. We first identify all firms with a market value of equity between 70% and 130% of the market value of equity (a measure of size) of the sample firm. From this set of firms, we choose the firm with the book-to-market ratio closest to that of the sample firm. In this matching process we use data from the year preceding the marketing CEO appointment.

this approach, we are able to compute the BHAR for common shares of 190 firms where a CEO appointment took place.

To measure the effects of CEO successions on accounting performance we use the control group adjustment method described by Barber and Lyon (1996) to isolate firm-specific accounting performance. We compute the average control group-adjusted ROA over the three years following each CEO appointment and subtract the corresponding average for the three years preceding the appointment in order to control for pre-appointment performance. Hence, we use a measure of the change in accounting performance from three years before to three years after the appointment.

We examine changes in the volatility of firm stock returns around CEO successions using the approach used by Hartzell, Clayton, and Rosenberg (2005). In this analysis we use the ratio of the standard deviation of each firm's daily stock returns to the corresponding standard deviation of the daily returns on the CRSP value-weighted index. Following Hartzell et al. (2005), we scale the ratio computed over the three years after the appointment using the ratio computed over the two years prior to the event. We use two years before the succession in this analysis so that the values can be compared directly with those from Hartzell et al. (2005). The results are similar when we use the volatility ratio for the three years before the succession.

Finally, we examine changes in sample firm market shares from three years before to three years after each CEO appointment. We calculate market share as the fraction of total sales for all firms in the same primary two-digit SIC industry that is represented by sales at each sample firm. For each CEO appointment, we compute the difference between the average market share over the three years following the appointment and the average market share over the three years preceding the appointment.

In the post-appointment performance analysis we measure each firm's differentiation emphasis by averaging the ratio of its advertising expenditures to its sales over the three years following the CEO appointment. Similarly, R&D intensity is computed by averaging the ratio of

each firm's R&D expenditures to its sales over the three years following the CEO appointment.

Control variables used in the post-appointment performance analysis include measures that have been considered important in previous research (Huson et al. 2004). These include firm size, as measured by the natural log of the firm's total sales, the proportion of outside (non-executive) directors on the board and the fraction of the firm's shares held by institutional directors. We obtain board composition data from each firm's proxy statement in the year before the CEO succession and institutional ownership data from the CDA/Spectrum database.

We also include four control variables for CEO succession characteristics. The first is an indicator variable that equals one if the new CEO is promoted from within the firm and zero if not. An inside promotion is defined as one in which the new CEO joined the firm more than twelve months before his or her appointment. The twelve-month cut-off is often used in the finance literature (Huson et al. 2001) since executives are occasionally hired with the expectation that they will become CEO after a short period. We distinguish between inside promotions and outside appointments because, as we discussed earlier, CEOs from outside the firm are viewed as more likely to change firm policies.

We also include an indicator variable that equals one if the predecessor CEO is forced from office and zero if not. As noted earlier, there is evidence that firm performance around CEO appointments tends to differ between forced and voluntary turnover of the predecessor CEO.

A takeover-related indicator variable which equals one if the CEO appointment is related to a takeover and zero if not is included as a control because takeovers are often associated with substantial changes in firm marketing, operating, investment, and financing policies.

As a fourth control for succession characteristics, we include the three-day abnormal stock return, computed using the four factor model, around the turnover announcement. We do this because the stock returns around the turnover announcements can contain information about the future consequences of the CEO turnover that is not captured by the other variables.

Table 5 presents descriptive statistics for the variables used in the post-appointment

performance analysis. Consistent with the data used to estimate the CEO appointment models in Table 3, marketing CEOs account for 7% and 8%, finance CEOs account for 7% and 7%, and operations CEOs account for 86% and 85% of the samples used in the post-appointment performance analysis for the accounting performance (as well as stock return volatility and market share performance) and BHAR stock performance respectively.

---- Insert Table 5 here ----

Multivariate Evidence: CEOs with Marketing Backgrounds and Firm Performance

We employ the limited information maximum likelihood method (Heckman 1979) to control for potential selection bias since twenty four of the sample firms do not survive through to the end of the three year post-appointment period. We correct for potential sample selection bias by including Lee's λ (Inverse Mill's Ratio) from the selection model in the post-appointment performance model.

In applying the Heckman (1979) method to correct for sample selection bias, we first estimate a Probit model which includes variables that might influence whether a firm exits our sample. The explanatory variables in this model include firm size, accounting performance during the year preceding the CEO appointment, the proportion of outside directors on the board, the fraction of shares held by institutional investors, whether the CEO appointment is takeover related, whether the CEO is an outsider, and whether the outgoing CEO was forced from office.

The selection model fits the data well ($\chi^2 = 78.175$, degrees of freedom = 6, $p < .01$). Firm size ($p < .01$), prior accounting performance ($p < .01$), the proportion of outside directors ($p < .01$), and institutional shareholdings ($p < .01$) are negatively related to the likelihood that a firm exits the sample while a takeover related succession increases the likelihood of the firm exiting the data set ($p < .05$). We include estimates of the Inverse Mills Ratio from this model in the performance models. Because there are multiple CEO appointment events for some firms, we also compute clustered robust standard errors for the post-appointment performance model.

The coefficient estimates in Columns 1-4 of Table 6 indicate that buy-and-hold abnormal returns, accounting performance, and volatility of stock returns are no different following the appointment of a CEO with a marketing background than following the appointment of a CEO with a different background. In contrast, the appointment of a CEO with a marketing background by a firm with a high differentiation emphasis is associated with better post-appointment market share performance.

---- Insert Table 6 here ----

The market share firm performance model fits the data relatively well ($F = 3.37$, $p < .01$) with an overall R-square of .243. While the appointment of the CEO with a marketing background has no effect on market share, the appointment of a CEO with marketing background in conjunction with increasing differentiation emphasis ($b = .813$, $p < .05$) is associated with larger post-succession changes in market share.

The evidence in Table 6 that the functional background of the new CEO is not related to long term stock performance or changes in accounting performance or stock return volatility, but is related to changes in market share, is consistent with the idea that CEO characteristics are endogenously determined and largely reflect optimizing behavior on the part of corporate boards. Under some circumstances, marketing executives are better suited for the CEO position than executives with other functional backgrounds (e.g., when growing market share is a particularly important element of the firm's business strategy).

The evidence in Table 6 suggests that, on average, CEOs with marketing and other functional backgrounds are equally well selected by corporate boards. However, this does not mean that the background of the new CEO does not matter. For example, the appointment of a CEO with a non-marketing background at a firm with a high differentiation emphasis might result in poorer firm performance than the appointment of a CEO with a marketing background.

To investigate this possibility, we examined how the post-succession performance of firms with a high differentiation emphasis differs between firms that appointed a CEO with a

marketing background and those that did not. From the sample of 465 firms for which we have post-succession operating performance data, we selected the 25% ($N = 116$) of observations with the greatest differentiation emphasis over the three years following the CEO appointment and compared the changes in operating performance and market share at firms that appointed a CEO with a marketing background ($N = 19$) to the corresponding changes at firms that did not appoint a CEO with a marketing background ($N = 97$). Consistent with the idea that CEO background matters, the changes in operating performance and market share are greater (.108 and .072, respectively) at firms that appointed CEOs with marketing backgrounds than at firms that did not (.064 and .043, respectively). These differences in operating performance and market share changes are significant at the 10% ($t = 1.885$) and 5% ($t = 2.276$) levels, respectively.

Evidence from the 116 successions (25%) with the lowest differentiation emphasis also indicates that CEO choice matters. In this sub-sample, changes in operating performance and market share are lower (.076 and .063, respectively) at firms that appointed CEOs with marketing backgrounds than at firms that did not (.096 and .082, respectively). However, since there are only five CEOs with marketing backgrounds in this sub-sample, these differences in operating performance ($t = -.987$) and markets share ($t = -1.274$) are not statistically significant.

Discussion

In this paper we develop theory and report evidence on the appointment of executives with marketing backgrounds to the CEO position. Such appointments are an important means through which the marketing function influences corporate decision-making.

Theoretical Contributions

Our findings contribute to the literature in three areas: 1) marketing and corporate governance, 2) CEO appointments, and 3) the performance implications of CEO appointments.

Marketing and corporate governance: The likelihood that an executive with a marketing background is appointed CEO is positively related to differentiation emphasis, both

independently and in conjunction with R&D intensity, diversity of businesses, emphasis on organic growth, financial leverage, and past firm performance. The positive main effect of differentiation emphasis on the appointment of a CEO with a marketing background is consistent with the positive main effect of differentiation emphasis on the appointment of a CMO (Nath and Mahajan 2008). However, our analysis and evidence go further. We identify conditions under which a CEO with a marketing background is appointed, which differ from those under which a CMO is appointed. We also find that the presence of a CMO does not influence the likelihood that a CEO with a marketing background is appointed. One explanation for this is that the presence of a CMO provides sufficient representation for the marketing function in some top management teams. This is consistent with the idea, advanced by Ocasio and Kim (1999), that it is important for the top management team to have a portfolio of skills.

The positive interaction effects in the CEO appointment model indicate that a marketing background can be more valuable to the CEO than another background in firms with high differentiation emphasis that are also R&D intensive, have diverse businesses, strongly emphasize an organic growth strategy, are highly levered, and have superior past performance.

In contrast, a high differentiation emphasis does not make the appointment of a marketing CEO more likely at a large firm. These results indicate that the benefits of strong financial or operational skills can outweigh the benefits of strong marketing skills in a large firm.

CEO appointments: We identify a novel set of firm-level determinants of the functional backgrounds of CEOs—differentiation emphasis and its related interactions with R&D intensity, diversity of businesses, emphasis on organic growth, financial leverage, and past firm performance. The relations that we document have not been examined in past studies on CEO appointments in either the finance or the management literature.

Because CEO appointment practices change over time, in addition to reporting new evidence on the nature of the CEO selection decision, this study provides a useful update of evidence from earlier time periods (Fligstein 1987; Ocasio and Kim 1999). The incidence of

marketing CEOs in this study, 8%, is lower than the 19% reported by Ocasio and Kim (1999) for 1981 to 1992, the 27 % (for 1989) reported by Pasa and Shugan (1996), and the often-cited statistic that 18% of Fortune 500 CEOs have a marketing background (Andruss 2001). The lower incidence of marketing CEOs in this study may reflect a change in the skills required of CEOs over time, the nature of CEO appointments over time and differences in classification methodologies across the various studies in this area.

Performance implications of CEO appointments: The evidence on the performance implications of CEO appointments supports the view that CEO selection decisions reflect efforts by boards of directors to match the CEO's skills with the firm's strategy and other circumstances at the time of the appointment. The regression evidence in Table 6 differs from that recently reported in studies of CMOs. Those studies find that the appointment of a CMO affects firm performance, including sales growth and profits (Nath and Mahajan 2010) and abnormal returns (Boyd et al. 2010). However, the evidence we report is not necessarily inconsistent with the CMO evidence. The evidence in Table 6 does not imply that firm performance is unaffected by the CEO's background. In fact, we find that CEOs with marketing backgrounds who are appointed at firms with a high differentiation emphasis out-perform CEOs with different backgrounds with respect to accounting performance and market share growth.

Managerial Implications

In light of the often cited statistic that 18% of Fortune 500 CEOs have a marketing background (Andruss 2001), the relatively low incidence of CEO appointments involving executives with marketing backgrounds in this paper may surprise some managers. We offer two reasons why the number of appointments of CEOs with marketing backgrounds is low during the period we study. First, there appears to have been a shift, over time, from an output orientation (e.g., products, markets) to a business process orientation (e.g., supply chain management, and customer relationship management) as sources of competitive advantage (Davenport 1992). Consistent with this shifting emphasis on business processes, the operations function's role in

corporate decision making has increased, which may explain the ascendancy of CEOs with operations backgrounds in the 1990s and early 2000s. An implication for marketing executives who aspire to be CEO is that they focus on gaining operations experience if they don't already have it. Doing this will make them a more attractive candidate for a CEO position.

Second, along with this increased emphasis on operations, there has been a widespread decentralization of information systems, which has facilitated the transfer of marketing expertise beyond the marketing function. So, although some marketing academics suggest that the marketing function's influence in the firm may have declined, this may not necessarily be the case. Of course, providing direct evidence on this conjecture would require in-depth interviews of senior executives.

Analysis of the cross-functional experience of CEOs in our sample suggests that operations CEOs often do not have marketing function experience. There are two ways that this lack of experience might be addressed. First, CEOs with operations backgrounds may benefit from some training in marketing. Second, CEOs with operations backgrounds can be supported with strong leadership in the form of a CMO or outside directors with marketing experience.

In firms with high differentiation emphasis, executives with dominant marketing experience are more likely to be appointed CEO, especially if the firm is R&D intensive, has diverse businesses, emphasizes organic growth, has high financial leverage, and has performed well in the recent past. These findings may be useful to senior marketing executives interested in a career path to the CEO. Their chances of becoming a CEO are higher under the conditions identified in the model of marketing CEO appointment.

Finally, the post-appointment performance analysis has implications for corporate governance. The similarity of post-appointment firm performance across CEOs with different functional backgrounds suggests that, on average, board CEO selection decisions are appropriate. Moreover, the results suggest that when choosing a CEO, one size does not fit all. The skills necessary for the CEO position vary with the firm's strategy and its circumstances.

Limitations and Future Research

In this first study on the appointment of CEOs with marketing backgrounds, we focus on a limited set of explanatory variables and use secondary data to measure firm characteristics. While secondary data are free from subjective bias, they are more readily available for large firms than for small firms. In addition, a general limitation of measures based on secondary data is that they proxy for the construct of interest but do not measure it directly. For example, we use advertising intensity as a proxy for differentiation emphasis. Furthermore, secondary data do not allow for consideration of organizational factors, such as culture, trust, etc., that might influence CEOs' backgrounds. Hence, future studies that examine additional variables, use primary data, examine smaller firms, or that incorporate organizational characteristics would extend this work.

Because CEO selection is a firm-level phenomenon, like other scholars investigating firm-level phenomenon, whether CMO appointments (Nath and Mahajan 2008) or firm performance (McAlister, Srinivasan, and Kim 2007), we use Compustat to obtain data on firm characteristics. However, many firms in Compustat are multi-divisional firms in which each business division is likely following a different strategy. While, additional analyses indicate that the results are robust to using multi-division firms and business-unit adjusted explanatory variables, this remains a limitation of our study and of any study that relates firm strategies to firm-level phenomena, including CEO appointments.

In conclusion, this study represents a key step in the exploration of the role of the marketing function, as embodied in the firm's CEO. We hope that this paper stimulates further work relating marketing function, in general and marketing executives, in particular, to corporate governance and the related effects on firm performance.

Table 1
Distributions of CEOs with Marketing and Non-Marketing Backgrounds by Industry

Industry	CEO with Marketing Background		CEO with Non-Marketing Backgrounds		P-value for Difference in Proportions
	Number	Proportion of Total	Number	Proportion of Total	
<i>Consumer durables:</i> Cars, TV's, furniture, and household appliances	3	.04	1	.00	.000***
<i>Consumer non-durables:</i> Food, tobacco, textiles, apparel, leather, and toys	8	.12	50	.06	.082*
<i>Energy:</i> Oil, gas, and coal extraction and products	0	.00	19	.02	.198
<i>Health:</i> Healthcare, medical equipment, and drugs	0	.00	0	.00	1.000
<i>High tech business equipment:</i> Computers, software, and electronic equipment	13	.19	143	.18	.810
<i>Manufacturing:</i> Machinery, trucks, planes, chemicals, office furniture, and paper	20	.30	262	.33	.556
<i>Retail:</i> Wholesale, retail, and some services (laundries, repair shops)	16	.24	71	.09	.000***
<i>Telecommunications:</i> Telephone and television transmission	2	.03	0	.00	.000***
<i>Utilities</i>	2	.03	0	.00	.000***
<i>Other:</i> Mines, construction, building materials, transportation, hotels, business services, entertainment, and finance	3	.04	239	.30	.000***
Total	67	1.00	785	1.00	

Industries Classified According to Fama-French 10-Industry Classification System. *** denotes significance at $p < .01$, ** at $p < .05$ and * at $p < .10$

Table 2
Descriptive Statistics for Variables in Regression of CEO Appointment Model (n=552)

Variable	Mean (Standard Deviation)	Median	1	2	3	4	5	6	7	8	9	10	11	12
1. Differentiation emphasis	.014 (.036)	.010	1.000											
2. R&D intensity	.032 (.069)	.023	-.016	1.000										
3. Diversity of businesses	.548 (.555)	.007	-.096	.073	1.000									
4. Organic growth emphasis	.103 (.937)	.006	.254	.063	.112	1.000								
5. Financial leverage	.282 (.247)	.216	-.181	-.308	-.026	.033	1.000							
6. Past performance	-.004 (.107)	.000	.042	.019	.168	-.005	-.043	1.000						
7. Firm Size	8.055 (.725)	8.576	.052	-.201	.022	-.158	.184	-.080	1.000					
8. Forced succession	.241 (.428)	-	.009	.038	-.079	.018	.189	-.016	.038	1.000				
9. Takeover related succession	.017 (.131)	-	.034	-.023	-.005	.037	-.003	-.012	-.051	.050	1.000			
10. Predecessor marketing CEO	.080	-	-.002	-.036	-.009	.004	.030	.013	-.029	-.011	-.027	1.000		
11. Predecessor finance CEO	.070	-	-.0261	.009	.015	-.000	.055	-.086	-.056	-.033	-.038	-.058	1.000	
12. Number of business segments	2.544 (1.888)	2	-.006	-.093	-.192	.179	.082	-.015	.223	-.038	-.043	.017	-.059	1.000

Correlations above .070 significant at $p < .10$, above .086 at $p < .05$ and above 0.110 at $p < .01$.

Variable definitions: *Differentiation emphasis* is measured as advertising expenditures divided by sales for the year preceding the CEO appointment, *R&D intensity* is measured as the firm's R&D expenditures divided by its sales for the year preceding the CEO appointment, *Diversity of businesses* is measured as a weighted average of the proportion of sales from each of the firm's different business segments, where the weight for each segment is the logarithm of the inverse of that segment's share of the firm's total sales. Organic growth emphasis is measured as the firm's sales growth between year (t-3) and year (t-1), relative to the year of the CEO appointment. The year (t-1) sales are adjusted for sales attributable to acquisitions completed between year (t-3) and year (t-1). *Financial leverage* is defined as the ratio of the firm's long-term debt to its total assets. *Past performance* is measured as the change in the Barber-Lyon adjusted return on assets (earnings before interest and taxes/total assets) between year (t-3) and year (t-1) where t is the year of CEO succession and *Firm size* is measured by the natural logarithm of its sales. All explanatory variables were lagged by one year to avoid problems stemming from reverse causality. With respect to CEO succession characteristics, *Forced succession* equals 1 if the succession is forced and 0 otherwise. *Takeover related succession* equals 1 if the succession is takeover related and 0 otherwise. *Predecessor marketing CEO* equals 1 if the predecessor CEO has dominant marketing experience and 0 otherwise and *Predecessor finance CEO* equals 1 if the predecessor CEO has dominant finance experience and 0 otherwise. *Number of business segments* is the number of business segments served by the firm.

Table 3
CEO Appointment Models: 1990-2005 (n=552)

Effects	Binomial Logit Model	Multinomial Logit Model	
	CEO with Marketing	CEO with Marketing	CEO with Finance
	Background	Background	Background
	Column 1	Column 2	Column 2
<u>Hypotheses Test Variables</u>			
Differentiation emphasis (H ₁)	2.514 (.811)***	2.716 (1.207)**	.627 (.885)
Differentiation emphasis × R&D intensity (H ₂)	1.811 (.807)**	1.815 (.823)**	-1.956 (3.173)
Differentiation emphasis × Diversity of businesses (H ₃)	5.243 (2.309)**	5.655 (2.689)**	-2.897 (5.235)
Differentiation emphasis × Organic growth emphasis (H ₄)	6.765 (2.103)***	6.014 (2.377)***	-3.138 (4.654)
Differentiation emphasis × Firm size (H ₅)	-3.873 (6.176)	-5.147 (5.932)	-2.687 (1.123)***
Differentiation emphasis × Financial leverage (H ₆)	3.008 (1.417)**	3.007 (1.399)**	1.124 (0.502)**
Differentiation emphasis × Past performance (H ₇)	1.883 (.064)***	1.585 (.051)***	-1.435 (2.186)
<u>Control Variables:</u>			
R&D intensity	-4.893 (3.120)	-3.864 (2.903)	-1.174 (.503)**
Diversity of businesses	4.087 (1.002)***	2.713 (.808)***	.629 (.882)
Organic growth emphasis	-.873 (.761)	-.496 (.366)	-.286 (.597)
Firm size	-.522 (.238)**	-.402 (.185)**	-.611 (.302)**
Financial leverage	-2.231 (.502)***	-2.186 (0.554)***	.769 (.780)
Past performance	-3.343 (1.337)**	-2.656 (1.302)**	-1.856 (2.094)
Number of business segments	.387 (.542)	.139 (.143)	.099 (.081)
Takeover-related succession	-.834 (.397)**	-.659 (.322)**	-1.589 (0.076)***
Forced succession	-2.688 (1.106)**	-2.200 (1.145)**	-.146 (.508)
Predecessor: CEO with Marketing background	-1.385 (.612)**	-1.172 (.504)**	-1.405 (.431)***
Predecessor: CEO with Finance background	.333 (.733)	.298 (.649)	-2.813 (.803)***
Retail industry	.653 (.977)	.675 (.687)	-.376 (.785)
Consumer goods industry	.901 (.667)	.894 (.703)	-.498 (1.873)
Intercept	-.587 (2.033)	-.025 (1.511)	1.589 (2.123)

For the multinomial logit model, each CEO's functional background is coded as follows: Marketing = 1, Finance = 2 and Operations = 3. The baseline functional background of CEO is Operations. Standard errors are reported in parentheses. *** denotes significance at $p < .01$, ** at $p < .05$ and * at $p < .10$

Table 4
Binomial Logit CEO Appointment Model: Robustness Analyses

Effects	CEO with Marketing Background Full Sample Period Column 1	CEO with Marketing Background 1990-1999 Column 2	CEO with Marketing Background 2000-2005 Column 3	Firms with a Single Business Unit ¹ Column 4
<u>Hypotheses Test Variables</u>				
Differentiation emphasis (H ₁)	2.514 (.811)***	2.621 (.943)***	2.754 (1.324)**	2.605 (.832)***
Differentiation emphasis × R&D intensity (H ₂)	1.811 (.807)**	1.763 (.714)**	1.997 (.931)**	1.815 (.811)**
Differentiation emphasis × Diversity of businesses (H ₃)	5.243 (2.309)**	5.603 (2.128)***	5.532 (2.878)*	5.863 (3.075)*
Differentiation emphasis × Organic growth emphasis (H ₄)	6.765 (2.103)***	5.896 (2.832)**	5.603 (2.713)**	6.012 (2.756)**
Differentiation emphasis × Firm size (H ₅)	-3.873 (6.176)	-3.500 (7.398)	-6.430 (8.432)	-4.327 (8.187)
Differentiation emphasis × Financial leverage (H ₆)	3.008 (1.417)**	3.143 (1.135)***	2.712 (1.304)**	2.882 (1.155)***
Differentiation emphasis × Past performance (H ₇)	1.883 (.064)***	1.632 (.992)*	3.421 (.954)***	1.670 (1.004)*
<u>Control Variables:</u>				
R&D intensity	-4.893 (3.120)	-6.543 (6.776)	-4.932 (3.805)	-8.846 (7.354)
Diversity of businesses	4.087 (1.002)***	2.798(1.010)***	2.776 (.881)***	3.143 (.912)***
Organic growth emphasis	-.873 (.761)	-.379 (.642)	-.439 (.524)	-.477 (.687)
Firm size	-.522 (.238)**	-.168 (.056)***	-.154 (.355)**	-.541 (.203)***
Financial leverage	-2.231 (.502)***	-3.811 (1.454)***	-2.431 (1.032)**	-2.066 (.651)***
Past performance	-3.343 (1.337)**	-2.807 (1.340)**	-2.676 (1.277)**	-3.003 (1.630)**
Number of business segments	.387 (.542)	.239 (.498)	.012 (.193)	.387 (.943)
Takeover-related succession	-.834 (.397)**	-.578(.203)***	-.476 (.236)*	-.675 (.202)***
Forced succession	-2.688 (1.106)**	-2.485 (.628)***	-2.224 (.907)**	-2.442 (1.190)**
Predecessor: CEO with Marketing background	-1.385 (.612)**	-1.543 (.405)***	-1.904 (1.071)*	-1.036 (.528)*
Predecessor: CEO with Finance background	.333 (.733)	.998 (.697)	-.459 (1.348)	.413 (.298)
Retail industry	.653 (.977)	.387 (.879)	.765 (.903)	.036 (1.033)
Consumer goods industry	.901 (.667)	.034 (.841)	.467 (1.171)	.643 (2.321)
Intercept	-.587 (2.033)	.765 (1.985)	.332 (1.976)	.055 (.043)

¹ The sample for single-industry firms are firms with only one primary business segment (n=249).
Standard errors are reported in parentheses. *** denotes significance at p < .01, ** at p < .05 and * at p < .10.

Table 5
Descriptive Statistics for Variables in Post-CEO Appointment Firm Performance Model

Variable	Mean (Standard Deviation)	Median	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Volatility of stock returns	.022 (.011)	.019	1.000																
2. Buy-and-hold abnormal return	.189 (1.673)	.031	.042	1.000															
3. Accounting performance	.056 (.765)	.137	.095	.124	1.000														
4. Market share performance	.065 (1.853)	.238	.134	.087	.139	1.000													
5. CEO with marketing background	.072	-	.076	.012	-.032	.226	1.000												
6. CEO with finance background	.074	-	.115	.064	-.036	-.053	-.130	1.000											
7. Differentiation emphasis	.015 (.034)	.012	.000	.103	-.036	-.063	.074	-.070	1.000										
8. R&D intensity	.031 (.075)	.034	.145	.032	-.018	.379	-.010	-.116	-.019	1.000									
9. Diversity of businesses	.513 (.572)	.538	.087	.059	.102	.076	.112	.987	.437	.032	1.000								
10. Firm size (natural log of sales)	8.519 (1.203)	8.517	.065	.125	-.013	.021	-.021	.203	-.103	-.045	.321	1.000							
11. Performance in year prior to CEO succession	-.001 (.101)	.001	.038	.027	.004	-.383	-.124	.073	.001	-.387	.103	.024	1.000						
12. Proportion of outside directors	.777 (.122)	-	-.029	.063	-.114	-.070	.040	-.045	.088	-.029	.167	-.053	.120	1.000					
13. Institutional shareholdings	.580 (.313)	-	.001	.123	-.107	-.035	.008	-.060	-.112	-.081	.136	-.035	.044	-.006	1.000				
14. Outsider CEO	.234	-	-.066	.068	.053	-.029	-.040	-.005	-.043	.041	.004	-.024	-.046	-.040	-.117	1.000			
15. Forced succession	.179	-	-.021	.005	.077	-.091	-.031	-.015	.043	-.005	.065	-.032	.105	-.076	-.101	.373	1.000		
16. Takeover related succession	.172	-	.001	.107	-.031	.172	.003	.020	.017	-.037	.028	-.026	.007	.054	-.069	.069	.066	1.000	
17. Abnormal return at CEO announcement	.033 (2.750)	.048	.002	.089	.009	.010	-.091	.075	.076	-.008	.037	.039	.079	.061	-.058	.032	.010	.009	1.000

Correlations above .110 significant at < .10, above .150 at p < .05 and above 0.220 at p < .01. The number of observations for buy-and-hold abnormal returns is 190 for the accounting performance and market share performance is 223 and for volatility of stock returns is 219.

Variable definitions: *Volatility of stock returns* is measured as the daily standard deviation of returns, indexed by the CRSP value-weighted market volatility ratio, for three years after the turnover, scaled by the volatility two years prior to the appointment of the CEO. *Buy-and-hold abnormal return* is measured as the excess returns on the firm's stock, compared to a matched stock, over the three year period following the CEO appointment. *Accounting performance* is measured as the change in the average Barber-Lyon adjusted return on assets (earnings before interest and taxes/total assets) from the three years before to the three years after the CEO appointment. *Market share performance* is the change in the firm's average market share in its primary industry, defined by its primary 2-digit SIC code, from the three years before to the three years after the CEO appointment. *CEO with marketing background* equals 1 if the new CEO has dominant marketing experience and 0 otherwise and *CEO with finance background* equals 1 if the new CEO has dominant finance experience and 0 otherwise. We measure *Differentiation emphasis* and *R&D intensity* as the average of its advertising and R&D expenditures, respectively, scaled by the firm's sales, over the three years following the CEO succession. *Firm size* is the log of the firm's total sales. *Performance in year prior to CEO succession* is the Barber-Lyon adjusted return on assets in year (t-1). *Proportion of outside directors* equals the number of directors who are not officers of the firm divided by the total number of directors. *Institutional shareholdings* equals the percent of the firm's stock held by institutional investors as of the end of the quarter immediately preceding the CEO succession. With respect to CEO succession characteristics, *Outsider CEO* equals 1 if the new CEO is hired from outside the firm and 0 otherwise, *Forced succession* equals 1 if the succession is forced and 0 otherwise, and *Takeover related succession* equals 1 if the succession is takeover related and 0 otherwise. *Abnormal return at CEO announcement* is the stock returns computed using the three factor Fama-French model augmented with the momentum factor, as suggested by Carhart, over a 3-day period surrounding the CEO turnover announcement (day-1 to day +1).

Table 6
CEO Functional Backgrounds and Post-Appointment Firm Performance

Variable	Buy-and-Hold Abnormal Returns for three years following the succession Column 1	Accounting Performance (changes in return on assets three years following the succession relative to three years before the succession) Column 2	Volatility of Stock Returns (daily standard deviation of returns, indexed by the CRSP value-weighted index, for three years after the succession, scaled by volatility two years prior) Column 3	Market Share Performance (changes in market share three years following the succession relative to three years before the succession) Column 4
CEO with marketing background	-.715 (.693)	.435 (.787)	.001 (.002)	.414 (.783)
CEO with finance background	.762 (1.304)	.765 (1.323)	.000 (.002)	-.148 (.226)
Differentiation emphasis	.036 (2.309)	.807 (.995)	-.007 (.005)	.347 (.997)
R&D intensity	-1.775 (2.002)	-1.246 (3.476)	.042 (.008)***	.094 (1.654)
Diversity of businesses	.096 (.893)	.003 (.005)	-.002 (.002)	.103 (.333)
CEO with marketing background × Differentiation emphasis	.032 (.087)	.043 (.072)	-.026 (.043)	.813 (.335)**
Firm size	-.075 (.100)	-.034 (.028)	-.001 (.001)	-0.014 (.137)
Performance in year prior to CEO succession	.661 (.764)	.490 (.782)	-.093 (.103)	-1.400 (1.282)
Proportion of outside board directors	.532 (.890)	-.209 (.476)	.002 (.006)	-.552 (.809)
Institutional stock ownership	.398 (.463)	.276 (.543)	.001 (.003)	.649 (.544)
Insider versus outsider CEO	.127(.508)	-.004 (.041)	.032 (.054)	-.093 (.340)
Forced succession	-.532 (1.439)	-.504 (.933)	.006 (.002)***	-.560 (.244)**
Takeover-related succession	.931 (1.507)	.801 (.976)	.007 (.005)	.981 (.843)
Abnormal stock return around CEO succession	-1.827 (1.602)	-.387 (.655)	-.003 (.016)	-2.654 (1.376)
Inverse Mill Ratio (Lee's Lambda)	.004 (.144)	-.397 (.443)	-.001 (.005)	-.888 (.587)
Intercept	1.007 (.904)	.224 (1.754)	.025 (.008)	.243 (1.548)
Number of observations	190	223	219	223
F-values	1.038 (ns)	.477 (ns)	4.26 (p < .01)	3.37 (p < .01)
R-square	.004	.023	.315	.243

*** denotes significance at $p < .01$, ** at $p < .05$. CEO with operations background is the baseline CEO.

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