Diversity in the Executive Suite: A Longitudinal Examination of the Antecedents and Consequences of Top Management Team Heterogeneity

by

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Abstract

This dissertation takes an evolutionary approach toward Top Management Team (TMT) heterogeneity by examining its antecedents (i.e., CEO characteristics) and outcomes (i.e., firm performance, TMT turnover) as well as several boundary conditions of these relationships (i.e., TMT discretion, TMT power distribution). Four primary research questions are explored in detail, including 1) In what ways are a CEO's characteristics related to TMT heterogeneity?; 2) What is the nature of the relationship between TMT heterogeneity, firm performance, and TMT turnover?; 3) What are the temporal dynamics of these relationships?; and 4) How do TMT power and discretion influence the relationships between TMT heterogeneity, firm performance, and turnover?

The primary goal of this study was to better understand how TMT heterogeneity manifests in organizations and the influence it has on different outcomes of interest to firms. Emanating from the strategic leadership literature, the Upper Echelons perspective served as the primary theoretical framework in this study. Additional theories from the strategic management and social psychology literatures were incorporated to gain a greater understanding of the modeled relationships as well as how they unfold over time.

Using latent growth modeling and multiple regression analyses, this study examined the above phenomena among a sample of firms on the *Fortune 1000* list from 2002 through 2012. The results highlight the complicated associations between executive diversity, firm performance, and executive turnover over time. Specifically, most

diversity types had a short-lived influence on performance, though *TMT Race Diversity* emerged as having a persistent and nonlinear relation. Additionally, certain diversity types were associated with gains in financial performance, though only when combined with certain levels of specific moderators. Ultimately, this study finds support for the influence of CEOs on TMT diversity, the Upper Echelons perspective, and, perhaps most importantly, the benefits of opening the 'black box' in organizational demography research.

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List of Abbreviations

ANOVA	Analysis of Variance
ASA	Attraction-Selection-Attrition model
BOD	Board of Directors
BU	Business Unit
C-suite	The collective of chief officers in a firm
CEO	Chief Executive Officer
CFA	Confirmatory Factor Analysis
CMO	Chief Marketing Officer
CSQ	Commitment to the Status-quo
CSR/CSP	Corporate Social Responsibility/Corporate Social Performance
CTO	Chief Technology Officer
EFA	Exploratory Factor Analysis
GLS	Generalized Least Squares
HLM	Hierarchical Linear Modeling
ID-CR	Information Diversity-Cognitive Resource Perspective
IPO	Initial Public Offering
IT	Information Technology
KLD	Kinder, Lydenberg, Domini and Company database

LGM	Latent Growth Model
LMX	Leader-Member Exchange
M&A	Merger and Acquisition
MBA	Master's of Business Administration
NGO	Non-Governmental Organization
R&D	Research and Development
RBV	Resource-Based View of the firm
RCM	Random Coefficients Modeling
RDP	Resource Dependence Perspective
ROA	Return on Assets
ROE	Return on Equity
ROS	Return on Sales
SEM	Structural Equation Model
TMT	Top Management Team
U.S.	United States
UE	Upper Echelons
VC	Venture Capital/Venture Capitalist

Diversity in the executive suite: A longitudinal examination of antecedents and consequences of TMT heterogeneity

Chapter 1

Dissertation Overview

"One does not need to look very far to find ample evidence that the trajectories and fortunes of companies are often traceable to the actions (or inaction) of their top executives" (Finkelstein, Hambrick, & Cannella, 2009, p. 1).

Section 1.1: Introduction

Due, in part, to the recent escalation of publicity afforded to the collapse of organizations, increased importance has been placed on the study of firms and their top executives (Carpenter, Geletkanycz, & Sanders, 2004). One primary question in this line of inquiry is, 'Do executives matter?' If so, what about executives matters in relation to various aspects of firm performance? In other words, why do executives make certain decisions and what implications do these decisions have for the firm?

As argued previously (e.g., Daily & Schwenk, 1996; Hambrick, 1989), the study of strategic leadership is important because it explicitly considers individuals who have the most direct influence on the performance of the firm. While a consideration of other factors such as a firm's environments, competitors, allies, and resources is critical, failure to consider the individuals entrusted with the direction and success of the firm will leave researchers with an imperfect understanding of firm actions (Finkelstein et al., 2009).

Thus, the position taken throughout this dissertation is that corporate executives matter. This view is consistent with recent research that suggests that a firm's human capital has important implications for performance (Crook, Todd, Combs, Woehr, & Ketchen, 2011), and with Hambrick and Mason's (1984) Upper Echelons perspective that suggests that executives' characteristics have implications for firm outcomes (e.g., performance).

Although it is important to understand how governance entities – the Chief Executive Officer (CEO) and Top Management Team (TMT) – influence a firm's performance, the majority of governance research conducted thus far examines the CEO, either in isolation or in conjunction with the Board of Directors (BOD). Some researchers have considered different entities in their work such as Finkelstein and Hambrick's (1996) "Supra-TMT" (i.e., the combination of the TMT and BOD), and Simsek, Viega, Lubatkin, and Dino's (2005) three-level model (i.e., TMT, CEO, and BOD influences) of TMT behavioral integration, though such studies are less common. As a result, less is known about the TMT – either in isolation or as it relates to the CEO. This realization has led to calls (e.g., Jensen & Zajac, 2004) to distinguish between the different governance entities (i.e., CEO, TMT). I adopt this perspective in my dissertation by examining the influence of both the CEO and TMT on firm performance over time.

CEO-TMT Relations

Before exploring the relationships between the CEO and TMT, an explication of the TMT concept is warranted. Prior work (see Carpenter et al., 2004) has shown that a multitude of TMT conceptualizations have been used in the strategic leadership literature. As such, it is increasingly important for researchers to specify which individuals are in this important team. Consistent with prior work (e.g., Menz, 2012) I consider the TMT to

be the collection of 'C-suite' executives at the top of an organization's hierarchy (e.g., Chief Executive Officer, Chief Operating Officer, Chief Finance Officer, etc.).

In their seminal Upper Echelons (UE) paper, Hambrick and Mason (1984) emphasized the importance of examining the entire TMT, not only the CEO. However, despite this call, the majority of governance research focuses exclusively on the CEO (Daily & Johnson, 1997; Daily & Schwenk, 1996; Finkelstein et al., 2009). The dearth of research focusing on the unique influence of the CEO and TMT is due, in part, to the trend of collapsing these two entities (typically focusing exclusively on the CEO). Prior research fails to consider the TMT as a whole, either focusing on the CEO as a proxy for the TMT, or failing to examine independent behaviors of the TMT from its leader, the CEO (Jaw & Lin, 2009; Richardson, Buchholtz, & Gerard, 2002). This is problematic for a number of reasons.

First, as noted by Cao, Simsek, and Zhang (2010), executive teams are just that – teams. As such, researchers should be interested in the interplay between CEOs and their TMT members. When researchers assume a single individual (i.e., the CEO) can represent the entire team, the beneficial properties of teams become inconsequential.

Second, most CEOs do not make decisions alone, but rely on the expertise of their top managers when making decisions. When only the CEO is examined, the social context in which decisions are made is ignored (Arendt, Priem, & Ndofor, 2005; Carpenter et al., 2004; Peterson, Smith, Martorana, & Owens, 2003). Further, focusing solely on the CEO assumes this individual is representative of the remaining TMT members, and that all top executives share the same values, perspectives, and strategic inclinations. However, recent work has called this assumption into question, finding that

the interests of CEOs and other executives or managers do not always align (Jensen & Zajac, 2004). There appears to be added value in examining other executives in addition to the CEO (e.g., the rest of the TMT). However, researchers must be careful when examining the entire TMT due to the special position the CEO holds as the team's leader. Thus, as advocated by Jensen and Zajac (2004), it is important to consider both the CEO and non-CEO executives, though it is equally important to distinguish between the two.

Studies examining the unique influence of the CEO and TMT have begun to surface in the governance literature (Arendt et al., 2005; Ling, Simsek, Lubatkin, & Veiga, 2008). For example, Buyl, Boone, Hendriks, and Matthyssens (2011) found that CEO characteristics (i.e., expertise, functional background, founder status, shared experience with TMT members) influenced internal TMT processes. Additionally, Peterson et al. (2003) found CEO personality was related to TMT processes (e.g., team cohesion, decentralization of power, and risk-taking). Further, merging the CEO succession and Upper Echelons literatures, Barron, Chulkov, and Waddell (2011) found that joint turnover (i.e., when both the CEO and a non-CEO TMT member left a firm) was associated with discontinuation of operations following executives' exit. Finally, Cao et al. (2010) found that a CEO's information network extensiveness was positively associated with an ambidextrous orientation (i.e., pursuit of exploration and exploitation activities). However, supporting the influence of the TMT, these authors also found that this relationship was stronger when there was better communication between the CEO and TMT and decentralized power within the TMT. Thus, there are both theoretical and empirical reasons to disentangle the influence of the CEO and TMT on firm actions and outcomes.

TMT Diversity

While some researchers have worked to better understand the interactions between CEOs and their TMTs, others have sought to explore the TMT itself. Within this growing research stream, many scholars have considered diversity[1] among TMT members. This trend stems from an understanding that the composition of the global workforce is changing, giving rise to more workplace diversity (Pitcher & Smith, 2001; Valenti & Rockett, 2008; Van Knippenberg & Schippers, 2007). This trend includes diversity based on employees' age/generation (Toossi, 2009; Twenge, 2010; Twenge & Campbell, 2008), sex (Cox, 1991; Pitts & Wise, 2010), and national origin/ethnicity (Cox, 1991; Pitts & Wise, 2010). Van Knippenberg and Schippers (2007) suggested that diversity is likely to be a persistent trend in the management literature because organizations and societies are becoming increasingly diverse.

Due to 'glass ceiling' effects for women (Powell & Butterfield, 1994) and ethnic minorities (Powell & Butterfield, 1997), TMTs may not be as diverse as the firms they lead. However, as a result of internal promotions and external hires, increased workforce diversity will eventually reach firms' upper management levels (Schneider, 1983, 1987). Because TMT diversity increases the amount of information available to make strategic decisions, it is thought to positively influence firm performance (Carpenter et al., 2004; Hambrick & Mason, 1984). Scholars have argued that executives are boundedly rational (March & Simon, 1958) and have a limited capacity to gather and process information. Information is filtered through executives' biases and values (Hambrick & Mason, 1984) that can lead to the adoption of suboptimal strategic decisions. However, executives with

[1] Throughout this dissertation, the terms 'diversity' and 'heterogeneity' are used synonymously.

different characteristics (e.g., functional background) may be prone to contribute more knowledge and favor different approaches in selecting decision-relevant options. To the extent the TMT is comprised of a diverse group of executives, more strategic choices may be vetted, thereby increasing the likelihood of making a better strategic decision.

Unfortunately, results of TMT diversity studies have been equivocal on this assumption. In their recent meta-analysis, Certo, Lester, Dalton, and Dalton (2006) found that some types of heterogeneity (i.e., TMT functional heterogeneity and executive tenure heterogeneity) were positively related to firm performance (i.e., Return on Assets; ROA). In the same study, however, these authors found a different type of diversity (i.e., educational heterogeneity) was unrelated to firm performance.

Several possible explanations for the conflicting results exist. First, Certo et al. (2006) discuss no fewer than 21 different TMT operationalizations that have been used throughout the governance literature. For example, Athanassiou and Nigh (2000) directly asked CEOs to identify TMT members, while Hoffman, Lheureux, and Lamont (1997) considered anyone holding the title of Vice President or higher to be a TMT member. Certo et al. (2006) suggested the across studies TMT definitions were sufficiently different from each other, a result that may partially account for differences in study findings regarding firm performance. Because researchers have used a variety of measures of diversity, theoretical bases, and statistical methodologies (Nielsen, 2010a), it may be that differences in findings stem from differences in the approaches scholars adopt.

Finally, in her review, Nielsen (2010a) noted only a small number of studies use longitudinal data. This is especially problematic for TMT research because team

functions and processes change over time. In other words, teams are assumed to boast benefits that individuals do not – common frames of reference, increased inputs into decision-making processes, more comprehensive search for and use of information, and so on (see Robbins & Judge, 2013). However, process costs (e.g., relationship conflict, ambiguous responsibility) and developmental stages can impair team decision making and performance.

In his model, Tuckman (1965) delineated five stages of group development: forming, storming, norming, performing, and adjourning. This model has received empirical support in the literature (Greer, Jehn, & Mannix, 2008; Jehn & Mannix, 2001; Wheelan, Davidson, & Tilin, 2003). As elements of group formation and dynamics may detrimentally impact performance during the first three stages of development, it may be ill-advised to examine performance during these periods of time (see Cheng, Chua, Morris, & Lee, 2012). However, due to its specific position and function in the firm, the TMT is always focused on performance. As a result, during the earlier stages of team development (i.e., forming, storming, norming), TMT performance may be inhibited relative to the later developmental stages.

As noted by Kuipers and Stoker (2009), Tuckman's model suggests growth in performance, as each succeeding developmental stage leads to a final stage during which the team performs at a superior level. Thus, while teams – including TMTs – may make small performance gains throughout their tenure, optimal performance should not be expected until teams have reached the appropriate developmental stage (i.e., performing).

TMT diversity may be differentially meaningful during these different stages of development. For example, heterogeneity may be problematic during the storming and

norming stages, but may be beneficial during the performing stage. A team with a high degree of functional background diversity may experience more conflict during the storming and norming stages of development compared to a team with less diversity. However, this same diversity may become a decision making asset during the performing stage (see Cheng et al., 2012 for a non-TMT example). Different levels of diversity may return varying levels of performance at different stages of development (see Carpenter et al., 2004; Certo et al., 2006), and this could be responsible for conflicting performance results associated with TMT diversity.

The above research suggests there is certainly more to learn about the influence of TMT diversity on firm outcomes. Researchers have found diversity to be both a benefit and challenge to organizations (Bell, Villado, Lukasik, Belau, & Briggs, 2011; Van Knippenberg & Schippers, 2007; Williams & O'Reilly, 1998). Because it is only a matter of time before diversity ascends to firms' executives, scholars and managers need to better understand the implications of increased TMT diversity for firms. Thus, a primary goal of this dissertation is to better understand the nature of the relationship between TMT diversity and firm performance.

TMT Power and Discretion

Another important area of research within the strategic leadership literature focuses on power, the ability of managers to exert their will over others (Pfeffer, 1981). Finkelstein (1992) developed a relational measure of TMT power (Adams, 2004) that assumed power is unequally distributed among TMT members. He assumed, but did not confirm, that power accrued to executives who managed internal and external sources of uncertainty. Finkelstein (1992) suggested uncertainty arises when executives hold

conflicting preferences with respect to the strategic direction of the firm. To the extent a focal executive can gain control over the strategic agenda, decision alternatives, or the flow of information to the CEO, she gains power over other executives. This dissertation considers top managers' power as their ability to exert their will over other TMT and BOD members.

To fully appreciate how TMT members influence the direction of the firm, researchers must determine which members have relatively more power and which have relatively less. Hence, the concept of power dispersion/distribution should be of import to governance researchers. Though Finkelstein's (1992) relational measure has been used widely, the majority of this work focuses on CEO power. Less is known about how the distribution of power among TMT members influences both TMT- and firm-level actions and outcomes.

Hambrick and Finkelstein's (1987) concept of managerial discretion is closely related to Finkelstein's (1992) conceptualization of TMT power. Whereas the latter is a characteristic of individual executives (e.g., the CEO's power), the former is comprises environmental, organizational, and individual-level characteristics. Hambrick and Finkelstein's (1987) construct has become the most widely used model of discretion (Keegan & Kabanoff, 2008). With respect to environmental-level determinants, Hambrick and Finkelstein (1987) refer to the extent to which the environment allows for change (e.g., market growth, product differentiability, industry structure). Referring to organizational-level considerations, these authors highlight firm inertia, availability of resources, and "powerful inside forces" (p. 379). Finally, with respect to the individual-

level, Hambrick and Finkelstein (1987) discuss the executive's aspirations, commitments, tolerance for ambiguity, and so on.

Hambrick and colleagues (Hambrick & Abrahamson, 1995; Hambrick & Finkelstein, 1987) noted that discretion constrains or amplifies an executive's actions, depending on the levels afforded. Managers have a stronger influence on firm actions and outcomes when they have increased levels of discretion. Despite the potential value of discretion for management researchers, Boyd and Gove (2006) highlighted the scarcity of empirical research examining the discretion construct. This circumstance likely stems from the lack of discretion measures available to researchers (Hambrick & Abrahamson, 1995; Keegan & Kabanoff, 2008)

As discussed by Finkelstein et al. (2009), and in relation to the current dissertation, heterogeneity can be expected to have a greater influence on the firm to the extent the TMT has high discretion. Executives' characteristics may influence firm performance universally (Hambrick & Mason, 1984), though this effect should be stronger when executives are given more power and a greater latitude of action (i.e., greater discretion). Accordingly, another goal of this dissertation is to explicitly examine TMT power distribution and discretion as they relate to TMT members' ability to manage their firms.

Section 1.2: Research Questions

Four primary research questions drive this dissertation:

1. In what ways are CEOs' characteristics related to the demographic heterogeneity of the TMT?

2. What is the nature of the relationship between TMT heterogeneity, firm performance, and TMT turnover?
3. What are the temporal dynamics of these relationships?
4. How do CEO and TMT power and discretion influence the relationships between TMT heterogeneity, firm performance, and TMT turnover?

Section 1.3: Research Model, Theories, and Constructs

Section 1.3.1: Research Models.

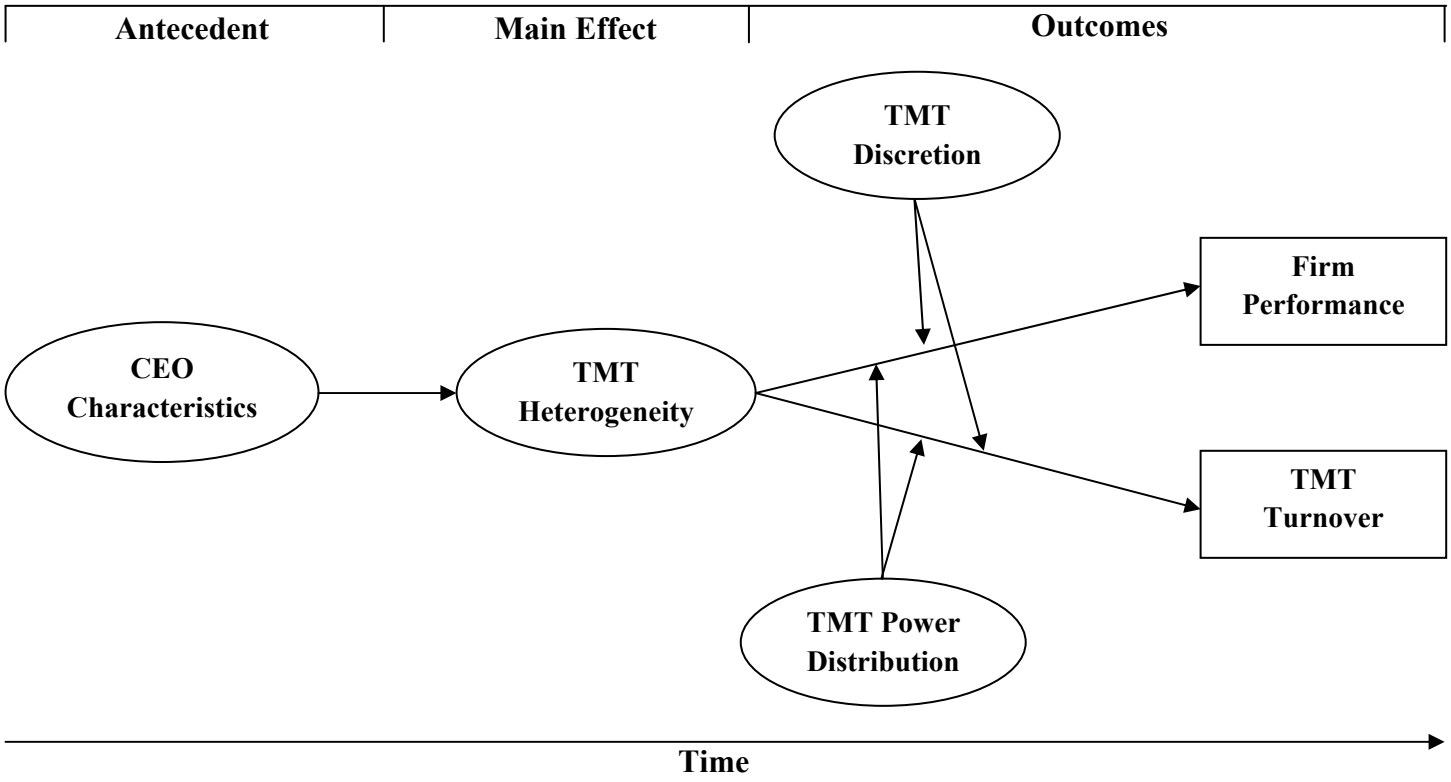

Figure 1.1: A moderated time-based model of the relationship between TMT heterogeneity, TMT turnover, and firm performance

Section 1.3.2: Model Relationships.

The theoretical model under investigation in this dissertation is displayed above (see Figure 1.1). A brief description of the relationships among constructs follows.

Section 1.3.2.1: CEO Characteristics → TMT Heterogeneity.

Prior work suggests that CEOs have the ability to influence the demographic make-up of the Boards of Directors that are charged with overseeing the management of their firms (Westphal & Zajac, 1995; Zajac & Westphal, 1996). More recently Finkelstein et al. (2009) suggested that CEOs can influence the relative heterogeneity of their Top Management Teams. Using the Resource Dependence (Pfeffer & Salancik, 1978) and Information Diversity – Cognitive Resource (Cox & Blake, 1991; Williams & O'Reilly, 1998) perspectives, I argue that CEOs are motivated to appoint TMT members who are demographically dissimilar from themselves (i.e., the CEO). As a result, CEOs are able to inject their TMTs with new perspectives, schemas, and information gathering resources, all of which allow CEOs to make increasingly optimal strategic decisions.

Section 1.3.2.2: TMT Heterogeneity → Performance.

Merging the Upper Echelons (Hambrick & Mason, 1984) and Information Diversity – Cognitive Resource (Cox & Blake, 1991; Williams & O'Reilly, 1998) perspectives, I argue that by increasing the heterogeneity of their TMTs, CEOs increase the amount and sources of information used to make strategic decisions. As a result, firms become more responsive to environmental demands which positively influences firm performance (Thomas, Clark, & Gioia, 1993).

Section 1.3.2.3: TMT Heterogeneity → TMT Turnover

Prior work suggests that demographic attributes are salient in establishing group membership (Tajfel & Turner, 1986). Additional research argues that individuals who are dissimilar from their collective are more likely to turnover relative to their demographically similar counterparts (Schneider, 1987). Applied to TMTs, these perspectives suggest that TMT members who are demographically dissimilar to the rest of the TMT are more likely to exit the firm than are TMT members who are demographically similar.

Section 1.3.2.4: The moderating roles of TMT Power Distribution and TMT Discretion

Prior work suggests that the distribution of power (Finkelstein, 1992) and amount of discretion (Hambrick & Finkelstein, 1987) afforded to TMTs constrains or amplifies TMT members' influence. When power is evenly distributed among TMT members and TMT members have sufficient discretion to act in accordance with their wishes, a stronger relationship between executive characteristics and firm actions and outcomes is likely to exist. However, when power is unevenly distributed or discretion is withheld, executive characteristics are unlikely to influence firm actions and outcomes.

Section 1.4: Dissertation Contributions

This dissertation contributes to the strategic leadership literature in several ways. First, in their update of the UE literature, Carpenter et al. (2004) noted one concern is that researchers often consider individual difference variables (e.g., functional background) in isolation. Such actions are problematic, as it is far more likely that executives' characteristics interact to form a gestalt. Indeed, Carpenter et al. (2004) highlight the need

to better understand how executive variables interact as well as the influence of those interactions on individual and firm outcomes. Because this dissertation examines the interplay among a variety of diversity types, I advance the literature by illustrating how multiple types of diversity combine to influence certain team- and firm-level outcomes, uncovering the complex interrelationships among these important constructs and the implications these relationships have for team- and firm-level outcomes (Daboub, Rasheed, Priem, & Gray, 1995; Finkelstein et al., 2009).

Second, as mentioned by Certo et al. (2006), most TMT research considers types of TMT heterogeneity as independent variables. As a result, relatively less is known about the antecedents of TMT heterogeneity than its outcomes. This dissertation advances the strategic leadership literature by examining the influence of CEO characteristics – an antecedent variable – on TMT heterogeneity as well as the moderating effect of CEO power.

Third, Lawrence (1997) noted, "Demographers frequently invoke untested subjective concepts to explain the relationship between demographic predictors and organizational outcomes…As a result, untested subjective conceptions remain poorly defined and their relationships, timing, and context consistently underspecified" (p. 20). Stated differently, researchers have previously examined the relationship between demographic variables (e.g., age, sex, functional background) and organizational outcomes (e.g., firm performance) paying little attention to the mechanisms that facilitate these potential relationships. As a result, we know comparatively less about *how* heterogeneity influences outcomes (Hambrick, Cho, & Chen, 1996; Jensen & Zajac, 2004).

In her paper, Lawrence (1997) discussed the iterative process that creates and strengthens theory. When researchers fail to explicitly examine intervening processes (thereby creating the 'black box' of diversity research) this process becomes compromised. This precipitates weaker hypotheses that produce mixed results similar to those seen in the heterogeneity literature. By incorporating two intervening variables specifically identified in prior work (i.e., managerial discretion, TMT power distribution), I investigate the mechanisms underlying the influence of heterogeneity on organizational outcomes. This enhances the UE perspective (Hambrick & Mason, 1984) by exploring the logic behind diversity's effects, not simply that they exist.

Fourth, I add to the TMT power literature by using Finkelstein's (1992) measure as was originally intended – to assess the entire TMT (Gove, Larraza, & Boyd, 2000). Whereas most researchers using Finkelstein's measure focus only on CEO power, I examine the power of each TMT member as well as the distribution of power within the TMT. This extends prior work by questioning two prevailing though competing assumptions, namely that a) power resides only with the CEO (as is the case when only CEO power is examined) and b) power is equally distributed throughout the TMT.

Fifth, and related to the prior contribution, Finkelstein (1992) introduced his conceptualization over 20 years ago. However, at present I know of no comprehensive review of this important literature. This dissertation contributes to the governance literature by reviewing the findings of work based on Finkelstein (1992). In this way, I hope to shed light on what has been learned and what exciting opportunities remain regarding TMT/CEO power.

Sixth, Ployhart and Vandenberg (2010) noted that most theories in the organizational sciences are longitudinal in nature, though the majority of theory testing takes place under cross-sectional circumstances. As a result, much remains unknown about the timing and/or duration of observed effects, limiting practical implications for managers (Ployhart & Ward, 2011). Additionally, and with specific regard for governance research, Beckman and Burton (2011) described the executive suite as a "game of musical chairs…as people come and go" (p. 49). When TMTs stability is assumed details associated with TMT functions and actions are lost. Beckman and Burton (2011) noted industries and environments change over time and these changes necessarily change the firm. Because TMTs are a reflection of their organizations, researchers should expect to see changes in TMTs over time (Certo et al., 2006; Nielsen, 2010a). Unfortunately, the majority of TMT studies overlooks this fact and continues to test static (rather than dynamic) models (Cannella & Holcomb, 2005).

By considering TMTs as dynamic, this dissertation makes a twofold contribution to the strategic leadership literature. First, it questions the long-held assumption that TMTs are static (Beckman & Burton, 2011). Second, operating on the assumption that TMTs are dynamic, it examines the consequences of different patterns of TMT heterogeneity, which constitutes a more stringent test of theory. Further, I explicitly examine the 'time' component of this perspective by examining how executives' characteristics influence team- and firm-level outcomes (i.e., TMT turnover and firm performance, respectively) over time. Finally, by incorporating theory from social psychology/organizational behavior this dissertation takes a step forward in opening the 'black box' of TMT diversity.

Section 1.5: Dissertation Outline

This dissertation consists of six chapters. Chapter One provides an outline of the dissertation, focusing primarily on the broad research questions addressed as well as the intended contributions. Chapter Two reviews the major theories used to develop the hypotheses depicted in the research models (see Figure 1.1). Chapter Three develops the hypotheses of interest. Chapter Four discusses methodological issues, specifically detailing statistical methods, measures, and criteria used to test the hypotheses developed in Chapter Three. Chapter Five reports the results of the statistical analyses and Chapter Six concludes with a discussion of the implications – both theoretical and practical – of the study's findings along with avenues for future research.

Chapter 2

Theoretical Overview and Hypothesis Development

This chapter describes the primary theories used to develop the theoretical models (see Figure 1.1). The primary governance theory explored in greater detail is the Upper Echelons perspective (Hambrick & Mason, 1984). Additionally, due to the importance of managerial power in the theoretical model, Finkelstein's (1992) conceptualization of TMT power distribution will be discussed. After reviewing the above perspectives, study hypotheses are developed in Chapter 3 to explore the relationships between model constructs. All hypotheses are substantiated by prior theoretical and empirical results.

Section 2.1: Primary Theories

Before exploring the theories used to guide this dissertation, a preliminary point is worth making. In line with prior research in the strategic leadership literature (Finkelstein & Hambrick, 1996; Finkelstein et al., 2009; Hambrick & Mason, 1984; Jackson, 1992) the position taken in this dissertation is that executives matter insofar as firm outcomes are concerned. At the same time, the influence of the environment(s) within which a focal firm is situated cannot be ignored (DiMaggio & Powell, 1983; Hannan & Freeman, 1977; Lieberson & O'Connor, 1972). As a result, I consider the influence of top executives (i.e., the TMT) as well as the influence of the institutional environment (i.e., environmental discretion).

Section 2.1.1: The Upper Echelons Perspective.

The study of corporate executives has a rich history in the strategic management literature. Finkelstein et al. (2009) discuss the historical progression of importance placed on top executives that began more than 70 years ago. Though this relative emphasis has

ebbed and flowed over the decades, a turning point in this literature stemmed from the publication of two seminal papers. First, Child (1972) published his paper on strategic choice, and second, Hambrick and Mason (1984) introduced the Upper Echelons (UE) perspective.

In his paper, Child (1972) noted the current theories of the time were focused mostly on economic constraints on firm performance, a perspective that is referred to as "structural determination" (p. 1). However, as Child (1972) noted, such a perspective fails to explicate the process by which firm actions lead to performance gains or losses. That is, deterministic theories explain *that* certain firm characteristics influence performance, but not *why* or *how* they do so. Instead, Child (1972) argued, researchers must turn their attention to those who have the power to and are charged with the direction of the firm – its dominant coalition (Cyert & March, 1963; Thompson, 1967). Because members of this group are assumed to be more powerful (with respect to firm decision-making) than others and because they are collectively given the authority to direct the firm, by examining more closely these important individuals, researchers can directly examine firm variation, something that is not possible through a deterministic lens.

Hambrick and Mason (1984) extended Child's (1972) contribution by offering the UE perspective that serves as a complement to the strategic choice perspective. That is, both papers suggested executives matter insofar as firm outcomes are concerned; Child (1972) argued this occurs via executives' strategic choices, while Hambrick and Mason (1984) suggested executives' characteristics are the influence of interest. More specifically, Hambrick and Mason (1984) suggested observable characteristics (e.g., age,

sex, race, and education) are indicators of executives' cognitions, values, perceptions and so on, that are thought to influence executives' strategic choices.

As explained by Hambrick and Mason (1984), executives are faced with a situation that provides certain stimuli (i.e., information) to be interpreted. This information is filtered through "Upper Echelons Characteristics" (p. 198) –psychological (e.g., values) and observable (e.g., functional background) characteristics that are unique to each executive – before being used to make strategic decisions. Thus, the UE perspective can be understood as an information filtering process that assumes executives matter with respect to firm performance and that strategic choices are a reflection of decision makers' characteristics.

Priem, Lyon, and Dess (1999) argued that a reliance on demographic proxy variables will lead to disparate findings. These authors highlight the equivocal findings in the TMT diversity literature as evidence in support of their arguments. Instead, Priem et al. (1999) advocated for the use of more substantive proxy variables such as TMT power, psychographics (i.e., attitudes, interests, opinions, perceptions), and judgments. In response, Carpenter et al. (2004) suggested that lack of agreement in prior findings may stem more from variety in heterogeneity measures than from psychometric concerns about proxy variables. They proposed reconciling the findings from different heterogeneity operationalizations and different data collection methods (i.e., archival, survey) to advance the literature instead of abandoning proxy variables altogether.

Since the publication of these foundational papers much has been learned about the corporate elite from an UE lens (Hambrick, 2005), though much remains to be done (Hambrick, 2007). One area of concern is particularly noteworthy. Despite the explicit

emphasis on top managers as a collective (Hambrick & Mason, 1984), the majority of UE-based work focuses either solely on the CEO or on the relationship between the CEO and the BOD (Daily & Schwenk, 1996; Finkelstein et al., 2009; Menz, 2012). Comparatively less is known about the TMT, and work focusing on the relationship between the TMT and its leader (i.e., the CEO) is sparse.

Not all researchers view the lack of emphasis on the TMT as problematic (e.g., Cannella & Holcomb, 2005; Dalton & Dalton, 2005). In their paper, Daily and Johnson (1997) criticized the growing emphasis on the TMT. Their rationale was that CEOs occupy a dominant position in both the firm and TMT and have unique qualities. Accordingly, these authors argued, an emphasis on CEOs is appropriate. While the examination of CEO effects is important, I argue an *exclusive* examination on the CEO may miss important factors.

Despite thoughts to the contrary, there has been a growing emphasis placed on both the TMT as well as its interaction with the CEO (e.g., Buyl et al., 2011; Peterson et al., 2003). Finkelstein et al. (2009) discussed five reasons why researchers are interested in TMTs. First, organizations attempt to achieve multiple goals simultaneously. These goals, some of which are adopted more fully by some TMT members than others, reflect differences in perspectives of top executives, and these differences are thought to influence firm outcomes. Second, this collective of individuals is responsible for a firm's strategy and outcomes. As a result, models that consider the influence of the entire TMT are likely to have greater explanatory power regarding organizational phenomena compared to models that only consider the CEO (Finkelstein et al., 2009; Hage & Dewar, 1973; Tushman & Rosenkopf, 1996; Virany, Tushman, & Romanelli, 1992). Third,

interactions among TMT members generate outcomes of interest to researchers. Fourth, legislative mandates (e.g., Sarbanes-Oxley) have made executives' roles more easily observed and analyzed by researchers. Finally, research suggests that considering the whole TMT provides better explanations of firm outcomes than solely focusing on the CEO (Bertrand & Schoar, 2003; Hage & Dewar, 1973; O'Reilly, Snyder, & Boothe, 1993; Tushman, Virany, & Romanelli, 1985).

In their recent review of the TMT-focused UE literature, Carpenter et al. (2004) distinguished between early and more recent UE research. The former focused primarily on validating Hambrick and Mason's (1984) model whereas the latter delved into the processes that facilitate these validated effects. Carpenter et al. (2004) concluded their paper with a synthesis of prior work indicating TMT heterogeneity: a) executives influence firm processes and outcomes in a variety of firm types (e.g., for- and not-for-profit firms), b) impacts multiple firm strategies (e.g., international agendas, mergers and acquisitions), and c) facilitates a variety of processes within the TMT (e.g., communication, debate).

Since the publication of Carpenter et al.'s (2004) paper, an explosion of research has taken place in the UE literature. Indeed, a recent citation count in the Web of Knowledge indicates Hambrick and Mason's (1984) paper has been cited more than 500 times since Carpenter et al.'s (2004) review. Many of these papers (see Table 2.1) examine executive's characteristics (e.g., age, sex, education) as independent variables, though some use these characteristics as moderators of previously established relationships.

For example, using a sample of strategic business unit executives, Auh and Menguc (2006) found a three-way interaction between customer orientation (i.e., the extent to which a firm is focused on customer service), TMT functional diversity (i.e., variety in the primary functional background of each TMT member), and TMT experience diversity (i.e., the variety of experiences TMT members have with their firm). Specifically, these authors found that at high levels of experience diversity, the effect of customer orientation on performance increased under higher levels of functional diversity, but was unrelated to performance when functional diversity was low. At low levels of experience diversity the influence of customer orientation on performance was *negative* at higher levels of functional diversity. Thus, these two types of executive characteristics moderated the relationship between customer orientation and firm performance.

Additionally, using a sample of public hospitals in Spain, Naranjo-Gil, Hartmann, and Maas (2008) found a negative relationship between strategic change (i.e., movement between Miles and Snow's (1978) defender and prospector strategies between Time 1 and Time 2 of data collection) and operational performance (e.g., occupancy rate, mortality rate). However, this relationship was moderated by job-related heterogeneity (i.e., tenure, functional background, education) in the TMT. Specifically, there was a negative relationship between strategic change and performance for TMTs low in job-related heterogeneity, but for teams with greater amounts of heterogeneity this relationship became non-significant.

Table 2.1 displays empirical studies that invoked the UE perspective, used a TMT sample, and were published after Carpenter et al.'s (2004) review. Of the 36 papers listed,

a small number examine biodemographic characteristics (i.e., age, race, sex). For example, Chen (2011) and Herrmann and Datta (2005) both found that age was negatively associated with the extent to which a firm engages in international diversification. With respect to firm strategy, Escriba-Esteve, Sanchez-Peinado, and Sanchez-Peinado (2009) found age was negatively related to strategic orientation ("the processes, practices and decision-making activities that lead to [firm] growth," p. 583), while Goll, Johnson, and Rasheed (2008) showed age was positively associated with following a low cost strategy.

Regarding similar characteristics, Dezso and Ross (2012) found that female representation in the TMT was positively associated with a measure of firm performance (i.e., Tobin's Q). Additionally, Greve, Nielsen, and Ruigrok (2009) found that TMT members' nationality was positively associated with changes in global and cultural posturing (but not workforce internationalization). Using a sample of firms listed on the Swiss Stock Exchange, Nielsen (2010b) found TMT internationalization (the combination of TMT members' international experience and nationality) was positively related to the number of foreign market entries. Finally, results from Roberson and Park (2007) suggest that TMT member race had a curvilinear (i.e., U-shaped) relationship with three measures of firm performance (i.e., revenues, net income, book-to-market value of common equity).

A number of job-related diversity characteristics have also been examined in the literature. Several studies have examined the education of TMT members, finding it relates positively to innovation performance (Camelo, Fernandez-Alles, & Hernandez, 2010), 'home runs' (i.e., proportion of firms added to a portfolio that successfully went

public) (Dimov & Shepherd, 2005), rational decision-making (Goll & Rasheed, 2005), use of a differentiation strategy (Goll et al., 2008), international diversification (Herrmann & Datta, 2005), and strategic change (Wu, Wei, & Liang, 2011).

Researchers have also taken an interest in TMT members' functional background, with the general finding that this type of diversity is positively associated with firm performance (Boone & Hendriks, 2009; Buyl et al., 2011; Cannella, Park, & Lee, 2008), use of a differentiation strategy (Goll et al., 2008), firm diversification (Jensen & Zajac, 2004), and likelihood of strategic change (Yokota & Mitsuhashi, 2008).

Table 2.1.

TMT-focused Upper Echelons studies published since Carpenter et al. (2004)

Author(s) (Year)	Diversity Variable(s)	Outcome(s)	Sample Origin	Key Finding(s)
Barkema and Shvyrkov (2007)	Education, Tenure	Investment in new geographic area	Netherlands	▪ Tenure diversity positively influenced the likelihood of entering new markets ▪ Overlapping team tenure negatively moderated the positive influence of tenure diversity
Boone and Hendriks (2009)	Functional background, Locus of Control	Firm performance (ROS)	Netherlands & Belgium	▪ Functional background diversity is positively related to firm performance ▪ Locus of control diversity is negatively related to firm performance ▪ *Moderators*: collaborative behavior, accurate information exchange, decentralized decision making
Buyl et al. (2011)	Functional background	Firm performance (ROS)	Netherlands & Belgium	▪ Functional background diversity is positively related to firm performance ▪ *Moderators*: CEO functional background, founder status, tenure overlap ▪ *Mediator*: information exchange and integration
Cannella et al. (2008)	Functional background	Firm performance (ROA)	Not specified	▪ Functional background diversity is positively related to firm performance ▪ *Moderators*: environmental uncertainty, TMT member collocation
Camelo et al. (2010)	Education, Functional background, Tenure	Innovation performance	Spain	▪ Education diversity was positively related to innovation performance ▪ Functional background and tenure diversity were negatively related to innovation performance ▪ *Moderator*: strategic consensus

Note. ROS = Return on Sales; ROA = Return on Assets

Chen (2011)	Age, International experience, Tenure	Firm internationalization	Taiwan	▪ Tenure and international experience are positively related to internationalization ▪ Age is negatively related to internationalization ▪ *Moderator*: BOD independence
Damanpour and Schneider (2006)	Age, Education, Gender, Tenure	Innovation adoption	United States	▪ Tenure (in management and position) positively related to innovation adoption
Dezso and Ross (2012)	Gender	Firm performance (Tobin's q)	United States	▪ Female representation in the TMT is positively related to firm performance ▪ *Moderator*: innovation intensity
Dimov and Shepherd (2005)	Education, Industry experience	Investment performance	United States	▪ Education in science and humanities was positively related to 'home runs' ▪ Consulting industry experience was negatively related to 'home runs' ▪ MBA and law education and consulting experience were negatively related to 'strike outs' ▪ Legal industry experience was positively related to 'strike outs' ▪ Education in science and humanities was positively related to 'strike outs'
Dimov et al. (2007)	Finance experience	Investment in early-stage ventures	United States	▪ Finance capacity was negatively related to early-stage venture investments ▪ *Moderators*: Firm reputation and status
Escriba-Esteve et al. (2009)	Age, Education, Family member, TMT size, Prior experience	Strategic orientation	Spain	▪ Age and family member were negatively related to SO ▪ Prior experience was positively related to SO
Goll and Rasheed (2005)	Age, Education level, Tenure	Rational decision-making	United States	▪ Tenure and Education level were positively related to rational decision making, which was positively related with firm performance

Goll et al. (2008)	Age, Education level, Functional background, Tenure	Business strategy	United States	▪ Education level and functional background (age) were positively (negatively) related to differentiation strategy ▪ Age (functional background) was positively (negatively) related to low cost strategy
Greve et al. (2009)	International experience, Nationality	Firm posturing	Europe	▪ Nationality and international experience were positively related with changes in geographic and cultural posturing but not with workforce internationalization
Herrmann and Datta (2005)	Age, Education level, Firm tenure, Functional background, International experience	International diversification		▪ Education level and international experience were positively associated with international diversification ▪ Age and firm tenure were negatively associated with international diversification ▪ *Moderator*: Firm performance
Jaw and Lin (2009)	Tenure	Firm internationalization	Taiwan	▪ Tenure heterogeneity had an inverted-U relationship with internationalization
Jensen and Zajac (2004)	Finance functional background	Diversification, Acquisition activities	United States	▪ Firms with more finance corporate executives were more likely to be highly diversified, but decreases acquisition activity
Lee and Park (2006)	Education, Functional background, International experience, Outside industry experience	Firm internationalization, International alliance formation	United States	▪ Outside industry experience and international exposure had an inverted-U relationship with internationalization ▪ International exposure was positively related to international alliance formation ▪ *Mediator*: international alliance formation
Lee and Park (2008)	International exposure	International alliance formation	United States	▪ International exposure was positively related to international alliance formation ▪ *Moderator*: environmental uncertainty

Liu et al. (2012)	Competitor tenure, Firm tenure, Founder status, Outside industry tenure	Post-IPO invention performance	United States	▪ Percentage of founders had an inverted-U shaped relationship with performance ▪ Firm tenure (competitor tenure) was negatively (positively) related with performance ▪ *Moderator*: Firm age
Nielsen and Nielsen (2011)	International experience, Tenure	Foreign entry mode	Switzerland	▪ International experience was negatively related to shared-control entry mode ▪ Nationality diversity was positively related to shared-control entry mode
Nielsen (2010b)	International experience, Nationality (collectively, TMT internationalization)	Number of foreign market entries	Switzerland	▪ TMT internationalization was positively related to the number of foreign market entries
Ozer (2010)	Political involvement	Corporate political activity (e.g., political campaign contributions)	United States	▪ TMT members' political involvement was positively related to corporate political activity ▪ *Moderators*: CEO tenure
Patzelt et al. (2008)	Education, Founder-based firm-specific experience, Industry experience	Firm performance (growth)	Germany	▪ Business model moderated the relationship between founder-based firm-specific experience and pharmaceutical industry experience and firm performance ▪ *Moderator*: Business model
Patzelt et al. (2009)	Entrepreneurial experience, International experience, Management education, Science/Engineering education	Investment in early-stage ventures, broad industry diversity, broad geographic scope	Europe	▪ Firms with higher proportions of TMT members with science/engineering education and entrepreneurial experience were more likely to invest in early-stage ventures ▪ Firms with a higher proportion of TMT members with management education were positively associated with industry diversity ▪ Firms with a higher proportion of TMT members with international experience were associated with a broader geographic scope of investments

Qian et al. (2012)	Functional background	TMT conflict (affective, cognitive)	China	▪ The interaction between functional diversity and institutional support was negatively related to cognitive and affective conflict ▪ *Moderators*: Institutional support
Roberson and Park (2007)	Race	Firm performance (revenues, net income, book-to-market value of common equity)	United States	▪ Diversity reputation was negatively related to book-to-market value (i.e., indicating higher firm value) ▪ TMT racial diversity had a U-shaped relationship with all three performance measures
Rost and Osterloh (2010)	Financial expertise (financial education), Gender	Performance (stock price)	Switzerland	▪ Banks with a higher percentage of non-finance experts on their TMT had poorer performance before a financial crisis, but better performance after the crisis ▪ Gender was non-significant
Srivastava and Lee (2005)	Education, Firm tenure, TMT size	Order and timing of product moves, Likelihood of being a first mover	United States	▪ Firm tenure was positively (negatively) related to timing of product moves (order of new product moves) ▪ TMT size was negatively related to timing of new product move and positively related to likelihood of being a first mover ▪ Education heterogeneity was negatively (positively) related to order (timing) or new product moves ▪ Tenure heterogeneity was negatively (positively) related to order of new product moves (likelihood of being a first mover)
Wang et al. (2011)	Government experience (mean years of government experience, proportion and number of managers with government experience)	Firm political networking	China	▪ Mean years of TMT government experience and number of managers with government experience were positively related to firm political networking (which was positively related to firm performance)

Wei and Lau (2012)	Network, Age, Education, Tenure, Functional background	Innovation	China	▪ Age and tenure heterogeneity were positively related to firm performance ▪ Functional background and tenure heterogeneity were negatively moderated and related to innovation ▪ *Moderator*: Functional team dynamics
Wu et al. (2011)	Age, Educational background, Firm tenure	Strategic change	China	▪ Firm tenure and educational background heterogeneity were positively related to strategic change ▪ *Moderators*: TMT pay imparity
Yokota and Mitsuhashi (2008)	Executive succession (change in educational background, functional background, firm tenure)	Strategic change	Japan	▪ Change in tenure, functional background, and educational heterogeneity were positively related to likelihood of strategic change
Zarutskie (2010)	Task-specific human capital (past experience as a venture capitalist, executive), Industry-specific human capital (strategy/management consulting, engineering, non-venture finance), General human capital (education)	Fraction of portfolio company exits	United States	▪ Task-specific human capital was positively related to fraction of portfolio company exits ▪ Consulting experience was positively related to fraction of portfolio company exits ▪ Fraction of fund managers with an MBA is negatively related to fraction of portfolio company exits

Firm tenure has also been studied extensively, with researchers finding positive relationships with strategic change (Wu et al., 2011; Yokota & Mitsuhashi, 2008), rational decision making (Goll & Rasheed, 2005), and innovation adoption (Damanpour & Schneider, 2006), though others have found a negative relationship between firm tenure and innovation performance (Camelo et al., 2010). The relationship between firm tenure and international activities has produced mixed results, with some finding a positive relationship (e.g., Barkema & Shvyrkov, 2007; Chen, 2011), others have produced negative findings (e.g., Herrmann & Datta, 2005), and still others have found no significant relationship between these two constructs (e.g., Nielsen & Nielsen, 2011). In their study, Jaw and Lin (2009) found a curvilinear relationship between tenure heterogeneity and firm internationalization, with the highest likelihood of internationalization associated with a moderate amount of tenure heterogeneity.

Several other types of job-related diversity have also been examined including prior experience (e.g., Dimov & Shepherd, 2005; Dimov et al., 2007; Zarutskie, 2010), founder status (e.g., Liu et al., 2012; Patzelt et al., 2008), family member status (e.g., Escriba-Esteve et al., 2009), and engagement in political activity (e.g., Ozer, 2010). In addition, a variety of outcome variables have been examined in this literature, including firm performance (e.g., Cannella et al., 2008; Patzelt et al., 2008; Rost & Osterloh, 2010), innovation (e.g., Camelo et al., 2010; Damanpour & Schneider, 2006), strategic change (e.g., Wu et al., 2011; Yokota & Mitsuhashi, 2008), internationalization (e.g., Barkema & Shvyrkov, 2007; Jaw & Lin, 2009; Lee & Park, 2006), political activity (e.g., Ozer, 2010; Wang et al., 2011), and others.

The aforementioned studies bolster Hambrick and Mason's (1984) original premise that executives are important for firm actions and outcomes. However, despite supportive results regarding firms and TMTs from a UE perspective, some trends emerge from prior work that illuminates critical unanswered questions. First, Hambrick and Mason (1984) noted situations faced by strategic decision makers are highly complex and involve more information than they can easily comprehend. Carpenter et al. (2004) highlight the need to better understand this complexity as well as the implications for UE-based research. The inclusion of moderators and mediators in UE research (see Table 2.1) partially answers this call (Hambrick, 2007). For example, Lee and Park (2008) included environmental uncertainty as a moderator in their study that focused on international alliance formation. Specifically, they found a positive relationship between TMT members' international exposure and international alliance formation in dynamic industries (i.e., when environmental uncertainty was high). In contrast, international exposure was unrelated to alliance formation in stable industries (i.e., when environmental uncertainty was low). Similarly, Lee and Park (2006) found that the percentage of a firm's international alliances partially mediated the relationship between TMT member international experience and firm internationalization.

Thus, the advice to further study the complex relationships inherent in UE research has not gone unanswered. However, inclusion of intervening variables is more the exception than the rule. As a result, more work is needed to better understand and explain the complexity of TMT decision making, including a) the exploration of additional intervening variables, b) the interrelationships among different TMT

characteristics, and c) the use of newer, more sophisticated methodologies (e.g., structural equation modeling [SEM], random coefficient modeling [RCM]).

Second, Carpenter et al. (2004) proposed that an evolutionary perspective on Hambrick and Mason's (1984) model is sorely needed. These authors note executives' characteristics (e.g., functional background, international experience) are not expected to remain constant for the duration of their careers. Rather, these characteristics as well as the relationships they have with other variables are expected to change over time. Thus, longitudinal methods could serve as an invaluable tool for the UE research (Carpenter et al., 2004; Finkelstein et al., 2009), as they allow for the examination of time and change in hypothesized relationships. Unfortunately, the majority of UE studies use cross-sectional methodologies to examine static relationships, as demonstrated by the majority of studies shown in Table 2.1.

Finally, despite Finkelstein et al.'s (2009) discussion of the multi-level determinants of TMT heterogeneity, all of the studies listed in Table 2.1 consider TMT members' characteristics as exogenous variables. The predominant use of TMT heterogeneity is to use these characteristics to predict firm-relevant outcomes (e.g., firm performance). Missing from this discussion is a thorough understanding of the precursors to TMT diversity – those constructs that increase or decrease the likelihood that a given characteristic (e.g., international experience) will be represented within a TMT.

Fortunately, several studies that examine precursors to TMT heterogeneity exist in the literature. Recent work by Nielsen (2009) serves as an example. In her paper, Nielsen (2009) contrasts Schneider's (1983, 1987) Attraction-Selection Attrition (ASA) framework (imposes *homogeneity* demands on a TMT) with a firm's strategic (i.e.,

international diversification) and environmental (i.e., industry dynamism) demands (requires TMT *heterogeneity*). Using a sample of Swiss firms, Nielsen (2009) found different antecedents for different types of diversity. For example, pursuit of an international diversification strategy (a strategic demand) decreased the likelihood of hiring a new TMT member from a country similar to the rest of the team (i.e., nationality diversity). In contrast, high levels of industry dynamism (an environmental demand) led TMTs to hire new members with different industry experience (i.e., prior experience diversity) from the rest of the TMT. Nielsen's (2009) results further underscore the complexity of the UE paradigm.

Using a sample of new venture semiconductor firms, Boeker and Wiltbank (2005) found that the industry experience and functional background diversity of the TMT, as well as insider ownership (i.e., the number of firm shares owned by TMT members) each decreased the probability of change to the TMT (i.e., entrances and exits). Further, strategic diversification, CEO and venture capitalist (VC) ownership (i.e., number of firm shares owned by the CEO and VCs, respectively), and the number of VC directors individually increased the probability of changes to the TMT. Finally, firm growth (i.e., sales growth) had a U-shaped relationship with TMT change.

Additionally, in their study that used a sample of Dutch newspaper publishers, Boone, Van Olffen, Van Witteloostuijn, and De Brabander (2004) found that the extent to which a focal executive was demographically dissimilar to other TMT members increased the likelihood of the executive leaving the firm. Using a sample from the U.S. cement industry, Keck and Tushman (1993) uncovered multi-level (i.e., industry, firm, and CEO) precursors to TMT heterogeneity. They also found that the time since a

reorientation, time since an environmental jolt, and CEO tenure were each positively (negatively) related to average TMT tenure and TMT homogeneity (changes to the TMT).

Taken together, the above results suggest multi-level determinants of TMT heterogeneity. These determinants include environmental (i.e., technological discontinuities, industry dynamism), firm (i.e., reorientation) and governance (i.e., CEO ownership) level constructs. However, due to the relatively small number of studies that examine the precursors to TMT heterogeneity, additional work is needed before any substantive conclusions can be made. This dissertation contributes to the strategic leadership literature by shedding light on a new potential determinant of TMT heterogeneity, namely CEOs' demographic characteristics (i.e., a governance-level determinant).

Section 2.1.2: Top Management Team Power.

As mentioned above, Priem et al. (1999) advocated for the use of more substantive proxy variables for the UE approach (e.g., TMT power distribution) in place of the traditional demographic indicators. At issue is the ability to utilize UE constructs that are "theoretically interesting, practicably manipulative, and [have] important normative implications" (p. 945). Priem et al.'s (1999) primary complaint regarding traditional demographic proxy variables is that they are seen as exchangeable for each other. For example, these authors suggest that diversity-based theories (e.g., UE) would change very little if researchers assess heterogeneity via age as opposed to functional background. This limits the theoretical meaningfulness of any given demographic proxy variable.

Instead, Priem et al. (1999) advocate for the use of more substantive variables, as they are less substitutable for each other and more interesting theoretically. One such variable is TMT power distribution. For example, Priem et al. (1999), cite prior studies that indicate that firms governed by power-sharing CEOs tend to outperform their autocratic CEO counterparts (e.g., Eisenhardt & Bourgeois, 1988; Zenger & Lawrence, 1989). This is primarily because power hoarding (i.e., an autocratic CEO) is often accompanied by a more politically-charged TMT that can decrease communication among TMT members and, by extension, firm performance. Further, these authors suggest that while TMT members' demographic characteristics may indicate skills, abilities, and experiences, all become moot when CEOs hoard power.

In light of these arguments, I incorporate a more substantive heterogeneity construct in this dissertation, namely TMT power distribution. Further, because it is arguably the most comprehensive measure of power and is the only measure specifically developed on and for the entire TMT, Finkelstein's (1992) model of TMT power will be used. Prior to discussing the Finkelstein (1992) model, the primary model on which it is based (i.e., French & Raven, 1959) will be discussed briefly.

Widely considered one of the most well-known and widely used models of power,[2] French and Raven's (1959) model consists of five interrelated dimensions of social power that dictate the relationship between two individuals. For example, applied to the dyadic relationship between a supervisor and a subordinate, the supervisor is said to have five bases of power over the subordinate: reward, coercive, legitimate, referent, and expert. Briefly, *reward* power refers to the supervisor's ability to reward desirable

[2] A Google Scholar search returned more than 6,300 citations for French and Raven's (1959) work.

behaviors, while *coercive* power refers to the ability to punish undesirable behavior. *Legitimate* power refers to authority bestowed upon the supervisor by virtue of holding a higher position than the subordinate. Finally, *referent* power is present to the extent the subordinate identifies with the supervisor, while *expert* power is accrued by the supervisor as a result of having accumulated knowledge in a given area. Finally, it is important to note that reward, coercive, and legitimate powers are unidirectional while referent and expert powers are bidirectional. That is, supervisors can have reward and coercive power over subordinates while the reverse is illogical. However, referent and expert powers can accrue to both supervisors and subordinates.

Though widely used, Finkelstein (1992) noted two concerns regarding the French and Raven (1959) model. First, French and Raven's (1959) model was not developed on or intended for use in executive teams (i.e., TMTs). As a result, the extent to which each of the five bases of power is directly applicable to or represented in the TMT becomes unclear. Second, Finkelstein (1992) noted a lack of concern for measurement in the development of the French and Raven (1959) model. As a result, the ability to determine the "relative merit" (Finkelstein, 1992, p. 507) of each dimension becomes difficult.

In light of these concerns, Finkelstein (1992) developed a measure that focused specifically on the TMT. In a series of three studies, Finkelstein (1992) developed (Study 1) and validated (Studies 2 and 3) an objective, four dimension model of TMT[3] power consisting of structural, ownership, expert, and prestige powers. *Structural* power explores the legitimate power conveyed by one's position and authority within the firm,

[3] Finkelstein (1992) considered all inside directors (i.e., executives who also served on the BOD) as members of the TMT.

and is assessed with three items. Percentage of executives with higher titles refers to the percentage of TMT members with higher titles than a focal executive. Executive compensation is the total cash compensation (i.e., salary + bonus + benefits) for a focal executive divided by the total compensation of the highest paid executive in the firm. Finally, number of titles considers the number of official titles a focal executive holds (e.g., CEO and BOD Chair).

Ownership power focuses on the agency relationship between a focal executive and the firm. Specifically, the extent to which executives own large portions of the firm reduces BOD influence on the TMT. Ownership power is gauged using three items: executive shares (i.e., percentage of firm shares owned by a focal executive and their immediate family), family shares (i.e., percentage of firm shares owned by a focal executive's extended family), and founder/relative (i.e., the focal executive is the firm founder or is related to the founder).

Expert power concerns a manager's ability to manage environmental uncertainty that often results from expertise in one or more functional areas. As a result, expert power is assessed using three items: critical expertise power (i.e., a researcher's match between a focal executive's functional expertise and environmental requirements), functional area expertise (i.e., the number of different functional areas a focal executive has experience in), and total number of positions in the firm (i.e., the number of positions a focal executive has held in a given firm).

Finally, *prestige* power regards an executive's ability to "absorb uncertainty from the institutional environment" (Finkelstein, 1992, p. 515) and is assessed using four items. Corporate and nonprofit boards measure the total number of BODs a focal

executive sits on. Because it is more prestigious to serve as a director of an established firm, average board rating gauges the average stock rating for each firm for that a focal executive serves as a director. Finally, elite education is a count of how many degrees a focal executive has received from elite colleges and/or universities.

As originally conceptualized, each variable serves as a reflective indicator for its respective latent power dimension, and while alternative models have been explored (e.g., Gove et al., 2000) none have gained widespread use. Table 2.2 displays empirical studies that used at least one of Finkelstein's (1992) power dimensions in an appreciable capacity.[4] With respect to the effect itself, the majority of prior studies examined the main effect of power (42 studies), while substantially fewer considered power as an intervening (i.e., moderating) variable (12 studies) and almost none employed power as an outcome variable (3 studies). Regarding the unit of analysis, the overwhelming majority of prior work focuses on CEO power (43 studies) either by itself or in conjunction with another entity's power (e.g., BOD power; Fiegener, 2005). Top management team (12 studies) and BOD power (13 studies) have been the primary focus on far fewer occasions. Finally, on occasion researchers examine the power of a single TMT member (e.g., Chief Marketing Officer; Nath & Mahajan, 2011) or an external party (Fischer & Pollock, 2004).

Further, the emphasis placed on each power dimension differs. Structural (36 studies) and ownership (34 studies) powers are the most commonly studied, while fewer researchers have taken an interest in either prestige (18 studies) or expert (12 studies)

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[4] Despite common practice, studies controlling for one or more measures of power (e.g., CEO duality) were excluded from this analysis.

power. These results suggest that more attention has been paid to what Gove et al. (2000) referred to as 'structural power' (i.e., a higher order construct comprised of structural and ownership powers), than to 'informal power' (i.e., a higher order construct comprised of prestige and expert powers). Twenty-six studies in Table 2.2 have only considered a single dimension of power, while slightly more (30 studies) incorporate multiple dimensions.

Recall that Finkelstein's (1992) measure is comprised of four dimensions and 13 objective indicators. As seen in Table 2.2, only four studies have simultaneously considered all four power dimensions (i.e., Bigley & Wiersema, 2002; Chahine & Goergen, 2011; Chikh & Filbien, 2011; Lewellyn & Muller-Kahle, 2012), though none have incorporated all 13 objective indicators. However, several researchers have included all objective indicators for the prestige (Haleblian & Finkelstein, 1993; Park, Westphal, & Stern, 2011), structural (Haleblian & Finkelstein, 1993; Tang, Crossan, & Rowe, 2011), and expert power dimensions (Haleblian & Finkelstein, 1993). Perhaps the closest attempt to completely replicate Finkelstein's (1992) model came from Haleblian and Finkelstein (1993) who considered TMT structural, expert, and prestige powers as well as all respective objective indicators.

The lack of attention paid to replicating Finkelstein's (1992) model is troublesome as it contributes to construct deficiency. Failing to include all relevant indicators and/or dimensions of managerial power decreases the overlap between manifest measures of power and the theoretical latent power construct they purport to assess. As a result, the extent to which prior studies have captured the same managerial power becomes unclear. Certainly there are challenges associated with collecting all

indicators in Finkelstein's (1992) model; however, when these challenges prohibit collection of all indicators, researchers should be forthcoming about what they are able to collect. For instance, researchers who collect structural power should refer to the construct as such (i.e., structural power instead of the full managerial power construct), as this would further our understanding of structural power while at the same time highlighting the need for additional work on other power dimensions.

Although a variety of outcome variables have been examined as they relate to various dimensions of TMT power, the focus of this dissertation is on TMT power. Accordingly, only the results of prior studies examining TMT power will be discussed here (but see Table 2.2 for a complete listing of findings). Four broad categories of outcomes will be discussed below: firm performance, strategic decisions, decision-making, and executive-related outcomes.

A variety of types of firm performance have been examined. In their study that used TMT samples from dynamic, high discretion (i.e., computer) and stable, low discretion (i.e., natural gas) industries, Haleblian and Finkelstein (1993) found that CEO dominance (i.e., power centralization) was negatively related to firm performance. Further, this relationship was strengthened in highly dynamic environments compared to more stable environments. Conflicting results have been found regarding the relationship between TMT power and corporate social responsibility/performance (CSR/CSP). Whereas Johnson and Greening (1999) found a positive relationship between TMT ownership power and one dimension of CSR (i.e., product quality), Oh, Chang, and Martynov (2011) found a negative relationship using the same variables.

Table 2.2.

Empirical studies using one or more dimensions of Finkelstein's (1992) TMT power model

Authors (Year)	Power Use	Power Dimension(s)	Proxy Used	Unit of Analysis	Findings
Adams et al. (2005)	Main effect	Structural Ownership	Founder Only inside director Number of titles	CEO	▪ Power was positively associated with variability in firm performance
Barkema and Pennings (1998)	Main effect	Ownership	Executive shares Family shares Founder	CEO	▪ Overt (share holdings) but not covert (founder status) power was positively and directly related to CEO compensation
Bigley and Wiersema (2002)	Main effect	Structural Ownership Expert Prestige	Number of titles Compensation Executive shares Relative of founder Functional background Elite education Corporate boards	CEO	▪ The interaction between power and heir apparent experience was negatively related to strategic refocusing
Buchholtz and Ribbens (1994)	Main effect	Structural Ownership Expert	CEO Tenure Executive shares	CEO	▪ CEO ownership, but not tenure, was negatively related to takeover resistance
Buchholtz et al. (1998)	Moderator	Structural Expert	Number of titles CEO Tenure	CEO	▪ Expert power (but not structural) strengthened the relationship between firm performance and CEO pay.

Note. CEO = Chief Executive Officer; TMT = Top Management Team; BOD = Board of Directors; BU = Business Unit; VC = Venture Capitalist; NGO = Non-governmental Organization; CMO = Chief Marketing Officer; CTO = Chief Technology Officer

Bunderson (2003)	Main effect	Expert	Critical expertise Functional background	BU TMT	▪ Expert power was positively related to work flow centrality. ▪ Critical expertise (functional background) interacted with power centralization and was negatively (positively) related to decision involvement
Buyl et al. (2011)	Moderator	Ownership	Founder	CEO	▪ CEO founder status weakened the positive relationship between TMT functional diversity and firm performance.
Cannella and Lubatkin (1993)	Moderator	Structural	Number of titles	CEO	▪ CEO duality was negatively related to CEO outsider selection, but the interaction with firm performance was non-significant
Cannella and Shen (2001)	Main effect Moderator	Structural Ownership	Number of titles Executive shares	CEO BOD	▪ CEO power was negatively related to heir apparent promotion ▪ CEO power increased (decreased) likelihood of heir apparent exit under conditions of high (low) firm performance ▪ BOD power decreased (increased) likelihood of heir apparent exit under conditions of high (low) firm performance
Chahine and Goergen (2011)	Main effect	Structural Ownership Expert Prestige	Number of titles Executive shares Prior experience Education	CEO	▪ CEO structural and prestige (ownership and expert) power increased (decreased) likelihood of VC sitting on a firm's BOD ▪ CEO ownership (expert and prestige) power increases (reduces) underpricing (increases IPO premium)
Chen et al. (2008)	Outcome	Prestige	Elite education	TMT	▪ Interaction between scarcity of prestige and urgency predicted the likelihood a prestigious executive would be hired
Chen et al. (2011)	Main effect	Structural Prestige	Executive shares Education	TMT	▪ Executive power is positively related to compensation

Chikh and Filbien (2011)	Main effect	Structural Ownership Expert Prestige	Number of titles Executive shares Founder Prior experience Elite education Corporate boards	CEO	▪ Structural and prestige (expert) power increase (decreases) the probability of completing an acquisition deal that causes negative market reaction at its announcement ▪ Ownership power was non-significant
Daily and Dalton (1994)	Main effect	Structural	Number of titles	CEO	▪ Structural power was positively associated with firm bankruptcy ▪ *Moderator*: Affiliated directors
Daily and Johnson (1997)	Main effect	Structural Ownership Prestige Expert	Number of titles Independent directors Total compensation Executive shares Founder Corporate boards Non-profit boards Elite education Functional background	CEO	▪ Dimensions of CEO power were differentially related to firm performance ▪ Firm performance was differentially related to dimensions of CEO power
Dowell et al. (2011)	Main effect	Structural Ownership Prestige	Number of titles Executive shares Founder Elite education	CEO	▪ CEO power decreases probability of firm failure ▪ *Moderator*: Financial distress
Dunn (2004)	Main effect	Structural Ownership	Number of titles Functional area Executive shares	TMT BOD	▪ Firms with greater concentrations of structural and ownership powers are more likely to engage in fraudulent financial reporting than firms without a concentration of power ▪ The interaction between structural and ownership power was significant
Fahlenbrach et al. (2011)	Main effect	Ownership	Executive shares Executive tenure Founder	CEO	▪ Ownership power (but not Executive shares) was positively associated with the likelihood that a former CEO is appointed to a firm's BOD

Feng et al. (2011)	Main effect	Structural Ownership	Compensation Number of titles Founder	CEO	▪ Firms with material accounting manipulations were more likely to have powerful CEOs than firms without accounting manipulations
Fiegener (2005)	Main effect	Ownership	Executive shares Family shares	CEO BOD	▪ BOD strategic participation is less likely when CEOs have high ownership power ▪ BOD ownership power is unrelated to BOD strategic involvement
Finkelstein and D'Aveni (1994)	Outcome *Moderator*	Structural *Expert* *Prestige*	*Compensation* Number of titles *Functional background* *Tenure* *Corporate boards* *Nonprofit boards* *Experience* *Elite education*	CEO	▪ BOD vigilance is positively related to CEO duality; this relationship is strengthened by the combination of low ROA and CEO power ▪ The negative association between BOD vigilance and CEO duality is strengthened by CEO power and the combination of high ROA and CEO power
Fischer and Pollock (2004)	Main effect	Ownership	Executive shares Founder	CEO VC	▪ CEO ownership interacts with VC ownership and CEO-founder status to lower the likelihood of an IPO firm's failure
Galema et al. (2012)	Main effect	Structural	Number of titles Founder	CEO	▪ In NGOs, CEO power (number of titles) is positively related to risk taking and performance variability
Gao and Jain (2012)	Moderator	Structural	Number of titles	CEO	▪ The relationship between founder management and post-IPO acquisition premiums is more positive in the presence of CEO duality
Goyer and Jung (2011)	Main effect	Prestige	Elite education	CEO	▪ Foreign institutional investors acquiring ownership of a firm are less likely to target companies governed by CEOs who graduated with an elite education

Grossman and Cannella (2006)	Moderator	Structural	Number of titles	CEO	▪ The relationship between strategic persistence and CEO compensation is stronger when the CEO is also BOD chair than when the CEO and BOD chair are separate individuals
Haleblian and Finkelstein (1993)	Main effect	Structural Expert Prestige	% with higher titles Compensation Number of titles Critical expertise Functional background Positions in firm Corporate boards Nonprofit boards Average board rating Elite education	CEO	▪ CEO dominance (power centralization) was negatively related to firm performance ▪ *Moderators*: environmental dynamism, managerial discretion
Haynes and Hillman (2010)	Moderator	Structural Ownership	Number of titles Executive shares	CEO	▪ For greater amounts of CEO power, BOD capital breadth (depth) produces less strategic change (more strategic variation) than when the CEO is less powerful
Ittner et al. (1997)	Main effect	Structural Ownership	Number of titles Executive shares	CEO	▪ Less influence is placed on non-financial performance measures in the annual bonus contract when the CEO has more power over the BOD
Jackling and Johl (2009)	Main effect	Structural Ownership	Number of titles Founder/Relative	CEO	▪ CEO power was not related to firm performance
Johnson and Greening (1999)	Main effect	Ownership	Executive shares	TMT	▪ TMT ownership power is positively related to the product quality dimension of corporate social performance
Johnson et al. (1993)	Main effect	Ownership Expert Prestige	Executive shares Education	TMT BOD	▪ TMT power was negatively related to BOD involvement in strategic restructuring

Kabanoff and Nesbit (1997)	Main effect	Structural Prestige	Number of titles Education	CEO-BOD Chair dyad	▪ CEO duality was negatively associated with references to employees ▪ CEO education was positively (negatively) associated with normative references (references to authority)
Kalyta (2009)	Main effect	Structural Ownership	Number of titles Executive shares	CEO	▪ Structural power has a greater influence on less transparent component of CEO compensation (i.e., pension increments) than on more transparent components (i.e., cash pay and stock options) ▪ Ownership power is positively related with stock option grants
Kim et al. (2009)	Main effect	Structural	Number of titles	CEO	▪ Number of titles was positively related to unrelated diversification activity ▪ *Moderators:* BOD ownership, Institutional ownership concentration, CEO tenure, BOD independence
Lambert et al. (1993)	Main effect	Ownership	Executive shares	CEO	▪ Ownership power is negatively related to executive compensation
Lauterbach et al. (1999)	Main effect	Structural	Number of titles	CEO	▪ Number of titles offered to a new CEO was positively related with the likelihood of an external succession
Lewellyn and Muller-Kahle (2012)	Main effect	Structural Ownership Expert Prestige	Number of titles Executive shares CEO tenure Corporate boards Nonprofit boards	CEO	▪ Expert power is positively associated with the likelihood a firm specializes in subprime lending ▪ Structural and prestige powers were marginally significant
Liu and Jiraporn (2010)	Main effect	Structural Ownership	Compensation Number of titles Founder	CEO	▪ CEO power is negatively (positively) related to a firm's credit rating (the cost of bond financing)

Minguez-Vera and Martin-Ugedo (2010)		Structural Ownership	Number of titles Executive shares Founder	CEO BOD Chair	▪ Chair and CEO power (but not executive shares) are positively associated with firm risk
Nath and Mahajan (2011)	Main effect	Structural	Number of titles	CMO	▪ CMO power is positively (negatively) related to firm performance in divisionalized TMTs (unrelated diversifiers)
Oh et al. (2011)	Main effect	Ownership	Executive shares	TMT BOD	▪ TMT ownership is negatively related to corporate social responsibility ratings
Park et al. (2011)	Main effect	Prestige	Elite education Corporate boards Nonprofit boards Average board rating	CEO	▪ CEO prestige was positively related to flattery and opinion conformity directed at the CEO by other executives ▪ *Moderator*: Other executives' social status
Pi and Lowe (2011)	Main effect	Structural Ownership	Number of titles Executive shares	CEO	▪ CEO structural power is negatively related to forced CEO exit
Pollock et al. (2002)	Moderator	Structural Ownership	Number of titles Executive shares	CEO	▪ CEO ownership (structural) power reduced (strengthened) the effect of negative spread on likelihood of repricing
Pollock et al. (2010)	Main effect	Prestige	Elite education	TMT BOD	▪ TMT and BOD prestige are positively related to a firm's IPO valuation
Shen and Cannella (2002)	Main effect	Ownership	Executive shares	TMT	▪ TMT ownership is positively associated with CEO dismissal followed by inside succession
Shen et al. (2010)	Main effect	Structural	Compensation	CEO	▪ CEO structural power is negatively related to CEO turnover
Stern and Westphal (2010)	Main effect	Prestige	Elite education	TMT BOD	▪ TMT prestige power was positively related to ingratiation and opinion conformity toward the CEO ▪ BOD prestige power was positively related to ingratiation and opinion conformity toward other outside directors

Tang et al. (2011)	Main effect	Structural Ownership	% with higher titles Compensation Number of titles Executive shares Founder/Relative	CEO BOD	▪ CEO dominance (power) has a positive effect on strategic deviance and performance extremeness ▪ *Moderator*: BOD power
Tihanyi et al. (2000)	Main effect	Expert Prestige	Functional background Elite education	TMT	▪ TMT prestige power was positively associated with firm international diversification
Wasserman (2006)	Main effect	Ownership	Executive shares Founder	CEO	▪ Ownership power was negatively related to CEO cash compensation
Westphal and Khanna (2003)	Moderator	Prestige	Corporate boards Average board rating Elite education	BOD	▪ BOD prestige power reduced the negative repercussions (i.e., social distancing) associated with elite-threatening actions
Westphal and Stern (2006)	Moderator	Prestige	Elite education	TMT	▪ The relationship between ingratiation toward the CEO and subsequent board appointments is greater if the focal manager does not have an elite education
Westphal and Zajac (1995)	Main effect	Structural Ownership Expert	Number of titles Executive shares Tenure	CEO BOD	▪ CEO tenure is positively related to CEO-new director and BOD-new member similarity CEO duality is positively related to CEO-new director similarity ▪ CEO/BOD Chair separation is positively related to BOD-new director similarity
Young et al. (2008)	Outcome	Structural Ownership	Number of titles Executive shares Family shares	CEO	▪ CEO ownership power was negatively related to the proportion of independent directors
Zajac and Westphal (1996)	Main effect	Structural Ownership	Number of titles Executive shares	CEO BOD	▪ BOD power was positively related to a likelihood of change in CEO characteristics ▪ BOD power was positively related to similarity between new CEO and BOD members ▪ *Moderator*: Firm performance

Zhang et al. (2011)	Moderator	Structural Ownership	Number of titles Executive shares	CEO	▪ CEO structural (ownership) power strengthens (weakens) the relationship between CEO-executive dissimilarity and non-CEO executive turnover
Zhen et al. (2012)	Moderator	Structural Ownership		CTO	▪ For higher levels of CTO power, the trust between CTO and CEO is more indicative of the CTO's participation in technology strategy decisions

Using a sample of initial public offerings (IPOs) in the computer software industry, Pollock et al. (2010) found that both TMT and BOD prestige power (i.e., elite education) were positively related to a firm's IPO valuation. Finally, Dunn (2004) found that power concentration can have a dark side. Specifically, using a sample of firms that had engaged in fraudulent financial reporting, Dunn (2004) found that firms with greater concentrations of structural and ownership power were more likely to engage in fraud than firms without such power concentrations.

With respect to strategic decisions, Johnson et al. (1993) found that more powerful TMTs required less BOD involvement during strategic restructuring. Specifically, higher levels of TMT ownership, expert, and prestige powers reduced the tendency for BOD involvement in restructuring decisions. Further, using a sample from the U.S. electronics industry, Tihanyi et al. (2000) found that TMT prestige power was positively related to international diversification decisions.

Concerning decision making, Bunderson (2003) found that business unit (BU) TMT expert power was positively related to work flow centrality (i.e., frequency of work-related interactions with others). Additionally, Bunderson (2003) found that both critical expertise (re-named 'metafunctional experience') and functional background (both components of expert power) interacted with power centralization to influence decision involvement (i.e., involvement in making important decisions), but in different ways. Specifically, critical expertise was positively associated with decision involvement under low power centralization, but was negatively related to decision involvement when power centralization was high. In contrast, functional background was negatively related

to decision involvement when power centralization was low, but was positively related to involvement when power centralization was high.

Finally, two broad classes of executive outcomes have been examined: prestige-related (e.g., compensation, BOD appointments) and succession-related. With respect to the former, Chen et al. (2011) found that TMT structural[5] (i.e., percentage of outstanding shares owned) and prestige (i.e., level of education) powers were positively related with executive compensation (i.e., total cash compensation). In a pair of studies, Westphal and Stern (2006) and Stern and Westphal (2010) found that TMT power was related to ingratiatory behaviors toward the CEO. Specifically, Westphal and Stern (2006) found that TMT ingratiation toward the CEO was positively related to subsequent BOD appointments to boards where the CEO serves as an outside director. Further, this relationship was stronger for executives without an elite education (i.e., lower prestige power). In a similar study, Stern and Westphal (2010) found TMT prestige power (i.e., elite education) was positively related to flattering behaviors (i.e., ingratiation and opinion conformity) toward the CEO. These authors also found that BOD prestige power was positively related to flattery-type behaviors directed toward other outside directors.

Regarding the latter category (i.e., succession-related outcomes), several studies are worth noting. First, using a longitudinal sample of publicly traded U.S. firms, Shen and Cannella (2002) found TMT ownership power (i.e., percentage of outstanding shares owned by TMT members) was positively related to CEO dismissal followed by an internal succession (as opposed to external succession) to the firm's top role. Finally, Chen et al. (2008) examined the role of prestige power in a sample of U.S. IPOs. These

[5] This conflicts with Finkelstein (1992), who classified executive shares as a measure of ownership power.

authors found the combination of urgency (i.e., less than one year until an IPO) and lack of prestige among current executives and directors was positively associated with the number of prestigious executives and directors hired in the year prior to an IPO.

The above studies illustrate that although much has been learned about the Finkelstein's (1992) model of TMT power, much remains to be explored. For example, as mentioned above, no single study has examined Finkelstein's (1992) model in its entirety. Haleblian and Finkelstein's (1993) work is the closest researchers have come thus far in testing the entire power model, though their study focused only on CEO power. Additionally, while a variety of outcomes have been examined (e.g., performance), most have been firm outcomes. As a result, less is known about how TMT power influences outcomes specific to the TMT (e.g., turnover). Also, the majority of studies in Table 2.2 consider only the CEO's power, which runs contrary to Finkelstein's (1992) original conceptualization of the model as assessing the relative distribution of power among all TMT members rather than the power of one (e.g., CEO). Given the breadth of findings highlighted above, the relationship between TMT power and outcomes appears complex. Taking the above into consideration, more work focusing on TMT power is warranted.

This dissertation contributes to the strategic leadership literature by considering all Finkelstein's (1992) power dimensions (i.e., structural, ownership, prestige, and expert) for all TMT members (as opposed to only the CEO) for multiple years. Further, TMT power is considered as a boundary condition for the relationship between TMT heterogeneity and both firm performance and TMT turnover. As a result, the influence of TMT power on both firm and TMT-level outcomes is examined.

Section 2.2: Dissertation Constructs

Section 2.2.1: Chief Executive Officer Characteristics

Conversations regarding the demographic characteristics of Chief Executive Officers (CEOs) have taken place for decades. However, formal discussions regarding the theoretical importance of these constructs can be traced to prior work by Pfeffer (1983, 1985) and Hambrick and Mason (1984). As discussed previously, these authors suggested that demographics of employees in general (in the case of Pfeffer) and executives in particular (in the case of Hambrick and Mason) mattered insofar as firm outcomes (e.g., firm performance) were concerned. However, as noted by Finkelstein and colleagues (e.g., Finkelstein & Hambrick, 1996; Finkelstein et al., 2009), the majority of prior studies invoking these perspectives examine only the characteristics of the CEO.

Within this line of inquiry, much has been learned. In their recent book, Finkelstein et al. (2009) reviewed several CEO characteristics that have been examined in the literature, including tenure, functional background, and education.

Tenure

When discussing tenure – of both the CEO and the TMT – it is important to specify which type of tenure is being examined as multiple tenures are simultaneously present for a given executive. More specifically, each executive will have industry (i.e., number of years in a focal industry), firm (i.e., number of years in a focal firm), position (i.e., number of years in a focal position), and position-firm (i.e., number of years in a focal position in a focal firm) tenures. This is the case because different tenures may have different implications for executives' internal and external networks and various power bases. For example, an executive who has been CEO for multiple firms may have a more

extensive external network than a newly elevated CEO, while a CEO who has been with a focal firm for decades will have a more robust internal network than a CEO who is new to the firm. Thus, for a given CEO (or executive) it is important to distinguish between multiple tenures (i.e., firm, position, position-firm) in order to make more accurate predictions about the executive's influence on the firm.

Distinguishing between position, firm, industry, and career tenures, Finkelstein et al. (2009) discuss prior findings that suggest CEO tenure is positively associated with strategic persistence (e.g., Hambrick & Fukutomi, 1991; Hambrick, Geletkanycz, & Fredrickson, 1993), negatively associated with strategic change (e.g., Finkelstein & Hambrick, 1990; Grimm & Smith, 1991; Wiersema & Bantel, 1992), and holds a non-linear relationship with firm performance (e.g., Hambrick & Fukutomi, 1991; Miller & Shamsie, 2001).

Since Finkelstein et al.'s (2009) work several studies have further explored the implications of CEO tenure for firm outcomes. Several authors have examined the relationship between CEO tenure and firm innovation. For example, in their study of religious organizations, Fritz and Ibrahim (2010) found that use of innovation differed across levels of leader tenure, with middle- (5-15 years) and long-tenured (15+ years) leaders being more likely than short-tenured (0-5 years) leaders to adopt such a strategy. On the other hand, McClelland, Liang, and Barker (2010) found that CEO tenure in position was positively related with commitment to the status quo (CSQ), a result that suggests CEO tenure should be negatively related to innovation (also see Hambrick & Fukutomi, 1991). Taking a different approach, Musteen, Barker, and Baeten (2010) found

that CEO tenure in position strengthened (i.e., positively moderated) the relationship between a CEO's attitude toward change and emphasis on innovation.

The relationship between CEO tenure and alternative outcomes has also been of interest. McClelland, Barker, and Oh (2012) found that the interaction between CEO tenure and industry dynamism was related to a measure of future firm performance (i.e., future ROA). Specifically, these authors found that the relationship between CEO tenure and future ROA was negative in highly dynamic industries, but was positive in stable industries. Additionally, using a sample of Taiwanese firms, Jaw and Lin (2009) found an inverted-U shaped relationship between CEO position tenure and firm internationalization, with firm internationalization peaking for medium-tenured CEOs. Finally, using a large sample of U.S. banks, Richard, Wu, and Chadwick (2009) found that firms with an entrepreneurial orientation had higher performance when led by CEOs with shorter position tenure and longer industry tenure.

Functional Background

With respect to a CEO's background, Finkelstein et al. (2009) argued firm performance is best when the strategy pursued fits with executives' backgrounds. For example, these authors highlight prior work suggesting CEOs with output-oriented backgrounds (i.e., marketing, sales, research and development [R&D]) were more likely to follow Miles and Snow's (1978) Prospector business strategy, while CEOs with throughput-oriented backgrounds (i.e., manufacturing, accounting, finance, administration) were more likely to follow what Miles and Snow (1978) referred to as a Defender strategy (Barker & Mueller, 2002; Strandholm, Kumar, & Subramanian, 2004; Thomas, Litschert, & Ramaswamy, 1991; Tyler & Steensma, 1998). Further, Thomas et

al. (1991) found that when Defender firms were led by CEOs with throughput backgrounds and Prospector firms were led by CEOs with output backgrounds, firm performance increased. Additional evidence suggests that the longer a CEO has served in a given functional role (e.g., marketing), the more likely he is to base future decisions on their experience (Beyer, Chattopadhyay, George, Glick, & Pugliese, 1997; Dearborn & Simon, 1958).

Since Finkelstein et al.'s (2009) work several authors have further explored the relationship between functional background and firm performance. Concerning CEO succession, Koyuncu, Firfiray, Claes, and Hamori (2010) found positive post-succession performance implications for firms that appointed a new CEO with a background in operations compared to other functions (i.e., finance). These authors also found that having a background in operations was negatively related to a CEO's position tenure.

Other researchers have examined the influence of CEO functional background on the relationship between performance and other variables of interest. For example, Slater and Dixon-Fowler (2009) found that CEO output functional background strengthened the positive association between a CEO's international experience and both CSP strengths and total CSP (i.e., the combination of strengths and weaknesses). Similarly, using a sample of Dutch and Belgian information technology (IT) firms, Buyl et al. (2011) found that a CEO's functional background influenced the relationship between TMT functional diversity (i.e., variation in functional expertise among members of the TMT) and firm performance (i.e., ROS). Specifically, generalist CEO background weakened this relationship, while a marketing CEO background strengthened the relationship.

Education

Regarding CEO education, prior work generally suggests a positive relationship between the amount of education and firm innovation (e.g., Bantel & Jackson, 1989; Wiersema & Bantel, 1992). With respect to the type of education, much has been learned about the meaningfulness of CEOs with management education. Specifically, prior work has found that CEOs with a masters degree in business administration (MBA) were more likely to engage in diversification acquisitions (Bertrand & Schoar, 2003) and generate higher profits (Hambrick, Black, & Fredrickson, 1992) than CEOs without an MBA. Despite finding a non-significant main effect, Patzelt (2010) found that CEOs with management education received more VC funding than firms with non-management educated CEOs, though this was only the case for funding agencies with large TMTs.

With respect to alternative performance measures, conflicting results have been found. Slater and Dixon-Fowler (2010) found that corporate environmental performance (e.g., pollution prevention, use of clean energy and recycled materials) was higher for firms led by an MBA-holding CEO than for firms led by a CEO without an MBA degree. Conversely, using the strengths categories in the KLD database to measure CSP, Manner (2010) found that CSP was positively (negatively) related to a firm's CEO holding a bachelor's degree in the humanities (economics).

Biodemographic Characteristics

Though not expressly mentioned by Finkelstein et al. (2009), biodemographic variables (e.g., age) were included in the original UE perspective (Hambrick & Mason, 1984). As a result, they are reviewed briefly here.

Age

The most commonly researched biodemographic variable among CEO samples is that of age. For example, in a study that indirectly examined the influence of executive age, Hambrick and Fukutomi (1991) examined the relationship between a CEO's tenure and behaviors while in office. These authors suggested the existence of five 'seasons' through which CEOs progress – assuming they remain with a focal firm for a sufficient period of time – with each season characterized by varying levels of five characteristics: commitment to a paradigm, task knowledge, information diversity, task interest, and power. For example, during the first season, (i.e., 'Response to Mandate'), new CEOs have a moderate adherence to their management paradigm of choice, low task knowledge, use multiple sources of information (i.e., high information diversity), have a high task interest, and low power. In the third season (i.e., 'Selection of an Enduring Theme'), the now moderately-tenured CEO has a similar paradigm commitment, high task knowledge, uses fewer sources of information, and has a higher task knowledge and level of power. In the final season, (i.e., 'Dysfunction'), CEOs have a very strong paradigm commitment coupled with high task knowledge and power, use few sources of information, and have a diminishing task interest. Because age increases with tenure, we can expect older CEOs to occupy the later seasons discussed by Hambrick and Fukutomi (1991). This suggests that as CEOs age, different patterns of behavior (and firm performance, as a result) can be expected.

Several researchers have examined the relationship between CEO age and firm performance, and have discovered a complex relationship. Specifically, McClelland et al. (2012) found CEO ownership (i.e., proportion of common stock owned by the CEO)

moderated the curvilinear relationship between CEO age and firm performance. For high levels of CEO ownership, the curvilinear relationship was an inverted-U, while for low levels of CEO ownership a U-shaped relationship was observed. Using a sample of German business owners, Gielnik, Zacher, and Frese (2012) found a negative relationship between age and performance (i.e., firm growth). Additionally, these authors found that a focus on opportunities (i.e., focus on future business opportunities and goals) mediated this relationship. Further, in a sample of U.S. firms, Yang, Zimmerman, and Jiang (2011) found CEO age was positively related to a new firm's time to IPO.

Others have established that CEO age is positively related to CSQ (McClelland et al., 2010) and holds a nonlinear relationship with both takeover resistance (Buchholtz & Ribbens, 1994) and post-acquisition CEO departure (Buchholtz, Ribbens, & Houle, 2003). Finally, and with respect to a succession event, Datta and Rajagopalan (1998) found that industry characteristics (i.e., growth rate) were negatively related to the age of the CEO successor.

Sex[6]

Though less frequently studied, CEO sex has been explored previously by Davis, Babakus, Englis, and Pett (2010) who found that, relative to firms led by male CEOs, firms with female CEOs had a stronger market orientation (i.e., focus on client and market demands) that was subsequently related to increased market (i.e., growth) and financial (i.e., profitability) performance.

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[6] The terms 'sex' and 'gender' have been used interchangeably throughout the diversity literatures. Because it is focused on executives' physiological characteristics, 'sex' is used throughout this dissertation, though it also includes prior work examining gender.

The above findings underscore the influence of the CEO's demography on firm outcomes. However, much remains to be known about these important relationships. For example, the majority of the above studies assess only one facet of demography, a practice that suggests each characteristic operates independent of the others, a suggestion that has recently been called into question (Carpenter et al., 2004). Thus, additional work is needed that examines 'bundles' of executives' demographic characteristics (Kor, 2003).

Section 2.2.2: Chief Executive Officer Power

CEO power has long been of interest to strategic management researchers, and historically the CEO has been widely considered the single most powerful individual in an organization (Daily & Johnson, 1997). Though power has previously been defined as the ability of the CEO to manage firm uncertainty (Daily & Johnson, 1997), I take a decidedly more relational approach, defining power as the ability of an executive to exert her will over others (Finkelstein, 1992; Pfeffer, 1981). Multiple attempts to empirically quantify this nebulous construct have been seen in the strategic leadership literature. French and Raven (1959) offered their typology of reward, coercive, legitimate, referent, and expert power in corporate settings decades ago. More recently, Finkelstein (1992) offered his relational, four-dimensional model of executive power. As noted elsewhere (Cannella & Shen, 2001; Combs, Ketchen, Perryman, & Donahue, 2007), the most commonly used measure of CEO power is the combination of CEO tenure, duality, and stockholdings. However, because Finkelstein's (1992) is the most comprehensive measure of executive power and incorporates the majority of prior bases of CEO power, only it is considered here.

Finkelstein's (1992) measure was originally designed to assess the power of the entire TMT, though as can be seen in Table 2.2, it has often been used to gauge CEO power exclusively. Thus, only its use to gauge *CEO power* will be considered in this section of the dissertation. As can be seen in Table 2.2, there has been a healthy interest in CEO power since Finkelstein's (1992) article. While the majority of this work has examined the main effect of power on various firm outcomes, some researchers have considered power as an intervening (i.e., moderating or mediating) variable, a practice that aligns very closely with this dissertation; both streams will be reviewed here.

Main Effects

As can be seen from Table 2.2, 31 studies have examined the main effect of CEO power on firm- and CEO-relevant outcomes. For example, Barkema and Pennings (1998) found that ownership power was positively related to CEO compensation, though others (Lambert et al., 1993; Wasserman, 2006) found the opposite (Barkema & Pennings, 1998). Others have found that structural and ownership powers influence different components of CEO compensation, such as non-financial measures of performance (Ittner et al., 1997), cash pay and stock options (Kalyta, 2009).

With respect to strategic outcomes and decision making, Buchholtz and Ribbens (1994) found that ownership power was negatively related to takeover resistance. Further, Lewellyn and Muller-Kahle (2012) discovered that expert power was related to firm specialization, while Minguez-Vera and Martin-Ugedo (2010) found CEO power was positively associated with firm risk taking. Additionally, Bigley and Wiersema (2002) found an interaction between CEO power and prior heir apparent experience that was negatively related to strategic refocusing.

Other researchers have found a positive association between CEO power and accounting fraud (Feng et al., 2011) and ingratiation toward the CEO (Park et al., 2011), and a negative relationship with CEO succession (Cannella & Shen, 2001; Pi & Lowe, 2011; Shen et al., 2010). Regarding BOD relations, Fahlenbrach et al. (2011) found that ownership power was positively associated with a former CEO being appointed to firm's BOD, while Fiegener (2005) found that BOD strategic involvement became less likely as CEO power increased.

Finally, the relationship between CEO power and firm performance has been heavily examined. Some researchers have found that CEO power is positively related to performance (Adams et al., 2005; Dowell et al., 2011; Fischer & Pollock, 2004; Liu & Jiraporn, 2010) while others have found a negative relationship between these two constructs (Daily & Dalton, 1994; Goyer & Jung, 2011; Haleblian & Finkelstein, 1993; Liu & Jiraporn, 2010). Galema et al. (2012) and Tang et al. (2011) both found that CEO power was positively related to performance variability. Finally, others have found different relationships for different kinds of CEO power. For example, Chikh and Filbien (2011) found that structural and prestige powers increased the probability of completing a questionable acquisition, while expert power decreased this likelihood.

Intervening Relationships

While the majority of CEO power studies examine power as a main effect, others take an approach similar to this dissertation by focusing on the manner in which CEO power influences existing relationships. For example, Buchholtz et al. (1998) found that expert power strengthened the relationship between CEO pay and firm performance, whereas Buyl et al. (2011) found that ownership power weakened the positive

relationship between TMT functional diversity and firm performance. Using a sample of public U.S. firms from three industries (i.e., publishing and printing, chemicals, computers) Finkelstein and D'Aveni (1994) found a negative association between CEO duality and BOD vigilance. These authors also found this relationship was strengthened as the CEO became more powerful relative to the BOD. Finally, in a study of Chinese companies, Zhang et al. (2011) found that CEO-executive demographic dissimilarity was positively related to non-CEO executive turnover. Additionally, CEO structural power strengthened this association, while CEO ownership power weakened the relationship.

While the above studies further our understanding of CEO power, the majority examine it in isolation rather than as relational power between the CEO and other firm entities. Such a practice suggests that others at the apex of the firm (i.e., the TMT and BOD) are powerless, though this is surely not the case. Further, when CEO power is considered in conjunction with another governance entity, it is most often with the BOD (e.g., Fiegener, 2005; Finkelstein & D'Aveni, 1994; Haynes & Hillman, 2010; Ittner et al., 1997; Tang et al., 2011). Indeed, the only study in Table 2.1 that considers relations between CEO power and TMT characteristics is Buyl et al. (2011). Additional work is needed to further understand the implications of CEO power, both as a solo construct as well as in conjunction with BOD and TMT characteristics.

Section 2.2.3: Top Management Team Discretion

Proposed by Hambrick and Finkelstein (1987), the concept of managerial discretion refers to an executive's "latitude of action" (p. 371) or the extent to which firm decision-making is within executives' control. Executives of some organizations have more (or less) discretion than others, and the amount of discretion afforded to a given

executive can change over time and context. Managerial discretion is said to emanate from environmental, firm, and individual factors (Finkelstein & Hambrick, 1996; Finkelstein et al., 2009; Hambrick & Finkelstein, 1987).

Regarding environmental factors, Hambrick and Finkelstein (1987) argued that greater amounts of product differentiability, market growth, and demand instability increase discretion, while increased industry structure, quasi-legal constraints (e.g., long-term contracts), and powerful outside forces (e.g., industry norms) limit executive discretion. Insofar as firm-level factors are concerned, Hambrick and Finkelstein (1987) suggested that inertial forces (e.g., firm size and age) and powerful inside forces (e.g., political climate) serve to limit discretion, while resource availability (e.g., slack resources) increase discretion. Finally, Hambrick and Finkelstein (1987) noted that characteristics of executives influence discretion. Specifically, greater aspiration levels, tolerance for ambiguity, cognitive complexity, internal locus of control (i.e., the belief that one is in control of one's life), power base, and political acumen are thought to increase discretion, while commitment (e.g., to a course of action) decreases discretion.

Since its introduction to the literature, discretion has been studied at the national (Crossland & Hambrick, 2011), industry (Hambrick & Abrahamson, 1995), firm (Finkelstein & Boyd, 1998), and individual (Carpenter & Golden, 1997) levels. Additionally, Caza (2012) provides an appendix containing 46 existing measures of the discretion construct. It is important to note that of the measures discussed by Caza (2012), only four explicitly assess discretion (i.e., Carpenter & Golden, 1997; Dickson, 1985; Finkelstein & Boyd, 1998; Hambrick & Abrahamson, 1995). Of these, all but one

(i.e., Dickson, 1985) are based on Hambrick and Finkelstein's (1987) discretion construct.

According to Finkelstein et al. (2009), managerial discretion has far-reaching implications for executives. In his update on the UE perspective, Hambrick (2007) referred to discretion as a moderator of UE predictions. Indeed, a review of the literature reveals this suggestion has been readily adopted with the general finding that executives have a stronger influence on firm actions in high discretion, relative to low discretion, environments (Finkelstein & Boyd, 1998; Finkelstein & Hambrick, 1990). For example, in their review of the executive succession literature, Hutzschenreuter, Kleindienst, and Greger (2012) discuss the consistent finding that discretion moderates the relationship between CEO succession and firm performance. Specifically, CEO succession is thought to improve firm performance, though this is only possible in high discretion environments. Similarly, Quigley and Hambrick (2012) showed that when former CEOs remain with their firm as a member of the BOD, the new CEO's discretion is reduced, constraining his ability to achieve performance gains. Others have found that discretion moderates the relationship between CEO hubris and firm risk taking (Li & Tang, 2010).

Section 2.2.4: Top Management Team Power Distribution

The previous section argues that executive characteristics should be more strongly associated with firm outcomes to the extent executives are afforded more discretion. However, this discretion is not always universally recognized. For example, in a high discretion industry, not all executives of a given TMT will have an equal opportunity to influence firm outcomes. Stated differently, executives can only take advantage of higher amounts of discretion to the extent they have the power to do so.

Whereas some have advocated for the exclusive focus on CEO power (e.g., Daily & Johnson, 1997), I believe that the power of all TMT members should be of concern in TMT-focused research. Further, while each TMT member may have a certain degree of power to influence firm processes and outcomes, Finkelstein's (1992) power construct is relational in nature. Executives do not have power in an absolute sense, but in relation to others at the top of the firm. As such, the *distribution* of power among TMT members becomes an important consideration (Hambrick, 2007).

Finkelstein (1992) serves as an illustrative example of this notion. Consistent with the UE perspective (Hambrick & Mason, 1984), he found that the proportion of executives with functional backgrounds in finance positively influence the firm's number of Standard Industrial Classification (SIC) codes (a proxy for diversification). This finding was strengthened when the power of TMT members was taken into consideration. That is, when Finkelstein (1992) incorporated the distribution of power among TMT members, his results were stronger. In this way, Finkelstein (1992) was able to empirically demonstrate not only that power differentials exist, but that they influence firm outcomes as well.

As noted in Table 2.2, only 12 studies have empirically examined power within the entire TMT. Of these, only two (Bunderson, 2003; Dunn, 2004) explicitly examined the distribution of power within the TMT. The majority of these studies examined power as a collective TMT property (Shen & Cannella, 2002). For example, in their study of restructured firms, Johnson et al. (1993) examine the proportion of outstanding firm equity (i.e., an indicator of TMT ownership power) owned by the TMT relative to the BOD. Although studies such as this give insights into the relative power of the TMT

compared to other governance entities (i.e., the CEO and BOD), they do not address the extent to which members within a TMT have disproportionate power.

Regarding the two studies that examined TMT power distribution, the findings are intriguing. In his study of *Fortune 100* consumer products companies, Bunderson (2003) averaged measures of workflow centrality (i.e., frequency of work-related interactions with other TMT members) and decision involvement (i.e., involvement in important decision making) to create a novel power centralization metric. Bunderson's (2003) results suggested that executive functional experience was positively related to decision involvement in decentralized teams and not related when power was centralized. He also found that functional background similarity was positively related to decision involvement in centralized teams and negatively related to decision involvement when power was decentralized.

In the other study, Dunn (2004) unearthed a relationship between power centralization and fraudulent behaviors. Specifically, using a sample of 103 firms that had engaged in financial statement fraud, he found firms with concentrated structural (i.e., number of inside directors) and ownership (i.e., number of TMT-owned shares relative to BOD-owned shares) powers were more likely to engage in fraudulent behavior than firms with decentralized power.

Though not based on the Finkelstein (1992) model of power, a study by Smith, Houghton, Hood, and Ryman (2006) provides an additional example. Studying the hospitality industry, these authors found that power inequality was positively associated with two measures of firm performance (i.e., operating margin and revenue per bed). In a set of subsequent analyses, they found that larger power distances – when the two most

powerful managers were far more powerful than the remaining TMT members – were associated with better firm performance.

Taken together, the above studies illustrate the value TMT power distribution holds for future TMT-focused research. Given the significant findings discussed above, it is curious that so few studies have answered repeated calls for additional research that probes the influence of TMT power distribution (Finkelstein & Hambrick, 1996; Finkelstein et al., 2009; Hambrick, 2007; Smith et al., 2006). As a result, additional work that incorporates the distribution of power within the TMT appears needed.

Section 2.2.5: Firm Performance

Firm performance is perhaps the single most studied construct in the strategic management literature (Combs, Crook, & Shook, 2005; Venkatraman & Ramanujam, 1986). The literature is full of broad operationalizations and a staggering number of performance measures (see Table 2 of Combs et al., 2005, p. 269) As such, selection of the appropriate performance measure(s) is critical for researchers. Combs et al. (2005) delineated three dimensions of firm performance: accounting returns (e.g., ROA, ROS), stock market (e.g., stock returns, Tobin's Q), and growth (e.g., sales, profit), noting that they "have the strongest empirical case that within-dimension measures converge and that between-dimension measures discriminate" (p. 274).

In total, 44 of the studies contained in Tables 2.1 and 2.2 above assessed firm performance in some way. Of these, only Liu et al.(2012) used number of new patents, a dimension of *operational* performance (Combs et al., 2005). The remaining 43 studies used one or more dimensions of *organizational* performance as classified by Combs et al. (2005). Not all dimensions of organizational performance were equally represented,

however. Instead, three dimensions emerged as most popular: Accounting Returns (e.g., ROA, ROS), Stock Market (e.g., stock returns, Tobin's Q), and Growth (e.g., sales growth, profit growth). ROA was the single most commonly used measure of firm performance. Finally, potentially reflecting the prior argument that firm performance is a multidimensional construct (Combs et al., 2005; Venkatraman & Ramanujam, 1986), the majority (68%) of the studies in Tables 2.1 and 2.2 utilized multiple measures of performance.

Section 2.2.6: Top Management Team Turnover

The relationship between team TMT heterogeneity and turnover has been of interest to researchers for more than two decades. For example, in one of the first studies to empirically study this relationship, Jackson et al. (1991) examined turnover at both the individual (i.e., a single executive) and team (i.e., TMT) levels. Combining the ASA model (Schneider, 1987) and organizational demography (Pfeffer, 1983), these authors found that TMT heterogeneity (i.e., age, outside industry experience, education) predicted TMT turnover. At the individual level of analysis, Jackson et al. (1991) found that executives who were dissimilar to other TMT members were more likely to turnover than those who were similar to other TMT members (also see Boone et al., 2004). Shortly after Jackson et al.'s (1991) study, Wiersema and Bird (1993) produced similar results using a sample of 40 Japanese TMTs. these authors found that, controlling for TMT member age, heterogeneity with respect to age, TMT tenure, and educational prestige were positively related with turnover in the TMT.

In their study of mergers and acquisitions, Lubatkin, Schweiger, and Weber (1999) found turnover among acquired executives (i.e., TMT members of the firm that

was acquired) was positively related to perceived cultural distance between acquiring and acquired TMTs and the degree decision making authority was removed from the acquired TMT. In their subsequent meta-analysis, Butler, Perryman, and Ranft (2012) found turnover among acquired TMT members was negatively related to post-acquisition firm performance. Also at the firm-level of analysis, Messersmith, Guthrie, Ji, and Lee (2011) focused on the relationship between executive pay dispersion and turnover. These authors found that pay dispersion in general as well as the specific compensation and incentives a focal executive earns relative to other TMT members influenced the likelihood of TMT member exit.

Taking a different approach, Wiersema and Bantel (1993) argued that environmental characteristics would influence TMT turnover. They found that environmental instability (i.e., change in size and number of intra-industry competitors) and complexity (i.e., product heterogeneity) were positively related to TMT turnover while environmental munificence (i.e., sales growth) was negatively related to TMT turnover.

Taking the above studies together, the correlates of TMT member turnover are multilevel in nature. Industry- (e.g., environmental munificence), firm- (e.g., pay dispersion) and team-level (e.g., demographic heterogeneity) factors influence the likelihood a given TMT member will exit the firm. While much has been learned regarding executive turnover, at least two important gaps in the literature remain. First, while sophisticated statistical techniques such as meta-analysis (Butler et al., 2012) and HLM (Messersmith et al., 2011) were used in some circumstances, the majority of the above studies used either cross-sectional or pooled samples. As a result, longitudinal

research is needed to determine whether a) environmental-, firm-, and team-level constructs predict TMT turnover, b) TMT turnover predicts environment-, firm-, and team-level constructs, or c) whether reciprocal relationships exists between these concepts.

Second, as called for previously in the governance literature (e.g., Lawrence, 1997), several of the above studies included intervening (i.e., mediator, moderator) variables in their analyses. Unfortunately, due to non-significant findings, the implications of these intervening variables remain unclear. For example, Jackson et al. (1991) suggested subgroup status (i.e., elite v. non-elite subgroup) would moderate the relationship between TMT heterogeneity and turnover, but the hypothesized interactions were not significant. Similarly, Boone et al. (2004) examined four potential moderators for the relationship between demographic distance and TMT turnover, but found empirical support for only one (i.e., firm diversification). As a result, additional research that considers alternative moderators and/or mediators of the TMT heterogeneity – TMT turnover relationship appears warranted.

This dissertation makes several contributes to the strategic leadership literature. First, because it examines the interplay among a variety of diversity types, this dissertation illustrates how multiple types of diversity combine to influence certain team- and firm-level outcomes (Daboub et al., 1995; Finkelstein et al., 2009). Second, responding to prior studies (e.g., Certo et al., 2006), this dissertation examines the influence of a precursor (i.e., CEO characteristics) on TMT heterogeneity. Third, by incorporating two intervening variables specifically identified in prior work (i.e., managerial discretion, TMT power distribution; Hambrick, 2007), this dissertation

investigates the mechanisms underlying the influence of heterogeneity on organizational outcomes, thereby responding to prior critiques of this nature (e.g., Lawrence, 1997).

Fourth, this dissertation extends prior work by questioning two competing assumptions – that power resides only with the CEO (as is the case when only CEO power is examined) and power is equally distributed throughout the TMT. Fifth, this dissertation reviews prior work using the Finkelstein (1992) model of TMT power. Finally, responding to prior calls for a longitudinal approach to TMT heterogeneity (Beckman & Burton, 2011), this dissertation explores these relationships as they unfold over time.

Chapter 3

Dissertation Hypotheses

This chapter develops the primary hypotheses of interest in this dissertation. Several specify longitudinal relationships and have been divided into separate hypotheses. For example, Hypothesis 2 specifies a positive relationship between job-related TMT heterogeneity and firm performance over time. To clarify the nature of this relationship, this hypothesis has been split such that Hypothesis 2a focuses on the direction of the relationship (i.e., positive) and Hypothesis 2b focuses on the longitudinal nature of the relationship (i.e., the relationship increases at a decreasing rate over time).

Section 3.1: Dissertation Hypotheses

Chief Executive Officer Characteristics and Top Management Team Heterogeneity

In their recent book, Finkelstein et al. (2009) discussed a variety of antecedents to TMT characteristics; however, the focus of this dissertation is on the relationship between the CEO and TMT. Accordingly, only the CEO-level determinants of TMT characteristics are reviewed. Prior to Finkelstein et al. (2009), work by Zajac and Westphal (Westphal & Zajac, 1995; Zajac & Westphal, 1996) suggested the presence of CEO effects with respect to the formation of important coalitions in a firm. These authors found CEOs attempt to appoint BOD members who are demographically similar to themselves (Westphal & Zajac, 1995) and outgoing CEOs attempt to name successors who are demographically similar to themselves (Zajac & Westphal, 1996). By appointing demographically similar BOD members, CEOs can minimize dissention among Directors, thereby increasing CEO power relative to the BOD. Similarly, outgoing CEOs

attempt to appoint demographically similar successors because such successors are less likely to make substantive strategic changes upon assuming their role.

The above studies suggest that CEOs are motivated to appoint executives who are demographically similar to themselves. However, I argue that different motivations exist for certain groups of executives. Because they are responsible for monitoring and at times controlling the CEO actions, BOD members can constrain CEO behaviors. As a result, CEOs are motivated to increase their power relative to the BOD, as this decreases BOD monitoring and control and increases CEO autonomy. The studies by Westphal and Zajac (Westphal & Zajac, 1995; Zajac & Westphal, 1996) suggest one way to gain control over the BOD is to increase its demographic similarity to the CEO.

Because the CEO is often considered the most powerful member of the TMT (Finkelstein, 1992; Finkelstein et al., 2009), when it comes to this group of executives CEO motivation may change from power centralization to information processing. Because information acquisition and use can lead to superior firm performance (Thomas, Clark, & Gioia, 1993), CEOs should be motivated to increase the amount and type of information used during strategic decision making. Others have argued that one way to increase the amount of information in a group is to increase the group's diversity (Cox & Blake, 1991; Williams & O'Reilly, 1998). Thus, whereas CEOs are motivated to increase demographic *homogeneity* among BOD members, at the same time they should be motivated to increase the demographic *heterogeneity* among TMT members.

Executives scan for, interpret, and learn from environmental information prior to making strategic decisions (Daft & Weick, 1984). Thomas et al. (1993) argued that executives who use more information when making strategic decisions tend to interpret

strategic issues in a positive frame, which has positive repercussions for firm performance. To the extent CEOs appoint demographically similar TMT members, they restrict the unique sources of information available for strategic decisions. On the other hand, Williams and O'Reilly (1998) suggest demographically diverse individuals have access to unique sources of information and other resources. Because unique sources of information help reduce dependencies on the environment as well as environmental uncertainty, they should be of value to CEOs (Pfeffer & Salancik, 1978).

Combining the above arguments suggests CEOs should be motivated to appoint demographically diverse TMT members. That is, CEOs should look for potential TMT members who have demographic characteristics different from their own. Diverse TMT members are likely to have access to unique information resources that, when combined during strategic decision making, allow for a more exhaustive search for decision alternatives. In turn, this increases the likelihood of the CEO making an optimal decision. Stated formally:

Hypothesis 1: CEOs will try to appoint people demographically different from themselves to their TMTs.

Top Management Team Heterogeneity and Firm Performance

In introducing the UE perspective, Hambrick and Mason (1984) argued that executive characteristics should be related to firm outcomes. As a result, much subsequent research has attempted to better understand the relationship between a focal executive's – often the CEO – characteristics and firm outcomes. However, others have suggested that an exclusive focus on a single executive may be ill advised. Specifically, as applied to TMTs, organizational (Pfeffer, 1983) and relational demography (Tsui & O'Reilly, 1989) imply the composition of the entire TMT has implications for firm

outcomes. Because the TMT is the strategic planning and information processing hub of a firm , it is there that the primary scanning for, interpretation of, and learning from environmental information occurs (Daft & Weick, 1984). To the extent TMTs and CEOs scan for and interpret more environmental information, situations tend to be seen in a more controllable light.

Synthesizing the above perspectives gives rise to the understanding that increasing a TMT's ability to scan, learn from, and enact environmental information should benefit the firm. Those responsible for the selection of TMT members (i.e., the CEO) should be motivated to maximize the TMT's ability to obtain environmentally-relevant information and one avenue to achieve this goal is job-related TMT heterogeneity. Prior work supports this logic. Auh and Menguc (2006) considered TMT diversity (i.e., experience and functional) as the explanatory mechanism in the relationship between customer orientation and firm performance. Using a sample of SBU TMTs, these authors found that at low (high) levels of TMT experience diversity, TMT functional diversity negatively (positively) moderated the relationship between customer orientation and firm performance. Elsewhere, Patzelt et al. (2008) found that founder-based firm-specific experience of TMT members was differentially related to firm performance depending on the strategy pursued. For firms developing pharmaceutical medications this relationship was negative, whereas the relationship was positive for firms developing platform technologies (i.e., firms that sell their technologies and/or provide services to other firms).

Cannella et al. (2008) explored the relationship between TMT functional diversity and firm performance as well as the moderating influences of TMT member collocation

(i.e., working in the same physical location) and environmental uncertainty. These authors found TMT functional diversity was positively related to firm performance, and that this relationship was strengthened when TMT members are collocated and as environmental uncertainty increased. Finally, in their review, Carpenter et al. (2004) discussed a series of studies which link TMT heterogeneity to both firm actions (Eisenhardt & Schoonhoven, 1996; Ferrier, 2001; Tihanyi et al., 2000) and performance (Carpenter, Sanders, & Gregersen, 2001; Kor, 2003).

To the extent a CEO increases the job-related heterogeneity of the TMT by appointing diverse individuals, she can ensure a wider array of information available to the TMT. Firm performance should increase as a result of the increased heterogeneity of the TMT. However, simply having job-related TMT heterogeneity may not be sufficient. A CEO may succeed in creating a heterogeneous TMT, but if he does not adequately process and interpret the information passed on from the TMT members, the firm will fail to benefit from this diversity. As a result, while increased job-related TMT heterogeneity is generally expected to increase performance over time, this relationship should vary between firms based on the ability to utilize the TMT's information.

Hypothesis 2a: Job-related TMT heterogeneity is positively related to firm performance.

As with job-related heterogeneity, biodemographic heterogeneity in the TMT should increase firm performance. Prior work has found that increasing scanning for and interpretation of environmental information has positive implications for firm performance (Thomas et al., 1993). By increasing the biodemographic heterogeneity of the TMT, a CEO may increase the amount of information used when making strategic decisions, thereby improving firm performance.

Studies examining the link between biodemographic diversity and performance at the TMT level are rare (Jackson & Joshi, 2011). Dezso and Ross (2012) hypothesized that female TMT members bring informational and social diversity which benefit TMT behaviors and firm performance. Using a sample of *S&P 1500* firms, these authors found support for their hypotheses for firms with a strategic focus on innovation. Using similar logic and a sample of *Fortune* magazine's list of best companies for minorities, Roberson and Park (2007) found that a firm's diversity reputation and leader racial diversity were related to firm performance. Diversity reputation was negatively related to book-to-market equity (indicating a higher firm value), whereas leader racial diversity displayed a U-shaped relationship with revenues, net income, and book-to-market equity. In sum, firms that increase biodemographic TMT heterogeneity and have the requisite structure in place to benefit from this diversity should realize performance gains relative to competitors who do not increase biodemographic TMT heterogeneity.

Hypothesis 3a: Biodemographic TMT heterogeneity is positively related to firm performance.

The longer a group of executives works together, the more homogenizing forces may weaken the benefits of initial TMT heterogeneity (both job-related and biodemographic) on firm performance. Carpenter (2002) suggested that over time, executives become socialized into the firm and TMT. Similarly, Bantel and Jackson (1989) noted the longer TMT members work together, commitment to the firm's status quo and aversion to risk increases, which results in resistance toward innovation and change.

In their study focusing on CEOs, Hambrick and Fukutomi (1991) argued that the longer a CEO remains with a firm, the more she becomes committed to chosen course(s)

of action, uses fewer sources of information to make decisions, and has increased power. Applied to the whole TMT, Hambrick and Fukutomi's (1991) study suggests that over time TMTs will become entrenched in their decision making routines and less open to alternative views. Thus, over time TMTs may begin to exhibit signs of groupthink (Hambrick, 1995; Janis, 1972) and a strengthened commitment to the status quo (Finkelstein & Hambrick, 1996; Finkelstein et al., 2009; Hambrick & Fukutomi, 1991).

Prior work has found that resistance to innovation and change (Bell et al., 2011; Carpenter, 2002) and commitment to the status quo (McClelland et al., 2010) can have negative implications for firm performance. Taken together, the above results suggest that TMT heterogeneity is expected to have positive implications for firm performance over time. However, over time executives are likely to become increasingly like-minded, decreasing the positive effects of heterogeneity on firm performance.

Hypothesis 2b: The positive relationship between job-related TMT heterogeneity and firm performance will be nonlinear; it will increase at a decreasing rate over time.

Hypothesis 3b: The positive relationship between biodemographic TMT heterogeneity and firm performance will be nonlinear; it will increase at a decreasing rate over time.

Top Management Team Heterogeneity and Turnover

While TMT heterogeneity is expected to have a beneficial influence on firm performance, the same is not the case for TMT turnover. As suggested by Byrne (1971), individuals are attracted to similar others. Further, Tajfel and colleagues (Tajfel & Turner, 1986; Turner, 1985) argue that demographic characteristics are salient and often used to determine group membership. Additional work suggests that potential executives are likely to be attracted to and selected into firms that have existing TMT members who are demographically similar to themselves (Schneider, 1983). Further, when

demographically dissimilar executives are brought into the TMT they are at an increased likelihood of exiting the firm. Taken together, these perspectives suggest that dissimilar executives are less likely to fit into an established TMT. As a result, these individuals are more likely to exit the firm (Finkelstein & Hambrick, 1996; Finkelstein et al., 2009). Thus, heterogeneous TMTs should experience more turnover relative to their homogeneous counterparts.

Several authors have applied the foregoing logic to the study of job-related TMT heterogeneity. For example, using a sample of the 1976 *Fortune 500* firms, Wagner, Pfeffer, and O'Reilly (1984) found that tenure heterogeneity was positively related to TMT turnover. In a similar organizational demography-based study that used a sample of Japanese TMTs, Wiersema and Bird (1993) found that heterogeneity with respect to TMT tenure and university prestige were all positively related to turnover for TMT members younger than 65 years of age (i.e., those who left for reasons other than retirement).

Similarly, using a sample of Dutch newspaper companies, Boone et al. (2004) found that executives who were dissimilar with respect to career path (a measure of firm tenure), industry experience, and level of education were the first to turnover during conditions of poor performance. In a study merging the ASA model (Schneider, 1987) and organizational demography (Pfeffer, 1983), Jackson et al. (1991) suggested either theory would predict increased turnover among diverse TMT members. Using a sample of TMTs from the banking industry, these authors found TMT members who were diverse vis-à-vis level of education, amount of business education, and experience

outside the finance industry were more likely to turnover than executives similar on these characteristics.

While a generally positive relationship between job-related TMT heterogeneity and turnover over time is anticipated, the degree this is true for any given firm is expected to vary. That is, some firms may proactively recognize that diversity carries with it inherent challenges and may therefore institute practices and/or policies that entice executives to remain (e.g., above-market compensation, inclusion and involvement in firm decision making). Thus, different patterns within the job-related TMT heterogeneity – TMT turnover relationship are expected for firms that do or do not take such proactive measures to prevent TMT turnover.

Hypothesis 4a: Job-related TMT heterogeneity is positively related to TMT turnover.

Above I argued that the strength of the relationship between initial job-related TMT heterogeneity and firm performance was expected to fade over time. In their paper, Hambrick and Fukutomi (1991) noted that over time CEOs become resistant to innovation and more committed to their method of decision making. This notion may apply to other executives, suggesting that the same processes may apply to both CEO and non-CEO TMT members over time. The longer TMT members work together, the more likely they are to begin to think like other TMT members (Keck, 1997). Thus, those who are appointed for their unique characteristics (e.g., outside industry experience, strategic initiative experience) are likely to become socialized to their TMT's norms, customs, and so on. As this happens, the emphasis on their unique set of experiences should begin to decline, and they should be less likely to turnover (Byrne, 1971; Schneider, 1987).

Hypothesis 4b: Over time, job-related TMT heterogeneity and TMT turnover will have a nonlinear (i.e., inverse U-shaped) relationship. The positive relationship between job-related TMT heterogeneity and TMT turnover will become negative over time.

In addition to job-related heterogeneity, biodemographic heterogeneity among TMT members is expected to increase TMT turnover. Executives who are demographically dissimilar to other TMT members are more likely to turnover than are executives who are demographically similar to other TMT members (Jackson & Joshi, 2011). Several studies support the above rationale, finding that age heterogeneity (one dimension of biodemographic heterogeneity) is positively related to turnover within the TMT (Boone et al., 2004; Wagner et al., 1984; Wiersema & Bird, 1993).

As before, while a generally positive relationship between biodemographic TMT heterogeneity and TMT turnover is hypothesized, the extent of the relationship is expected to vary between firms. For example, this relationship may be weaker in firms that value and make use of diversity in the executive suite. That heterogeneity is positively related to turnover can be challenging for firms. Some firms may proactively attempt to meet these challenges head on. For example, a given firm might create incentives for increasing diversity or institute a diversity awareness program. Many such programs are directed toward observable forms of heterogeneity (i.e., biodemographic) and can signal the importance of diversity. Firms such as these may experience lower turnover – throughout the firm in general and in the TMT in particular – than firms deciding not to engage in such practices. As such, the relationship between biodemographic TMT heterogeneity and TMT turnover is expected to vary by firm.

Hypothesis 5a: Biodemographic TMT heterogeneity is positively related to TMT turnover.

Whereas job-related characteristics may become assimilated over time for TMT members, the same cannot be said for biodemographic characteristics, as these are unvarying. Initially, individuals are sought out for TMT positions because they are diverse with respect to a variety of characteristics (e.g., age, gender) and presumably bring with them different information-gathering methods and perspectives (Cox & Blake, 1991; Williams & O'Reilly, 1998). However, over time the uniqueness of a TMT member's biodemographic characteristics may also serve as a source of tension within the TMT (Tajfel & Turner, 1986; Turner, 1985).

To the extent a focal TMT member maintains his dissimilarity from the rest of the team for an extended period of time, he spends 'idiosyncrasy credits' and ultimately will have less latitude in deviating from group norms (Hollander, 1958; Munyon, Summers, Buckley, Ranft, & Ferris, 2010). Diverse TMT members may become increasingly marginalized from the rest of the TMT. As a result, over time biodemographically diverse executives should increasingly feel the need to exit the team. This suggests that over time the relationship between biodemographic heterogeneity and TMT turnover should be positive.

Over time this relationship can be expected to change. As mentioned earlier, TMTs are not currently as diverse as the firms they lead (Powell & Butterfield, 1994, 1997). However, as a result of internal promotions, external hires, or both, increased workforce diversity will eventually reach firms' upper levels of management (Schneider, 1983, 1987). Consequently, over time TMTs can be expected to become increasingly diverse. Similarly, the attitudes and values TMTs have toward diversity will likely become more agreeable over time, in part as a result of the increased diversity in the

TMT. In such situations the relationship between heterogeneity and turnover should become negative. In other words, as TMTs become more heterogeneous, diverse executives may be *less* likely to exit the firm (Schneider, 1983).

Combining the above arguments suggests that over time biodemographic heterogeneity will be positively related to TMT turnover (Munyon et al., 2010; Tajfel & Turner, 1986). However, at a certain point (i.e., when the TMT becomes highly diverse), TMT heterogeneity will become a source of attraction to diverse executives who, upon entry into the TMT will be less likely to leave later on. This indicates that the relationship between biodemographic heterogeneity and TMT turnover will become negative. As a result, over time the relationship between biodemographic heterogeneity and TMT turnover will resemble an inverse U. Specifically, at low and high amounts of biodemographic heterogeneity executive turnover will be minimal; however, under moderate amounts of biodemographic heterogeneity executive turnover will peak. Formally,

Hypothesis 5b: Over time, biodemographic TMT heterogeneity and TMT turnover will have a nonlinear (i.e., inverse U-shaped) relationship. The positive relationship between biodemographic TMT heterogeneity and TMT turnover will become negative over time.

The Moderating Roles of Top Management Team Discretion and Power Distribution

The concept of executive power (e.g., Finkelstein, 1992) is of critical importance to the study of TMTs, though such studies are rare (Finkelstein et al., 2009). This is curious given that four decades ago Child (1972) suggested powerful managers are likely to have the greatest impact on strategic choices. The primary concern with studies that ignore power imbalances is the questionable assumption that all executives have an equal say in strategic decision making (e.g., Cannella & Holcomb, 2005; Finkelstein, 1992).

Power distribution is important for strategic leadership research due to its consequences for established relationships. Eisenhardt and Bourgeois (1988) noted that power centralization increases the use of politics among top executives, which can prompt the formation of alliances and negatively influence firm performance. Similarly, Peterson (1997) found that leaders who focus on process and encourage discussion of all possible decision alternatives can improve group decision making processes and outcomes. On the other hand, leaders who focus highly on outcomes and advocate for their solution over others' can harm both group decision making processes and outcomes. Peterson's (1998) process and outcome directive leader classification corresponds to balanced and uneven distributions of power (see Finkelstein, 1992), respectively.

Additional support comes from the Resource-Based View (RBV) (Barney, 1991) of the firm which suggests that firms can increase performance by utilizing valuable, rare, inimitable, and non-substitutable resources. A variety of resources have been examined previously, including human capital (e.g., relationships of individual managers; Barney, 1991), knowledge-based (i.e., employees' unique skill sets; Miller & Shamsie, 1996), and human (e.g.,the combination of human capital and knowledge-based resources; Barney & Wright, 1998) resources. These have the potential to create a sustained competitive advantage for firms to the extent they meet the original criteria and are organizationally useful (Shook, Adams, Ketchen, & Craighead, 2009). In other words, firms must have systems and practices in place to leverage their human resources (Barney & Wright, 1998; Black & Boal, 1994).

Empirical results support the logic that the distribution of power among TMT members has implications for previously established relationships. Using a sample of

Dutch and Belgian IT firms, Buyl et al. (2011) found that TMT functional diversity was positively associated with firm performance. Additionally, this relationship was strengthened when the CEO was not the firm founder and had shared experience with other TMT members. When the CEO was not dominant (i.e., power was shared) functional heterogeneity was more strongly related to firm performance. Focusing on BODs, Haynes and Hillman (2010) found that CEO power altered the relationship between BOD capital (i.e., the combination of occupational, functional, and interlock heterogeneities) and strategic change. This relationship weakened as CEO power increased.

Finkelstein (1992) examined relations of the proportion of TMT members with a functional background in finance with firm diversification posture and acquisition activity. Using a sample of U.S. firms, Finkelstein (1992) showed that the unweighted proportion of finance executives was marginally related to one firm outcome (i.e., diversification posture). However, after incorporating the relative power of each TMT member, the proportions were positively related to both diversification posture and a measure of acquisition activity (i.e., cost of acquisitions). He concluded executives influence strategic outcomes only to the extent they have power. Similarly, in their study O'Reilly et al. (1993) concluded that poor TMT dynamics were related to political infighting which has the potential to detract from effective TMT functioning.

A more straightforward example can be found in a study by Pitcher and Smith (2001). They examined the composition of TMTs with respect to tenure and personality. Using the coefficient of variation, these authors considered the tenure composition of two TMTs. The first TMT had a tenure coefficient of .87, indicating substantial

heterogeneity; the second team had a coefficient of .89. However, after using a power weighting scheme developed by Finkelstein (1988), Pitcher and Smith (2001) found the coefficient for the second TMT reduced to .50 (the coefficient did not change appreciably for the first TMT). This occurred because power was evenly distributed in the first TMT but not the second. As a result, the influence of tenure heterogeneity on firm outcomes (i.e., innovation, diversification, performance) was reduced for the second TMT.

Using an RBV-based argument, Richard (2000) argued that diversity (specifically racial diversity) should be positively related to firm performance. Using a sample from the banking industry, Richard (2000) found no main effect of diversity on performance, but the interaction between racial diversity and business strategy was significant. Specifically, diversity was more positively associated with performance for firms with a growth strategy than firms with non-growth strategies. While Richard (2000) made no mention of diversity being organizationally mobilized, it may be the case that firms with growth strategies have the requisite systems and/or practices necessary to leverage diversity. In other words, firms pursuing growth strategies may be able to trigger the benefits of diversity, while firms without such a strategy may not.

In this dissertation, I argue that relative power distribution may sway the benefits of TMT heterogeneity. Finkelstein (1992) argued that TMT heterogeneity should have a stronger relationship with firm performance when the relative distribution of power is taken into account. Finkelstein (1992) noted that when CEOs control a disproportionate amount of power (i.e., power is unequally distributed), consideration of the CEO is appropriate, as no other TMT member has the ability to influence firm outcomes. Unequal power can stem from a stronger (or weaker) presence of one or more of

Finkelstein's (1992) power dimensions. However, when power is evenly distributed among TMT members (i.e., when a CEO does not dominate other executives), a focus on all members is appropriate as each may contribute to firm outcomes.

From an RBV perspective, certain distributions of power (i.e., balanced power distribution) may allow TMT heterogeneity to function while other distributions (i.e., uneven power distribution) constrain it. Stated differently, an equal distribution of power may be the framework required for firms to leverage and benefit from TMT heterogeneity. Additionally, the distribution of power among TMT members is another way to describe its internal context. Similar to Cannella et al. (2008), an uneven distribution of power may block the benefits of TMT heterogeneity and exacerbate its difficulties. Conversely, a balanced distribution of power (similar to geographic closeness) may have the opposite result. Because firms must have the proper infrastructure to benefit from TMT heterogeneity (Barney & Wright, 1998), the *distribution* of power becomes meaningful for such hypotheses. Thus, given the above findings, it is hypothesized that the benefits of TMT heterogeneity (e.g., access to unique stores of information, more exhaustive search for alternative decisions, etc.) are more likely to be realized to the extent a balanced distribution of power exists within the TMT. Stated formally:

Hypothesis 6: TMT power distribution will moderate the relationship between job-related TMT heterogeneity and firm performance. The relationship between job-related TMT heterogeneity and firm performance will be stronger for balanced power distributions.

Hypothesis 7: TMT power distribution will moderate the relationship between biodemographic TMT heterogeneity and firm performance. The relationship between biodemographic TMT heterogeneity and firm performance will be stronger for balanced power distributions.

In addition to the relationship between TMT heterogeneity and firm performance, TMT power distribution is also expected to influence the relationship between TMT heterogeneity and turnover. As discussed previously, both theory and empirical results suggest that groups of people tend to become homogeneous over time. Applied to TMTs, the similarity-attraction phenomenon (Byrne, 1971) and the ASA model (Schneider, 1983, 1987) suggest that demographic dissimilarity among TMT members is likely to result in turnover. Additionally, prior work suggests that CEOs strive to nominate demographically similar BOD members (Westphal & Zajac, 1995) and successors (Zajac & Westphal, 1996), thereby increasing the homogeneity of the firm's apex.

Also of note in the studies by Westphal and Zajac was the focus on CEO power. Both studies found CEOs were better able to homogenize the upper echelon when they had more power. Because executives are attracted to demographically similar others (Byrne, 1971; Schneider, 1983), it seems likely that dissimilar others are at an increased likelihood to exit the TMT, and this is especially so when these executives (i.e., those who are dissimilar) are less powerful than their colleagues.

Additional work by Roberto (2003) is instructive. In his study, Roberto (2003) argued that CEOs rely on some TMT members more than others. Presumably, those executives who are routinely called upon for counsel have more power than those who are rarely involved in decision making. Mooney and Amason (2011) found that while the whole TMT may be heterogeneous, the CEO's inner circle is not. Rather, to minimize the costs associated with diversity (e.g., increased conflict), the CEO's inner circle is likely to include executives who are demographically similar to the CEO. Additional work

suggests that individuals who are not in the in group are at an increased likelihood to turnover (Henderson, Liden, Glibkowski, & Chaudhry, 2009).

Combining the above arguments suggests that uneven distributions of power in the TMT may coincide with membership in either the CEO's in group or the out group. That is, executives with disproportionate amounts of power may all reside in the CEO's inner circle, while those without power are relegated to the out group. Also, as discussed above, the CEO's inner circle is often comprised of executives who are demographically similar to the CEO (Mooney & Amason, 2011). Thus, demographically dissimilar executives who are already at an increased likelihood to turnover (Byrne, 1971; Schneider, 1983) appear to be even more likely to turnover because they are not included in the CEO's inner circle. That is, because they have less power.

On the other hand, to the extent a balanced distribution of power exists in the TMT, the above dysfunctional dynamics are less likely to exist. A balanced distribution of power may suggest that either the CEO has no inner circle (an unlikely situation), or that the inner circle is made up of a more diverse group of executives than might otherwise be the case. Inclusion of more diverse executives in strategic decision making might indicate a firm's value of diversity and the CEO's desire to fully benefit from TMT heterogeneity. This, in turn, should decrease the likelihood that demographically dissimilar TMT members exit the team.

Prior work supports the above rationale. Using a sample of 2,500 executives of publicly traded firms, Messersmith et al. (2011) examined the influence of pay dispersion on executive turnover. Their results suggested that higher pay dispersion was associated with greater executive turnover. Because executive compensation is one component of

executive power (see Finkelstein, 1992), a similar result can be expected for the distribution of power among TMT members.

Similarly, using a sample of Chinese executives, Zhang et al. (2011) found that non-CEO executives were more likely to turnover when they were demographically dissimilar (i.e., older, more educated) from the CEO. These authors also discovered that CEO power (i.e., status as firm founder) positively moderated this relationship such that the relationship was stronger for more powerful CEOs. Compared to their less powerful counterparts, more powerful CEOs were able to increase the likelihood that demographically dissimilar executives left the firm.

A study by Nishii and Mayer (2009) is also supportive. These authors adopted a rationale put forth by Hollander (2009), who argued leader-subordinate relationships of high quality and low in Leader-Member Exchange (LMX) differentiation were indicative of the leader sharing power with subordinates. Using a sample of non-executive employees, Nishii and Mayer (2009) found that LMX differentiation moderated the positive relationship between heterogeneity and turnover. Specifically, when LMX differentiation was high (i.e., leaders established varying-quality relationships with subordinates), the relationship between age heterogeneity and turnover was positive. This relationship became nonsignificant when LMX differentiation was low. In addition, these authors found the relationship between tenure heterogeneity and turnover to be nonsignificant when LMX differentiation was high, but negative when LMX differentiation was low.

In a related study, Cannella and Shen (2001) explored turnover among heirs apparent (i.e., executives selected to become CEO when the current CEO retires). Using a

sample of manufacturing firms, these authors found that heir apparent power – as measured by tenure (a measure of job-related heterogeneity) – decreased the likelihood of turnover. In addition, Cannella and Shen (2001) found that under conditions of high firm performance, CEO power increased the likelihood of heir apparent turnover and decreased the likelihood of heir apparent promotion. Thus, the uneven distribution of power (i.e., when the CEO holds a large amount of power) influenced the relationship between a measure of job-related heterogeneity (i.e., tenure) and executive turnover.

Combining the above arguments and results suggests that the relationship between TMT heterogeneity and turnover will be stronger when an unbalanced power distribution exists. That is, demographically dissimilar executives are at an increased likelihood of exiting the firm relative to demographically similar executives (Byrne, 1971; Schneider, 1983, 1987; Tajfel & Turner, 1986; Turner, 1985). This effect is expected to be stronger when a small number of executives holds a disproportionate amount of power (i.e., an unbalanced power distribution exists), and strongest when the demographically dissimilar executives are not among the powerful elite. Formally:

Hypothesis 8: TMT power distribution will moderate the relationship between job-related TMT heterogeneity and TMT turnover. The relationship between job-related TMT heterogeneity and TMT turnover will be stronger for unbalanced power distributions.

Hypothesis 9: TMT power distribution will moderate the relationship between biodemographic TMT heterogeneity and TMT turnover. The relationship between biodemographic TMT heterogeneity and TMT turnover will be stronger for unbalanced power distributions.

As discussed in Chapter 1, the concept of managerial discretion (Hambrick & Finkelstein, 1987) concerns how much control managers have over their firm. Managers can be expected to have increased levels of discretion to the extent two conditions are

satisfied. There must be an absence of clear means-end linkages and there must be an absence of direct constraints (Finkelstein et al., 2009; Hambrick & Finkelstein, 1987). In other words, higher degrees of managerial discretion can be expected during times of uncertainty and when executives are not prohibited from acting to reduce this uncertainty. To that end, Hambrick and Finkelstein (1987) argued discretion is a function of the environment, firm, and individual executive[7] and, to a lesser extent, the interrelationships between these three domains.

Environmental-level Discretion

Hambrick and Finkelstein (1987) suggested a variety of factors that influence discretion at the environmental level. Product differentiability (e.g., uniqueness versus uniformity), market growth (e.g., high versus low) and demand instability (e.g., reliable versus volatile) are all thought to increase discretion. Conversely, industry structure (e.g., level of competition), quasi-legal constraints (e.g., contractual obligations), and powerful outside forces (e.g., industry norms, buyer/seller demands) all decrease discretion. As discussed by Finkelstein et al. (2009), early attempts to utilize environmental discretion relied heavily on qualitative applications of the construct. For example, Hambrick et al. (1993) selected three industries (i.e., food/beverages, computing equipment, scientific/measuring equipment) to represent high discretion environments and three industries (i.e., public utilities, natural resources, telecommunications services) to represent low discretion environments. These authors demonstrated a stronger

[7] The main existing measure of individual-level discretion (Carpenter & Golden, 1997) makes use of primary data. Due to this study's longitudinal design and resource constraints, only archival data will be used in this dissertation; as such, individual-level discretion is not considered.

relationship between executive commitment to the status quo (an executive characteristics) and firm performance in high, compared to low discretion industries.

Since the Hambrick et al. (1993) paper, two quantitative, archival-based measures of environmental discretion have surfaced in the literature. First, Haleblian and Finkelstein (1993) calculated scores for five indicators of discretion: average advertising intensity, average research and development (R&D) intensity, average annual sales growth, standard deviation of annual sales growth, and degree of regulation (i.e., percent of *Funk & Scott Predicasts* emphasizing regulatory issues). Each score was then standardized and the resulting values were summed to create an overall environmental discretion score for the various industries represented in their study.

Perhaps the most widely used measure of environmental discretion was developed by Hambrick and Abrahamson (1995). In their paper, these authors took a multifaceted approach at developing a robust measure of environmental discretion. First, Hambrick and Abrahamson (1995) asked a panel of discretion researchers to indicate how much discretion existed (using a 7-point scale) in each of the 17 industries. A similar process was conducted using a panel of security experts; the experts' ratings agreed with the researchers'. Finally, Hambrick and Abrahamson (1995) compared the expert ratings to the indicators of discretion originally hypothesized by Hambrick and Finkelstein (1987). Using data from the COMPUSTAT database, Hambrick and Abrahamson (1995) found the expert ratings were able to predict the objective archival discretion indicators. Subsequently, Hambrick and Abrahamson (1995) calculated environmental discretion ratings for an additional 53 industries (see Finkelstein et al., 2009 for a complete list).

Firm-level Discretion

With respect to firm-level discretion, Hambrick and Finkelstein (1987) explicated three determinants. Specifically, inertial forces (e.g., firm size and age) and powerful inside forces (e.g., political dynamics) are expected to minimize discretion, while resource availability (e.g., slack resources) is expected to maximize managerial discretion. While less work has been conducted that utilizes firm-level discretion than environmental-level discretion, Finkelstein and Boyd (1998) developed a quantitative, archival-based measure of the construct.

In their paper, Finkelstein and Boyd (1998) argued that firm-level discretion was a latent construct reflecting seven observable indicators: market growth, R&D intensity, advertising intensity, demand instability, capital intensity, concentration, and regulation. The results of a Confirmatory Factor Analysis (CFA) indicated that demand instability was not a significant indicator of firm-level discretion, and as a result it was removed from the model leaving six indicators. These authors went on to find a positive relationship between firm-level discretion and CEO compensation and that the relationship was stronger for high-performing firms relative to low-performing firms.

After Hambrick and Abrahamson (1995), subsequent studies have largely confirmed that executive characteristics are more strongly related to firm outcomes under conditions of high discretion (Hambrick, 2007). For example, in a recent study Hambrick and Quigley (In Press) examined the influence of U.S. CEOs on firm performance. Using a variance partitioning methodology, these authors found that CEOs influence firm performance and that discretion moderates this relationship. Specifically, CEO effects accounted for approximately 42.4 percent, 35.0 percent, and 28.3 percent of the

variability in ROA for high, medium, and low discretion industries, respectively. Thus, CEOs were able to have a stronger influence on firm performance in a high, relative to low, discretion environment.

Additionally, support for the moderating role of discretion has been found using international executives. Li and Tang (2010) found that environmental (e.g., market complexity) and organizational (e.g., intangible resources) discretion components moderated the relationship between an executive characteristic (i.e., CEO hubris) and firm risk taking. Whereas environmental components of discretion strengthened the relationship between CEO hubris and firm risk taking, the influence of organizational discretion was less straightforward. Some components of organizational discretion (e.g., R&D intensity) strengthened this relationship, while others (e.g., firm age) weakened it. In a related study using a sample of Chinese hotel managers, Yan, Chong, and Mak (2010) found a direct relationship between managerial discretion and firm performance (i.e., profitability, sales growth, and market share). These authors also found that task autonomy and management compensation partially mediated this relationship.

Using a sample of firms from the U.S. airline industry, Goll et al. (2008) found a relationship between TMT heterogeneity and business strategy (differentiation and low cost strategies and breadth of strategic scope, all of which were subsequently related to firm performance). Specifically, these authors found that TMT average age, average tenure, average education level, and functional background diversity were differentially related to business strategy. Moreover, these relationships were only significant in the deregulated airline industry (i.e., a high discretion environment; Cho & Hambrick, 2006), not in the regulated industry (i.e., a low discretion environment).

In the study by Cannella et al. (2008), the authors also found that external context moderated the relationship between TMT functional diversity and firm performance. Insofar as this study was concerned, 'external context' was operationalized as environmental uncertainty. Cannella et al. (2008) supported that the influence of TMT functional diversity on firm performance would become stronger as environmental uncertainty increased. The rationale for their hypothesis was that the diverse information obtained by heterogeneous TMTs would be of more value in highly uncertain versus highly certain environments. Thus, these authors argued that executives would have a stronger influence on firm outcomes when uncertainty existed and executives were able to act to reduce the uncertainty, two preconditions for managerial discretion (Hambrick & Finkelstein, 1987).

Finally, in the study by Haleblian and Finkelstein (1993), the authors found discretion moderated the positive (negative) influence of TMT size (CEO dominance; an uneven distribution of TMT power) on firm performance. Specifically, these authors found TMT characteristics were significantly associated with firm performance in high (i.e., computer industry) but not low discretion industries (i.e., natural gas industry). Haleblian and Finkelstein (1993) noted that when discretion is restricted (e.g., in stable environments), information processing requirements for TMT members may be lessened. Superior firm performance might instead require, for example, standard operating procedures and external regulation. As such, when less discretion exists, executive characteristics are less meaningful for firm actions and outcomes (Hambrick, 2007; Hambrick & Finkelstein, 1987).

Both environmental and firm-level discretion are considered in this dissertation. Additionally, both environmental and firm-level discretion are expected to moderate the relationships hypothesized in Hypotheses 2a, 2b, 3a, and 3b (Hypotheses 4a, 4b, 5a, and 5b) such that these relationships become stronger (weaker) as discretion increases. Because these effects are expected to be similar, for brevity I used 'TMT discretion' in the wording of hypotheses and in the research model (see Figure 3.1). However, during data analysis both types of discretion will be considered independently as moderators.

Hypothesis 10: TMT discretion will moderate the relationship between job-related TMT heterogeneity and firm performance over time. The relationship between job-related TMT heterogeneity and firm performance will strengthen as TMT discretion increases.

Hypothesis 11: TMT discretion will moderate the relationship between biodemographic TMT heterogeneity and firm performance over time. The relationship between biodemographic TMT heterogeneity and firm performance will strengthen as TMT discretion increases.

In addition to firm performance, discretion is also expected to influence the relationship between TMT heterogeneity and TMT turnover, albeit in the opposite direction. As mentioned earlier, executives have a larger influence on firm actions and outcomes when high levels of discretion exist (Hambrick & Finkelstein, 1987). Conversely, when discretion is low and standard operating procedures guide firm actions, executives have a diminished effect. Insofar as executive turnover is concerned, executives are more likely to leave when smaller amounts of discretion are available. This is because their ability to direct the firm – the fundamental task of the TMT – is compromised. Thus, whereas high discretion is expected to strengthen the relationship between TMT heterogeneity and firm performance (see H10 and H11), it is expected to weaken the relationship between TMT heterogeneity and TMT turnover (see H12 and H13).

Prior work supports this logic. In their paper, Wiersema and Bantel (1993) argued that environmental characteristics (i.e., munificence, instability, complexity) would directly relate to TMT turnover. Specifically, these authors posited that, because it confers more resources on firms, environmental munificence would be negatively related to turnover. That is, in environments marked by high munificence, more resources are available to managers to lead the firm. However, when fewer resources are available (i.e., in low munificence conditions), executives rely on routines and outdated information to make decisions, thereby minimizing the influence of any given executive. As a result, when munificence is low and executives have less discretion, higher turnover is likely to result. Using a sample of the 1980 *Fortune 500* firms, these authors found support for this hypothesis. Thus, Wiersema and Bantel (1993) found that TMT turnover was more likely in situations that reduced managers' discretion.

In addition, several studies have examined executive turnover in the context of mergers and acquisitions (M&As). Using a sample of U.S. M&As, Krug and Hegarty (2001) found that executive turnover following the M&A was less likely when executives viewed the long-term effects of the M&A positively. By extension, when executives view long-term M&A consequences negatively (as would be the case when discretion is reduced), they should be at an increased likelihood to turnover. Similarly, Lubatkin et al. (1999) found that executive turnover was more likely during the first and fourth years after an M&A when acquired executives' autonomy was reduced by the acquiring firm. Similar results were produced by Hambrick and Cannella (1993). As discussed in their paper, Lubatkin et al. (1999) gauged autonomy reduction by asking whether goals and decisions were imposed on acquired executives by the acquiring firm. Because this

operationalization of autonomy reduction is similar to discretion (Hambrick & Finkelstein, 1987), similar results would be expected using discretion in place of autonomy.

In a pair of studies using international samples, Krug and Hegarty (1997) and Wiersema and Bird (1993) found similar results. Specifically, Krug and Hegarty (1997) found that executive turnover was more likely in U.S. firms acquired by non-U.S. firms compared to turnover in U.S. firms acquired by other U.S. firms. The authors noted that foreign firms may attempt to reduce uncertainty by increasing controls over acquired firms (potentially leading to voluntary executive turnover) and replacing incumbent executives with their own (leading to involuntary executive turnover). Similarly, in their sample of Japanese firms, Wiersema and Bird (1993) found that demographic heterogeneity (i.e., age, TMT tenure, and university prestige heterogeneities) was positively related to TMT turnover.

Wiersema and Bird (1993) noted that the effects uncovered in their study (i.e., in a Japanese sample) were much stronger than in prior studies (i.e., in U.S. samples). I argue this may stem from differences in the amount of discretion available to the sampled executives. Prior work by Hofstede and colleagues (Hofstede, 2001; Hofstede & Hofstede, 2005) categorizes nations based on five cultural dimensions: power distance, uncertainty avoidance, individualism/collectivism, masculinity/femininity, and long-term/short-term orientation. Of particular interest here is the uncertainty avoidance dimension, which gauges stress associated with future uncertainty.

According to Hofstede (2001), whereas Japan's uncertainty avoidance score is 92 (indicating a high degree of stress associated with future uncertainty), the U.S. received a

score of 46. As a result Japanese firms may act to reduce environmental uncertainty (e.g., increased reliance on formal contracts, industry norms, etc.) which may reduce managerial discretion (Hambrick & Finkelstein, 1987). Thus, Wiersema and Bird's (1993) results illustrate that executive characteristics (e.g., TMT heterogeneity) are positively related to TMT turnover and that this relationship is stronger when smaller amounts of discretion are available to executives.

Taking the above theory and results into account suggests that executive heterogeneity will be positively related to TMT turnover (see Hypotheses 4a, 4b, 5a, and 5b). Further, this relationship is expected to weaken when larger amounts of discretion are available to executives, as such situations give executives the ability to direct the firm in accordance with their desires. However, when smaller amounts of discretion exist, executives are constrained in their ability to direct firm actions. When coupled with the already existing tension resulting from increased heterogeneity, decreased discretion is likely to precipitate increased TMT turnover. Thus, when managerial discretion is low increased TMT turnover can be expected, whereas the opposite should be the case under conditions of high discretion. Stated formally:

Hypothesis 12: TMT discretion will moderate the relationship between job-related TMT heterogeneity and TMT turnover. The relationship between job-related TMT heterogeneity and TMT turnover will weaken as TMT discretion increases.

Hypothesis 13: TMT discretion will moderate the relationship between biodemographic TMT heterogeneity and TMT turnover. The relationship between biodemographic TMT heterogeneity and TMT turnover will weaken as TMT discretion increases.

Section 3.2: On the Use of Time – Theoretical Concerns

Regarding strategic leadership research, Cannella and Holcomb (2005) noted that TMT dynamics are expected to change the longer TMT members work and interact with

each other. As a result of repeated positive interactions, trust and cohesion within the TMT are expected to increase *over time*, positively influencing firm performance (Cannella & Holcomb, 2005). Thus, the changes in TMT dynamics and the subsequent changes in firm performance are meaningful for strategic leadership researchers.

Beckman and Burton (2011) and Nielsen (2010a) both reported that longitudinal effects have been ignored in TMT research. This is unfortunate for several reasons. First, longitudinal research has the potential to offer more prescriptive advice to practitioners and scholars as well as increase the precision of the theories used by researchers (Ployhart & Ward, 2011). Second, cross-sectional studies do not represent change in relationships over time (Ployhart & Vandenberg, 2010; Singer & Willett, 2003). As a result, such studies limit the potential contribution a particular study can make to the literature.

In light of the above discussion, several of the hypotheses developed in this dissertation (see H2b, H3b, H4b, and H5b, above) specify longitudinal relationships. Consistent with prior work, longitudinal indicates an emphasis on the change in one or more substantive study variables measured at three or more points in time (e.g., Ployhart & Vandenberg, 2010; Ployhart & Ward, 2011; Singer & Willett, 2003). Data for Hypotheses 2b and 3b, and 4b and 5b will be collected for two substantive variables (i.e., firm performance and TMT turnover, respectively) and for a period of eight years (i.e., 2004 to 2012).

In their paper, Ployhart and Vandenberg (2010) enumerated a number of theoretical factors that researchers should consider when hypothesizing change in substantive variables. First, though time is explicitly considered in longitudinal research,

change does not occur *because* of time, but rather happens *over* time. In other words time does not cause study variables to change; other phenomena bring about a change in study variables over time. Hypotheses 2b, 3b, 4b, and 5b are descriptive hypotheses because they focus on describing the form of change over time (Ployhart & Vandenberg, 2010).

Second, Ployhart and Vandenberg (2010) argued that researchers must specify the form of the change. That is, scholars should rely on theory to hypothesize whether change will follow an increasing or decreasing trend. Additionally, the majority of change in the organizational sciences is likely to be nonlinear and/or discontinuous (Ployhart & Vandenberg, 2010). As a result, researchers should specify whether the change they hypothesize will be linear, quadratic, or of some other shape. Recall that Hypotheses 2b and 3b stipulated that the positive relationship between job-related and biodemographic TMT heterogeneity, respectively, and firm performance will increase at a decreasing rate over time. Additionally, Hypothesis 4b suggested that the positive relationship between job-related TMT heterogeneity and TMT turnover will weaken over time. As such, Hypotheses 2b, 3b, and 4b anticipate a non-linear change trend. On the other hand, Hypothesis 5b argued that the positive relationship between biodemographic TMT heterogeneity and TMT turnover will strengthen over time, suggesting a linear change trend.

Finally, researchers should specify the level of change. That is, does the researcher believe all units will undergo the same change trend? If so, considering the mean change for a group may be appropriate. Alternatively, the researcher may expect different units to change in different ways, in which case examination of interunit differences in intraunit change becomes meaningful. Ployhart and Vandenberg (2010)

argued that proper consideration of these three issues will guide the design and analysis of longitudinal studies. While the relationships laid out in Hypotheses 2b, 3b, 4b, and 5b should be found among all firms, the magnitude of the relationship is expected to vary.

As argued above, establishing TMT heterogeneity may be a necessary but not sufficient step to increase firm performance. Because firms differ in how they process and interpret environmental information (Daft & Weick, 1984), it is plausible that some firms will have the structure in place to properly utilize TMT diversity while others do not. Similarly, while a positive relationship is expected between TMT heterogeneity and TMT turnover, some firms may create incentives (e.g., increased shareholdings) to retain diverse TMT members. Because firms are expected to exhibit the relationships specified in Hypotheses 2b, 3b, 4b, and 5b to varying degrees, interunit differences in intraunit change is of interest in this study.

Table 3.1

Dissertation Hypotheses

Hypothesis 1: CEOs will try to appoint people demographically different from themselves to their TMTs.
Hypothesis 2a: Job-related TMT heterogeneity is positively related to firm performance.
Hypothesis 2b: The positive relationship between job-related TMT heterogeneity and firm performance will be nonlinear; it will increase at a decreasing rate over time.
Hypothesis 3a: Biodemographic TMT heterogeneity is positively related to firm performance.
Hypothesis 3b: The positive relationship between biodemographic TMT heterogeneity and firm performance will be nonlinear; it will increase at a decreasing rate over time.
Hypothesis 4a: Job-related TMT heterogeneity is positively related to TMT turnover.
Hypothesis 4b: Over time, job-related TMT heterogeneity and TMT turnover will have a nonlinear (i.e., inverse U-shaped) relationship. The positive relationship between job-related TMT heterogeneity and TMT turnover will become negative over time.
Hypothesis 5a: Biodemographic TMT heterogeneity is positively related to TMT turnover.
Hypothesis 5b: Over time, biodemographic TMT heterogeneity and TMT turnover will have a nonlinear (i.e., inverse U-shaped) relationship. The positive relationship between biodemographic TMT heterogeneity and TMT turnover will become negative over time.
Hypothesis 6: TMT power distribution will moderate the relationship between job-related TMT heterogeneity and firm performance. The relationship between job-related TMT heterogeneity and firm performance will be stronger for balanced power distributions.
Hypothesis 7: TMT power distribution will moderate the relationship between biodemographic TMT heterogeneity and firm performance. The relationship between biodemographic TMT heterogeneity and firm performance will be stronger for balanced power distributions.
Hypothesis 8: TMT power distribution will moderate the relationship between job-related TMT heterogeneity and TMT turnover. The relationship between job-related TMT heterogeneity and TMT turnover will be stronger for unbalanced power distributions.

Table 3.1 continued

Dissertation Hypotheses
Hypothesis 9: TMT power distribution will moderate the relationship between biodemographic TMT heterogeneity and TMT turnover. The relationship between biodemographic TMT heterogeneity and TMT turnover will be stronger for unbalanced power distributions.
Hypothesis 10: TMT discretion will moderate the relationship between job-related TMT heterogeneity and firm performance over time. The relationship between job-related TMT heterogeneity and firm performance will strengthen as TMT discretion increases.
Hypothesis 11: TMT discretion will moderate the relationship between biodemographic TMT heterogeneity and firm performance over time. The relationship between biodemographic TMT heterogeneity and firm performance will strengthen as TMT discretion increases.
Hypothesis 12: TMT discretion will moderate the relationship between job-related TMT heterogeneity and TMT turnover. The relationship between job-related TMT heterogeneity and TMT turnover will weaken as TMT discretion increases.
Hypothesis 13: TMT discretion will moderate the relationship between biodemographic TMT heterogeneity and TMT turnover. The relationship between biodemographic TMT heterogeneity and TMT turnover will weaken as TMT discretion increases.

Section 3.3: Dissertation Model with Hypotheses Labeled

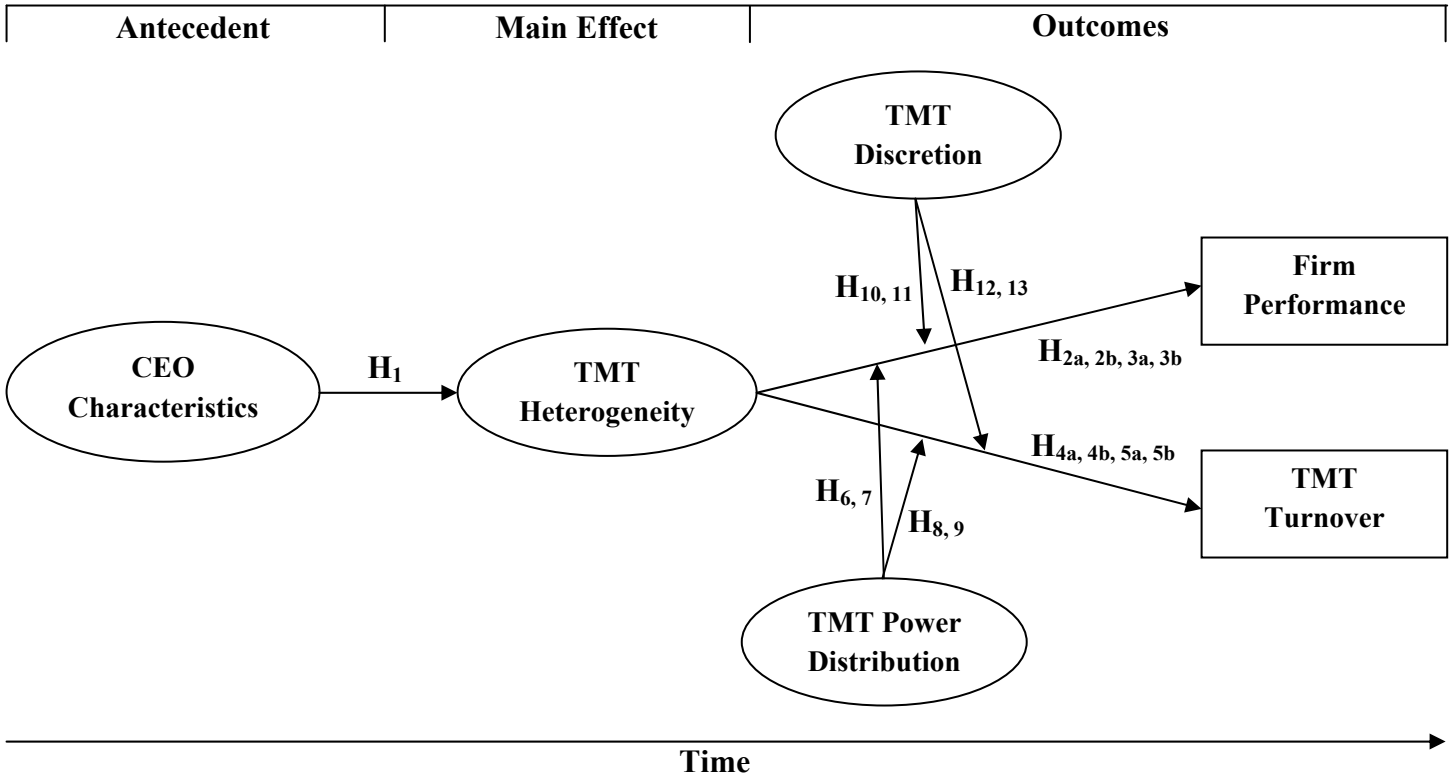


Figure 3.1: A moderated time-based model of the relationship between TMT heterogeneity, TMT turnover, and firm performance with hypotheses labeled.

Chapter 4

Research Design and Methodology

This chapter explains the dissertation research design, measurement of constructs, and analytical methodologies used to examine the relationships hypothesized in the previous chapter. Section 4.1 begins this chapter with a discussion of several common methodological concerns about longitudinal research. Section 4.2 explains the study design and research strategy, and Section 4.3 describes the specific measures used to capture each of the dissertation constructs. Section 4.4 concludes this chapter and explains the sampling methodology, data collection techniques, and the statistical methodologies employed to evaluate the study data.

Section 4.1: On the Use of Time – Methodological Concerns

In addition to the theoretical issues discussed above, Ployhart and Vandenberg (2010) discussed methodological concerns with respect to longitudinal analyses, two of which are discussed in this chapter: frequency/timing of repeated measures and attrition. First, Ployhart and Vandenberg (2010) urged researchers to give sufficient consideration to the timing, duration, and quantity of measurements. Because the majority of firm-related data are reported on an annual basis, all data for the current study were collected annually, or on what Ployhart and Ward (2011) refer to as 'natural measurement occasions.' In addition, data were collected for a duration of 11 years (i.e., 2002 through 2012), thereby providing a sufficient number of measurement occasions to assess both linear and non-linear change (Ployhart & Ward, 2011). Finally, Ployhart and Vandenberg (2010) discussed the need for time lags in longitudinal research. Insofar as the present

study is concerned, to allow for the influence of CEO demography on TMT heterogeneity, one-year and two-year time lags were considered, such that CEO demography was captured in 2002 and 2003, while TMT heterogeneity was captured for 2003 and 2004.

As noted by Ployhart and Vandenberg (2010), attrition can be expected in all studies, especially those utilizing longitudinal data. However, they also note that the best way to determine the necessary sample size for a study is to determine the needed sample size at the final time of data collection and work backwards. Following this directive, data collection for the present study began with firms on the 2012 *Fortune 1000* list and worked backward, collecting data for the entire sample each year through 2002.

Section 4.2: Study Design and Research Strategy.

The primary purpose of this research is to examine the influence of TMT heterogeneity on firm outcomes (i.e., firm performance, TMT turnover) over time. Accordingly, this study used a longitudinal design that incorporated antecedents to TMT heterogeneity (i.e., CEO demography). Additionally, the moderating influence of TMT power distribution and TMT discretion are modeled. Data were collected from archival sources over an 11-year period (i.e., 2002 – 2012).

The data used in this study were collected from a sample of *Fortune 1000* firms (see Appendix I for a complete list of sample firms), as this population offers several advantages to strategic leadership researchers. First, because nearly all firms included in the *Fortune 1000* are publicly traded, a greater amount of archival data relevant to this research is readily accessible. As a result, missing data are limited. In addition, the primary focus of this study is on the relationship between CEOs and their TMTs, and data

regarding these two entities are often published in various databases for the *Fortune 1000* firms.

Section 4.3: Dissertation Variables and Measures

Section 4.3.1: CEO Characteristics

Bell et al. (2011) noted that a variety of types of diversity have been previously considered by researchers, many of which can be condensed into the larger 'highly job related' or 'less job related' categories (also see Webber & Donahue, 2001). Whereas the former concerns such diversity types as functional and educational backgrounds, the latter is focused on demographic characteristics such as race, sex, and age. Both types of diversity – highly job related and less job related (referred to as 'biodemographic' diversity) – were collected for analysis in this study. Specifically, for study CEOs, *Functional* and *Educational Backgrounds*, amount of education (*Education Level*), *Firm Tenure*, *Position Tenure*, and *Firm-Position Tenure* were collected for job related heterogeneity, while *Age*, *Sex*, and *Race/Ethnicity* were collected for biodemographic heterogeneity. All data were collected from *Dun & Bradstreet's Reference Book of Corporate Managements*, Bloomberg Executive Profiles, the Bloomberg Database and when necessary, firm websites.

Section 4.3.2: TMT Heterogeneity

As with CEO Characteristics, a variety of diversity types were assessed for TMT members. Specifically, both job related and biodemographic diversities were of interest. Consistent with prior work (e.g., Dahlin, Weingart, & Hinds, 2005; Somech, 2006), Blau's (1977) index (i.e., $1-\Sigma p_i^2$, where p_i is the proportion of TMT members represented by each category) was used for all categorical types of diversity (e.g., *Functional*

Background). Though the coefficient of variation (i.e., the standard deviation divided by the mean) is often used for continuous types of diversity (e.g., tenure; Williams & O'Reilly, 1998), other work has called its use into question (Bedeian & Mossholder, 2000), instead encouraging the use of more basic indices. Thus, in the present study the standard deviation was used for all continuous diversity types.

All data were collected from *Dun & Bradstreet's Reference Book of Corporate Managements,* Bloomberg Executive Profiles, the Bloomberg Database and when necessary, firm websites.

Section 4.3.3: TMT Discretion

Two dimensions of TMT discretion were considered in this dissertation: Environmental and Organizational. *Environmental Discretion* was captured using the table of discretion values calculated for 70 industries by Finkelstein et al. (2009) (see Table 2.2, p.29). *Organizational Discretion* was captured using three variables identified by Finkelstein and Boyd (1998). These variables include: R&D intensity (i.e., R&D spending divided by net sales, averaged across 2002-2012), advertising intensity (i.e., advertising spending divided by net sales, averaged across 2002-2012), and capital intensity (i.e., total property, plant, and equipment, standardized by the number of employees, averaged over the period 2002-2012). As discussed by Finkelstein and Boyd (1998), these indicators represent a latent organizational discretion variable.

Three additional indicators of *Organizational Discretion* were developed by Finkelstein and Boyd (1998) including concentration, market growth, and regulation. Upon closer examination, these indicators concerned aspects outside the control of a single firm and instead more closely align with the Environmental determinants of the

discretion construct (see Finkelstein et al., 2009). As a result, these three indicators were excluded from this data collection.

As mentioned earlier, each type of discretion (i.e., environmental, firm) was independently modeled as a moderator of the relationships specified in Hypotheses 10, 11, 12, and 13. Data will be collected from the COMPUSTAT database, company 10-K reports and definitive proxy statements.

Section 4.3.4: TMT Power Distribution

TMT *Power Distribution* began with the measurement of each TMT member's power using Finkelstein's (1992) model that includes four dimensions gauged by 11 indicators. S*tructural Power* included three indicators: total compensation, number of titles, and percentage with higher titles. Larger total compensations, more official titles, and smaller percentages with higher titles are associated with higher structural power. The number of executives' titles warrants further attention.

Specifically, as it currently exists, this indicator simply counts the number of titles each executive has accrued. However, because the sample for this dissertation potentially includes inside directors (i.e., TMT members who serve on the BOD), such a calculation warrants caution. For example, suppose a CEO also serves as the Chairperson for the BOD (as in cases of CEO duality). In such a scenario the CEO would have a total of two titles (i.e., CEO and BOD Chairperson). However, further suppose that the COO for the same firm also serves on the BOD; this executive would also have two titles (i.e., COO and BOD member).

Taken at face value, such a calculation would suggest the two executives have the same amount of power insofar as the number of titles is concerned, though the CEO's

titles carry more power than the COO's. In light of such a finding, a minor adjustment was made to Finkelstein's (1992) model such that the 'BOD Chairperson' title was counted as two different titles – BOD member and BOD Chairperson. As a result, the range of scores for this indicator ranged from 1 (i.e., a non-CEO TMT member who holds no other titles) to 4 (i.e., an executive who is President, CEO, and BOD Chairperson). Thus, in the foregoing scenario, the CEO would receive a score of three while the COO would receive a score of two for the number of titles each holds, thereby maintaining the higher degree of power afforded to the CEO and BOD Chairperson.

Ownership Power was assessed with two variables: executive shares (i.e., the percentage of a firm's shares owned by the CEO and his immediate family) and founder or relative of founder (i.e., whether the CEO is the founder of the firm and/or has the same last name as another TMT member). Higher ownership power stems from larger percentages of executive shares and from status as either a founder or a relative of the firm's founder. Finkelstein (1992) also included family shares (i.e., the number of shares owned by an executive's extended family) in his dimension of ownership power. However, because the sample for this study comes from the population of *Fortune 1000* firms, the majority are not family firms but instead publicly owned and operated. As a result the likelihood of a single family owning the majority of the firm's shares and wielding disproportionate amounts of power is minimal. Thus, family shares were not included in this data collection.

Expert Power was captured with two indicators: functional areas (i.e., the number of functional areas the CEO has experience in) and positions in firm (i.e., the number of positions the CEO has held within his firm). Finkelstein (1992), also included critical

expertise power (i.e., a match between an executive's experience and the demands of their industry) in this dimension. However, due to a lack of access to the required databases (i.e., *Funk & Scott Predicasts*), this indicator was not collected in the present study. Finally, *Prestige Power* was assessed using four variables: corporate boards (i.e., the total number of corporate BODs a CEO sat on), nonprofit boards (i.e., the total number of nonprofit BODs a CEO sat on), average board rating (i.e., the percentage of *Fortune 500* BODs a CEO sat on), and elite education (i.e., the number of degrees from elite educational institutions held by a CEO).

Because the distribution of power among TMT members was of interest in this research, an additional step was required after calculation of each of the four types of power for each TMT member. Specifically, TMT power distribution was calculated using the model put forth by Bunderson (2003). In his paper, Bunderson (2003) created a measure of power centralization using the following formula:

$$\frac{\sum_{i=1}^{k}[c_{max} - c_i]}{(k-1)}$$

In this formula, c_{max} is the score for the most powerful TMT member[8] for a given power dimension, c_i is the power score for TMT member i on the same power dimension, and k is the number of TMT members. Calculation of centralization scores proceeded in two steps. First, power scores were calculated for each TMT member for each of the four power dimensions. Each score was then grand-mean standardized and the four values were summed to create an overall power score for each executive. *Power Distribution* was then calculated using the overall power scores and the above formula. Higher scores

[8] Though not always the case, for more than 95 percent of firms c_{max} was the CEO.

indicate a greater average difference between the most powerful and all other executives and thus represent an uneven or unbalanced power distribution. Lower power distribution scores are indicative of smaller power distances between executives, or a more balanced or even distribution of power.

Given that the Bunderson (2003) formula creates an average power score for the TMT, it is possible that this calculation may obscure true sub-group differences. For example, if a small group of executives holds a disproportionate amount of power while the remaining number of executives is relatively powerless, averaging across these two groups produces a power distribution score that is not descriptive of the true situation. To correct for this problem, in addition to calculating the average power score for each TMT, the standard deviation of TMT members' power scores was also examined[9]. In their work, Smith et al. (2006) found that as power became increasingly centralized, average TMT power scores decreased and standard deviations increased. Thus, whereas the Bunderson (2003) formula establishes the average power score, combining it with the approach developed by Smith et al. (2006) gives a more accurate description of the distribution of power among TMT members.

Data for *TMT Power Distribution* were collected from the COMPUSTAT, ExecuComp, and RiskMetrics databases and from *Dun & Bradstreet's Reference Book of Corporate Managements*, and the Bloomberg Database.

[9] The standard deviation scores correlated .91 and .88 with the Bunderson formula in 2003 and 2004, respectively. Because no new information was provided by the standard deviation, it was excluded from further analysis.

Section 4.3.5: Firm Performance

In their paper, Combs et al. (2005) argued that accounting, market, and growth measures all gauge different aspects of firm performance (all have been used in prior UE studies, see Table 2.1). As such, this important construct so often examined by strategic management researchers can be thought of as multidimensional (Bourgeois, 1980; Daily & Johnson, 1997). Accordingly, multiple indices of firm performance were collected for analysis in the present study.

With respect to accounting measures of performance, both Return on Assets (*ROA*; profit after taxes divided by total assets) and Return on Sales (*ROS*; profit after taxes divided by total sales) were collected. *Net Profit* and *Sales* were collected as separate measures of growth measures of performance. Finally, one measure of market performance – *Tobin's Q* (Tobin, 1969) – was collected. Following others (Bertrand & Schoar, 2003; Dezso & Ross, 2012) *Tobin's Q* was calculated as the ratio of the market value (i.e., book value of a firm's assets + market value of the firm's common equity – book value of common equity and deferred taxes) of a firm's assets to their replacement value (i.e., book value of the firm's assets). All performance data were collected from the COMPUSTAT database.

Section 4.3.6: TMT Turnover

Prior researchers (e.g., Wagner et al., 1984) have made no distinction between types of executive turnover (e.g., voluntary versus involuntary), arguing that such distinctions are largely irrelevant. However, this dissertation takes a different path in that a variety of types of turnover were collected. Specifically, TMT turnover was coded as a categorical variable and included distinctions between external promotion and succession

events, turnover with (e.g., when the BOD dismisses all executives) and without (e.g., CEO scapegoating) the CEO, entrepreneurial turnover (e.g., when executives leave their positions to start their own firm), retirement and death, and partial retirement (e.g., retirement from TMT but retaining a seat on the BOD).

Whereas prior researchers have downplayed the importance of distinguishing between different types of executive turnover (e.g., Wagner et al., 1984), the position taken in this study is that these distinctions are of import. Though the influence of the different types of turnover on short-term firm outcomes (e.g., performance) may be similar, the same cannot be said for the executives who leave, those who remain, and those executives the firm may have an interest in attracting. Thus, examining executive turnover in this capacity allows for a better understanding of the drivers of different types of executive turnover which may have implications for future firm actions (e.g., executive selection) and outcomes (e.g., performance).

TMT Turnover was captured as the number of TMT members who exited a given firm in each year of the data collection (i.e., 2002 to 2012) for any of the above reasons. All data will be collected from *Dun & Bradstreet's Reference Book of Corporate Managements*, the Bloomberg Database, and when necessary, firm websites.

Section 4.3.7: Control Variables

Several control variables were included in the analyses reported below. First, Beckman and Burton (2011) argued that "as firms emerge, grow, die, merge, and compete with one another, the composition of the top management team is impacted" (p. 59). In other words, TMT diversity may be related to firm age such that different forms of diversity are required at different stages of a firm's development (see Beckman & Burton,

2011). Second, prior work has uncovered a positive relationship between TMT size and both TMT heterogeneity (Allison, 1978; Carpenter et al., 2004) and firm performance (Haleblian & Finkelstein, 1993).

Finally, prior work suggests that governance structures (e.g., executives and BODs) have a greater influence on firm actions and outcomes in smaller – relative to larger – firms (Dalton, Daily, Johnson, & Ellstrand, 1999; Finkelstein & Hambrick, 1996; Finkelstein et al., 2009). In light of these prior findings, *TMT Size*, *Firm Size*, and *Firm Age*, were collected and included as control variables.

Section 4.4: Dissertation Methodology and Statistical Analyses

Several statistical methodologies were employed in this dissertation. First, a series of Confirmatory Factor Analyses (CFAs) were conducted to confirm the factor structure of the *TMT Power* and *TMT Discretion* constructs. Specifically, individual CFAs were conducted for each construct for each year of the data collection (i.e., 2004 – 2012). Next, to ensure stability of the factor structures over time, 'moving windows' were used. For example, the factor structures for the *TMT Power* construct for 2004 and 2005 were compared, followed by a comparison between the 2005 and 2006 factor structures. This process was repeated for each two-year span of data for both constructs.

The main research model was analyzed as a latent growth model using the *Mplus* software package (Muthen & Muthen, 1998-2010). The data for this dissertation were collected as a random sample of the population of *Fortune 1000* from 2002 through 2012. To minimize potential data loss, data were collected starting in 2012 and proceeded backwards until data were collected for 2002. Given the nature of this sampling strategy, the potential for a survivor bias exists in my data. Additionally, because poor

performance is one driver of executive turnover (Finkelstein et al., 2009), and because firms listed on the *Fortune 1000* have high performance, executive turnover among these firms may be less than in other samples using a larger variety of firms.

Ployhart and Vandenberg (2010) discuss several options for analyzing longitudinal data including latent growth modeling (LGM), random coefficient modeling (RCM) and repeated measures general linear models (GLM). Because LGM offers advantages the others do not, it served as the primary analytical method for this dissertation. Specifically, LGM explicitly takes measurement error into account when using item-level data to model relationships. Additionally, because the LGM uses a structural equation model framework, a variety of fit indices are available to assess model accuracy. Finally LGM is the preferred method when including multiple independent, mediating, and/or dependent variables (Ployhart & Vandenberg, 2010; Ployhart & Ward, 2011).

Another key advantage of LGM is the flexibility of the intercept and slope coefficients. In an RCM framework, the intercept and slope coefficients serve as dependent variables; however, with LGM the intercept and slopes can serve as independent, moderator, mediator, and/or dependent variables. While this dissertation uses the intercept and slope coefficients as dependent variables, future projects will incorporate these terms in different roles (see Chapter 6, below) and executing the present analyses using LGM will allow future studies to proceed more efficiently. For these reasons, the LGM method was used as the primary analytical tool in this study.

One final comment about LGM focuses on the components of the models. Because non-linear relations were hypothesized between study variables, quadratic

growth models were analyzed. As a result, three random effects are estimated for this model, including the intercept, a linear slope, and a quadratic slope. For each model the intercept estimates the relationship between the variables of interest when the dependent variable is from the first time point. In other words, the intercept assesses the cross-sectional relationship between the variables. The slopes assess the linear and quadratic change over time in the dependent variable, and predictor variables can be included to explain the variability in both the linear (for the linear slope) and non-linear (for the quadratic slope) components of the model.

For example, suppose a researcher was interested in the influence of TMT race diversity on the change in firm performance over time. Further suppose TMT diversity was collected for 2004 and firm performance was collected for 2005, 2006, and 2007. The intercept for the quadratic growth model describes the influence of TMT diversity in 2004 on firm performance in 2005, otherwise referred to as a one-year time lag effect. The linear and quadratic slopes describe the influence of TMT diversity in 2004 on the linear and non-linear change in firm performance between 2005 and 2007.

Table 4.1

Dissertation Measures and Data Sources

Construct	Dimension	Proxy	Data Source
CEO Characteristics	Job-related	Functional Background	*Dun & Bradstreet*
		Educational Background	*Dun & Bradstreet*
		Level of Education	*Dun & Bradstreet*
		Firm Tenure	*Dun & Bradstreet*
		Position Tenure	*Dun & Bradstreet*
		Firm-Position Tenure	*Dun & Bradstreet*
	Biodemographic	Age	*Dun & Bradstreet*
		Sex	*Dun & Bradstreet*
		Race/Ethnicity	*Dun & Bradstreet*
TMT Heterogeneity	Job-related	Functional Background	*Dun & Bradstreet*
		Educational Background	*Dun & Bradstreet*
		Level of Education	*Dun & Bradstreet*
		Firm Tenure	*Dun & Bradstreet*
		Position Tenure	*Dun & Bradstreet*
		Firm-Position Tenure	*Dun & Bradstreet*
	Biodemographic	Age	*Dun & Bradstreet*
		Sex	*Dun & Bradstreet*
		Race/Ethnicity	*Dun & Bradstreet*
TMT Discretion	Environmental	Discretion Index	Finkelstein et al. (2009)

Construct	Dimension	Proxy	Data Source
TMT Discretion	Organizational	R&D Intensity	COMPUTSTAT
		Advertising Intensity	COMPUTSTAT
		Capital Intensity	COMPUTSTAT
TMT Power	Structural	Total Compensation	COMPUTSTAT
		Number of Titles	*Dun & Bradstreet*
		Percentage with Higher Titles	*Dun & Bradstreet*
	Ownership	Executive Shares	COMPUTSTAT
		Founder/Relative	SEC Filings
	Expert	Functional Expertise	*Dun & Bradstreet*
		Number of Positions	*Dun & Bradstreet*
	Prestige	Corporate BODs	*Dun & Bradstreet*
		Nonprofit BODs	*Dun & Bradstreet*
		Average BOD Rating	Standard & Poor's Stock Survey
		Elite Education	*Dun & Bradstreet*
Firm Performance	Accounting	ROA	COMPUTSTAT
		ROS	COMPUTSTAT
	Market	Tobin's Q	COMPUTSTAT
	Growth	Net Profit	COMPUTSTAT
		Sales	COMPUTSTAT

Construct	Dimension	Proxy	Data Source
TMT Turnover		Promotion	*Dun & Bradstreet*
		Succession	*Dun & Bradstreet*
		with CEO	*Dun & Bradstreet*
		without CEO	*Dun & Bradstreet*
		Entrepreneurial	
		Retirement	*Dun & Bradstreet*
		Death	*Dun & Bradstreet*
		Partial	*Dun & Bradstreet*
Controls		Firm Age	*Dun & Bradstreet*
		Firm Size	*Dun & Bradstreet*
		TMT Size	*Dun & Bradstreet*

Note. When necessary firm websites will be used to supplement primary data sources. *Dun & Bradstreet = Dun & Bradstreet Reference Book of Corporate Managements*

Section 4.5: Dissertation Model with Data Collection Years Labeled

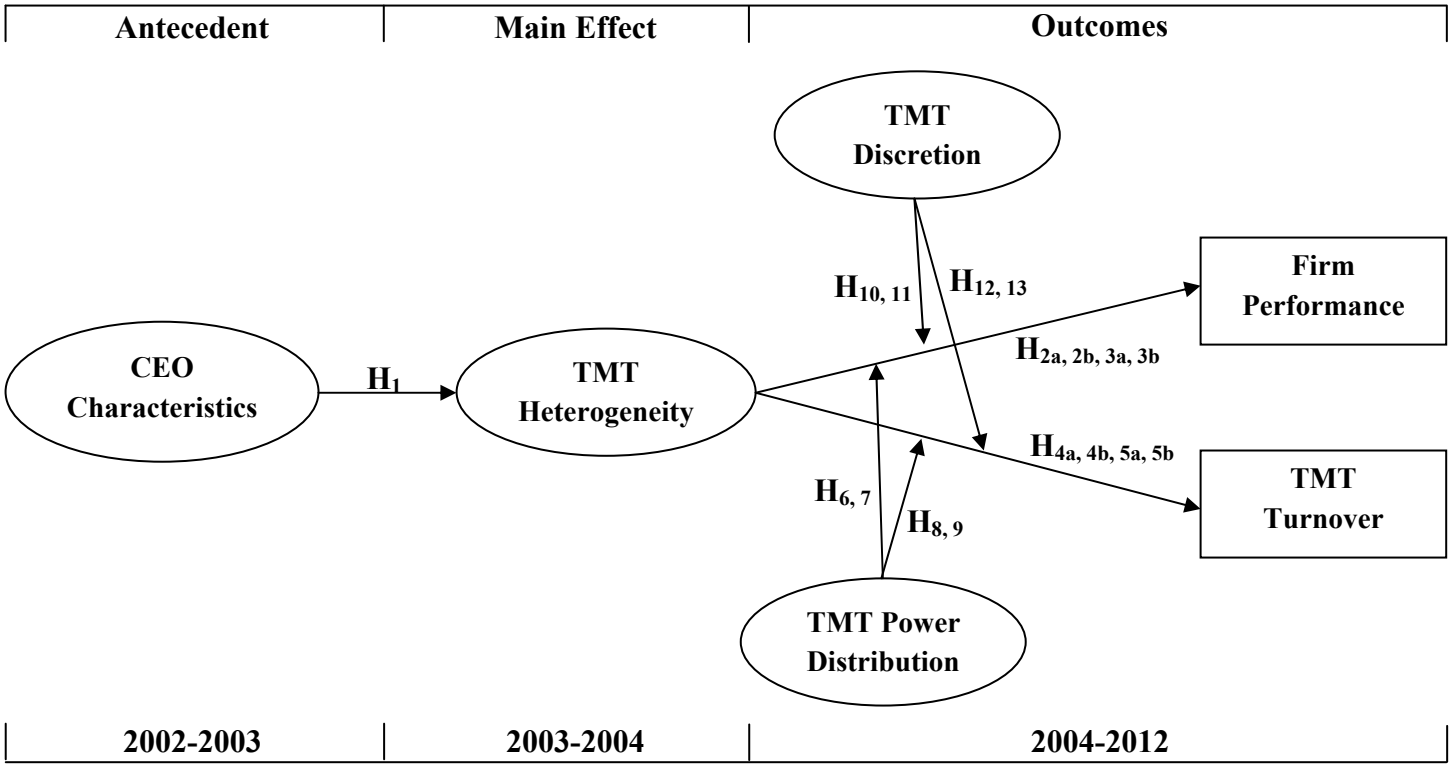


Figure 4.1: A moderated time-based model of the relationship between TMT heterogeneity, TMT turnover, and firm performance with data collection years labeled.

Chapter 5

Dissertation Results

Chapter 4 detailed the mechanics (i.e., research design/methodology, data collection, measurement of study variables, statistical methodologies) of this dissertation. This chapter discusses the models included in and the results of these analyses.

Section 5.1: Descriptive Statistics

Table 5.1 reports the means, standard deviations and correlations for the variables used in this study. For simplicity, averages are reported for all control variables, moderators, and dependent variables. For this study, the TMT included all listed executives with C-suite titles of a given firm; a complete list of all such titles included in this study is presented in Table 5.2.

Section 5.1.1: Variable Adjustments

Finkelstein and Boyd's (1998) *Organizational Discretion* measure was conceptualized as a single latent variable, and the original intent was to model the construct as such. However, because the reliability was unacceptable (i.e., .00 for both 2003 and 2004) and because the confirmatory factor analysis (CFA) models for 2003 and 2004 failed to converge, each manifest indicator (i.e., advertising intensity, R&D intensity, and capital intensity) was modeled as an individual moderator.

Alterations were also made to the *Power Distribution* calculations. As mentioned in the previous chapter, four-factor CFAs were analyzed for each year (i.e., 2003 and 2004), however, the model failed to materialize for 2003. An alternative one-factor model that forced all items to load on a single power dimension was then considered. The results

indicated two items (i.e., number of non-profit boards and number of functional backgrounds) were not significant and were subsequently removed and the model re-analyzed. The results indicated this new model had acceptable fit ($\chi^2 = 66.46$, $df = 25$, $p < .001$, RMSEA = .05, CFI = .98, SRMR = .04) and the single dimension had acceptable reliability ($\alpha = .72$). To maintain consistency between years, the same model was analyzed for 2004 and the results indicated this model also had acceptable fit ($\chi^2 = 74.08$, $df = 27$, $p < .001$, RMSEA = .05, CFI = .97, SRMR = .04) and reliability ($\alpha = .72$).

Because this one factor model involved including all power indicators in a single factor, the indicators were standardized and summed to create an overall power value for 2003 and 2004. These values were then entered into Bunderson's (2003) formula and *Power Distribution* scores were calculated for each firm for both 2003 and 2004. Finally, to prevent problems with multicollinearity, all *Power Distribution* scores were grand mean centered prior to creating the interactions for use in predicting the growth model components (see below).

Section 5.2: Unconditional Growth Models

Following recommendations from Ployhart and Ward (2011), formal hypothesis testing proceeded in a series of three steps. First, unconditional growth models were examined to determine the shape (e.g., linear or nonlinear) of the growth function for each dependent variable. Second, the variability around the intercept and slope components was examined. Variance in these components suggests between-unit differences in change over time and allows hypothesis testing to proceed. Finally, conditional growth models were examined wherein the hypothesized predictor variables

were entered into the model to explain the variability in the intercept and slope components.

Table 5.1

Means, Standard Deviations, and Bivariate Correlations

Variable	*M*	*SD*	*N*	1	2	3	4	5[1]	6[1]	7[1]	8[1]	9[1]	10	11	12	13	14[1]	15[1]	16[1]	17[1]
1. 2002 CEO Firm-Position Tenure	6.11	6.02	200																	
2. 2002 CEO Position Tenure	7.09	6.33	200	.89***																
3. 2002 CEO Firm Tenure	17.58	11.90	200	.37***	.22***															
4. 2002 CEO Age	55.29	7.06	200	.36***	.39***	.24***														
5. 2002 CEO Functional Background[1]			200	-.07	.01	-.04	-.08													
6. 2002 CEO Education Background[1]			174	.04	.02	.04	.15†	.09												
7. 2002 CEO Education Level[1]			195	.00	-.01	.01	.02	.01	.22**											
8. 2002 CEO Sex[1]			200	-.10	-.12†	-.05	-.15*	.00	-.05	-.10										
9. 2002 CEO Race[1]			200	-.05	-.08	.10	-.07	-.02	.01	.00	.24***									
10. 2003 CEO Firm-Position Tenure	6.06	5.90	200	.73***	.64***	.27***	.20**	.00	.09	.11	-.05	-.07								
11. 2003 CEO Position Tenure	6.97	6.30	200	.62***	.72***	.14*	.22**	.07	.02	.11	-.08	-.10	.89***							
12. 2003 CEO Firm Tenure	18.24	12.06	200	.30***	.16*	.92***	.19**	.00	.08	.01	-.05	.01	.33***	.20**						
13. 2003 CEO Age	55.52	7.07	200	.21**	.23***	.19**	.81***	-.05	.13†	.16*	-.14*	-.09	.37***	.41***	.23***					
14. 2003 CEO Functional Background[1]			200	-.04	.04	-.01	-.05	.88***	.09	.06	-.01	.06	-.10	-.03	-.01	-.04				
15. 2003 CEO Education Background[1]			174	.03	.00	.10	.13	.10	.90***	.17*	-.05	.01	.08	.01	.13†	.15*	.06			
16. 2003 CEO Education Level[1]			196	-.06	-.04	.00	-.02	.05	.23**	.91***	-.09	.04	.20**	.14*	.03	.12	.03	.24**		
17. 2003 CEO Sex[1]			200	-.10	-.12†	-.05	-.15*	.00	-.05	-.10	1.00	.24***	-.05	-.08	-.05	-.14*	-.01	-.05	-.09	
18. 2003 CEO Race[1]			200	-.07	-.10	.06	-.12†	.03	.05	.01	.28***	.89***	-.02	-.06	.06	-.11	.02	.05	.02	.28***
19. Firm-Position Tenure Diversity[2,3]	.05	2.30	164	.08	.05	.22**	.00	-.04	.01	-.01	.08	-.03	.09	.05	.18*	.00	.02	.09	.03	.08
20. Position Tenure Diversity[2,3]	.06	2.87	163	.10	.07	.11	-.04	.02	.01	.01	.02	.03	.15†	.11	.09	-.01	.09	.07	.04	.02
21. Firm Tenure Diversity[2,3]	-.09	30.02	164	-.05	-.06	.07	.00	.02	-.06	.00	.14	.08	-.04	-.05	.08	.01	.10	-0.08	-.08	.14
22. Functional Background Diversity[2,3]	-.01	.21	200	.08	.07	.13†	.08	-.10	.05	.12	.11	.18*	.23**	.22**	.10	.21**	-.02	.07	.06	.11
23. Education Background Diversity[2,3]	.00	.22	164	.00	.02	-.01	-.03	-.06	-.05	.06	.02	-.06	.08	.09	-.01	.04	-.02	-.08	.04	.02
24. Education Level Diversity[2,3]	-.01	0.22	164	.11	.09	.07	.11	-.01	.05	.12	-.07	-.07	.10	.10	.09	.18*	-.05	.02	.06	-.07
25. Age Diversity[2,3]	.02	3.16	155	.06	.05	-.10	-.06	.15†	-.14	.02	-.01	-.03	.12	.13	-.05	.02	.15†	-.14†	.02	-.01
26. Sex Diversity[2,3]	.00	.22	164	.06	.06	-.03	.06	-.04	.00	-.01	.07	-.08	.08	.07	-.05	.03	-.08	.02	.01	.07
27. Race Diversity[2,3]	.00	.18	164	-.03	-.04	-.02	-.01	.00	.07	.06	.110	.06	-.05	-.05	-.01	-.01	-.03	.09	.05	.110
28. R&D Intensity[2,3]	.00	.06	84	.01	.03	-.06	-.05	.13	.01	.12	.05	-.11	.10	.12	-.02	.04	.12	.08	.15	.05
29. Advertising Intensity[2,3]	.00	.04	83	-.08	-.11	.15	.02	-.17	.11	.02	.04	.12	-.08	-.10	.16	.05	-.15	.08	-.04	.04
30. Capital Intensity[2,3]	1.14	745.72	183	.23**	.21**	.08	.11	-.02	.14†	.21**	-.06	-.02	.09	.08	.06	.09	-.06	.18*	.26***	-.06
31. Power Distribution[2,3]	.00	3.02	199	.16*	.15*	.10	-.04	-.04	.11	.06	-.07	-.01	.17*	.16*	.10	-.02	-.01	.09	.10	-.07
32. Environmental Discretion[2]	.00	1.22	190	-.04	-.12†	.00	-.14†	.02	-.12	-.13†	.16*	.03	.01	-.05	.04	-.10	.06	-.11	-.14*	.16*
33. Return on Assets[3,4]	-3.04	.80	198	.04	-.02	.11	-.11	-.04	.02	-.03	.03	-.06	.00	-.05	.11	-.17*	-.03	-.01	-.09	.03
34. Return on Sales[3,4]	-2.88	.86	198	-.08	-.11	.11	-.05	-.02	.12	.18**	-.02	.03	-.03	-.05	.14*	-.02	-.08	.11	.17*	-.02
35. Profit[3,4]	6.84	1.22	198	-.11	-.12†	.17*	-.03	.17*	.06	.13†	.04	.02	-.08	-.07	.19**	-.01	.19**	.09	.10	.04
36. Sales[3,4]	9.71	.91	198	-.07	-.06	.12†	.00	.22**	.00	.03	.06	.04	-.08	-.05	.12†	.00	.31***	.02	.00	.06
37. Tobin's Q[3,4]	.45	.34	198	.07	.01	.16*	-.12†	-.09	.01	-.06	.02	-.01	.01	-.05	.13†	-.20**	-.05	-.01	-.10	.02
38. TMT Size[3]	3.26	.96	200	.11	.15*	.02	.05	-.01	.01	-.01	.07	.04	.16*	.20**	.04	.10	-.01	-.02	-.05	.07
39. Firm Size[3,4]	10.50	1.11	200	-.11	-.09	.06	.07	.02	-.12	-.06	.10	.05	-.09	-.05	.08	.06	.11	-.13†	-.12†	.10
40. Firm Age[3]	66.00	7.07	200	-.01	-.09	.27***	-.01	-.03	.04	.12†	.08	.20**	-.00	-.09	.25***	.02	.00	.10	.09	.08

†. $p \leq .10$; *. $p \leq .05$; **. $p \leq .01$; ***. $p \leq .001$

[1]. Because these variables are categorical, all correlations in these rows/columns are Spearman correlations; [2]. Variable was centered for all analyses; [3]. Averaged across study years; [4]. Transformed using the natural logarithm

Table 5.1, continued

Means, Standard Deviations, and Bivariate Correlations

Variable	18[1]	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
1. 2002 CEO Firm-Position Tenure																						
2. 2002 CEO Position Tenure																						
3. 2002 CEO Firm Tenure																						
4. 2002 CEO Age																						
5. 2002 CEO Functional Background[1]																						
6. 2002 CEO Education Background[1]																						
7. 2002 CEO Education Level[1]																						
8. 2002 CEO Sex[1]																						
9. 2002 CEO Race[1]																						
10. 2003 CEO Firm-Position Tenure																						
11. 2003 CEO Position Tenure																						
12. 2003 CEO Firm Tenure																						
13. 2003 CEO Age																						
14. 2003 CEO Functional Background[1]																						
15. 2003 CEO Education Background[1]																						
16. 2003 CEO Education Level[1]																						
17. 2003 CEO Sex[1]																						
18. 2003 CEO Race[1]																						
19. Firm-Position Tenure Diversity[2,3]	-.10																					
20. Position Tenure Diversity[2,3]	-.03	.70***																				
21. Firm Tenure Diversity[2,3]	.02	.11	.05																			
22. Functional Background Diversity[2,3]	.14†	-.03	.02	.12																		
23. Education Background Diversity[2,3]	-.14†	.02	.15†	.17*	.23**																	
24. Education Level Diversity[2,3]	-.05	-.01	.09	.11	.26***	.42***																
25. Age Diversity[2,3]	-.02	.20**	.09	-.02	.02	.10	.00															
26. Sex Diversity[2,3]	-.01	-.03	.02	-.07	.03	-.07	-.06	.04														
27. Race Diversity[2,3]	.15†	-.09	-.02	-.05	.09	.03	.16*	-.04	.08													
28. R&D Intensity[2,3]	-.13	.01	.00	-.03	-.16	-.03	.10	.23†	-.02	-.07												
29. Advertising Intensity[2,3]	.13	-.09	-.18	.18	.13	-.20†	-.07	-.07	-.04	-.17	-.13											
30. Capital Intensity[2,3]	-.04	.07	.05	-.02	-.20*	-.03	.09	.08	.17*	-.01	.09	-.03										
31. Power Distribution[2,3]	.02	.00	.18*	.19*	.01	.03	.03	-.10	.10	.07	.19†	.03	.10									
32. Environmental Discretion[2]	.03	.09	.03	.14†	.19*	-.08	.00	.00	-.08	-.01	.20†	.27*	-.55***	.00								
33. Return on Assets[3,4]	-.01	-.19*	-.18*	.05	.05	-.17*	.01	-.22**	.02	.07	.27**	.25*	-.14†	.12	.25***							
34. Return on Sales[3,4]	.09	.07	.06	.09	-.05	-.13	.03	.03	.03	.06	.53***	.21†	.27***	.26***	-.06	.31***						
35. Profit[3,4]	.07	.12	.07	.16*	-.01	-.10	.08	.08	.07	-.03	.35***	.08	.13†	.26***	-.07	.17*	.67***					
36. Sales[3,4]	.03	.09	.03	.13†	.04	-.01	.08	.08	.05	-.09	.02	-.09	-.09	.10	-.03	-.06	-.05	.71***				
37. Tobin's Q[3,4]	.03	-.03	-.07	.05	.17*	-.08	.03	-.02	.02	.06	.25*	.38***	-.25***	.18**	.33***	.74***	.31***	.20**	-.02			
38. TMT Size[3]	.05	-.04	.03	.29***	.47***	.35***	.34***	.01	.06	.22**	.03	.05	-.09	.00	.03	-.06	-.03	.07	.13†	.01		
39. Firm Size[3,4]	.02	-.01	-.06	.09	.19*	.01	.06	.05	.05	.04	-.08	-.06	-.38***	.05	.19**	.11	.09	.49***	.59***	.17*	.22**	
40. Firm Age[3]	.19**	.04	-.05	.19*	.15†	.04	.11	-.06	-.05	.04	-.14	.15	-.07	.07	.14*	.02	.14†	.11	.02	.10	.05	.06

†. $p \leq .10$; *. $p \leq .05$; **. $p \leq .01$; ***. $p \leq .001$

[1]. Because these variables are categorical, all correlations in these rows/columns are Spearman correlations; [2]. Variable was centered for all analyses; [3]. Averaged across study years; [4]. Transformed using the natural logarithm

Table 5.2

Executive Titles

Chief Executive Officer	Chief Policy and Strategy Officer
President	Chief Ethics and Compliance Officer
(Emeritus) Chairman of the Board of Directors	Chief International Ventures Officer
Executive Chairman	Chief Regional and Sustainability Officer
Chief/Principal Finance/Financial Officer	Chief Diversity (and Inclusion) Officer
Chief (Operations and) Technology Officer	Chief Enterprise Risk Officer
Chief Operations/Operating (and Development) Officer	Chief Marketing (and Insights) (and Customer Experience) Officer
Chief Medical Officer	Chief Creative/Creativity Officer
Chief Dental Officer	Chief Technical Officer
Chief Administrative Officer	Chief Credit Officer
Chief Information Officer	Chief Digital Officer
Chief Algorithms Officer	Chief Tax Officer
Chief Development Officer	Chief Procurement Officer
Chief Science/Scientific Officer	Chief Health, Safety, and Environment Officer
Chief Legal (and Regulatory) Officer	Chief Investment Officer
Chief (Technology and) Innovation Officer	Chief Restaurant Officer
Chief Growth Officer	Chief Actuarial Officer
Chief Accounting Officer	Chief (Sales) Strategy and Marketing Officer
Chief Risk (Management) (and Audit) Officer	Chief Marketing and Communications Officer
Chief Supply Officer	Chief Consumer Officer
Chief Supply Chain Officer	Chief People and Administrative Officer
Chief Strategy (and Innovation) Officer	Chief Marketing and Commercial Officer
Chief (Legal and)(Communications and) Compliance Officer	Chief Regulatory and External Relations Officer
Chief (e-)Commerce Officer	Chief Quality Officer
Chief Software Architect	Chief Global Business Development Officer
Chief Human Resources Officer	Chief Clinical Officer
Chief Learning Officer	Chief Managed Care Officer
Chief People Officer	Chief Public Affairs Officer
Chief Merchandising (and Marketing) Officer	Chief Ethics Officer
Chief Customer Officer	Chief R&D Officer
Chief Commercial Officer	Chief Regulated Generation Officer
Chief Brand (Building) Officer	Chief Security Officer
Chief Strategy and Research Officer	Chief Nuclear Officer
Chief Personnel Officer	Chief Industry Policy Officer
Chief Governance Officer	Chief Corporate Architect
Chief Communications Officer	Chief Design Officer
Chief Product (Supply) Officer	Chief Customer Business Development Officer
Chief Transaction Compliance Officer	Chief Service Officer
Chief Information, Innovation and Improvement Officer	Chief Productivity and Organization Transformation Officer
Chief Restaurant Operations Officer	Chief Commodity Hedging Officer
Chief Sustainability Officer	Chief Staff Officer
Chief Public Affairs and Global Nutrition Officer	Chief Consumer and Market Knowledge Officer
Chief Franchise Policy Officer	Chief Global Shared Services Officer

Because the hypotheses for this study indicate nonlinear change, quadratic growth models were assessed for all dependent variables. All growth models assessed change in the focal dependent variable from 2004 to 2012 and all financial performance variables were transformed using the natural logarithm to account for non-normality issues in the raw data (Liu, Gong, & Liu, 2014). Select fit indices for the unconditional growth models are presented in Table 5.3 and indicate acceptable model fit on at least one fit index for each model. Additionally, the results indicated significant variability for the intercepts, linear slopes, and quadratic slopes for all models.

Table 5.3

Fit Indices for Unconditional Growth Models

Dependent Variable	χ^2	*df*	Sig.	CFI	TLI	RMSEA	SRMR
Profit	148.46	36	.000	.95	.95	.13	.12
Sales	503.95	36	.000	.92	.92	.26	.04
ROS	122.91	36	.000	.94	.94	.11	.07
ROA	130.37	36	.000	.93	.93	.12	.09
Tobin's Q	466.10	36	.000	.87	.87	.25	.06

N = 198.

Note. CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Residual.

Due to the unique nature of the turnover variable, an alternative form of the growth model was required. Top management team turnover was originally proposed as a categorical variable (see Section 4.3.6, above), however, due to the low count for each category, the decision was made to sum the different categories of turnover to create a total turnover variable for each firm-year. The resulting variable was zero-inflated, violating normality assumptions. To account for the excessive proportion of zeros, a two-part growth model was analyzed using the *Mplus* software package. In a two-part growth model, two variables (i.e., one continuous, one binary) are created from the original. As

the software analyzes each turnover variable, depending on what value is present, the software will create a value in both the binary and continuous variable and subsequently analyzes a growth model for both variables.

Consider the overall turnover variable for 2004 as an example. In the two-part growth model, the software will create two new variables from the 2004 turnover variable: one continuous and the other binary. If the value for the original variable is missing, a missing value will be recorded for both new variables. If the value for the original variable is zero, it will be recorded for the new continuous variable as missing and for the new binary variable as zero. If the value for the original variable is greater than zero, the raw value is recorded for the new continuous variable and the value for the new binary variable is recorded as a one. This process is repeated for each variable (e.g., 2005-2012 turnover) entered into the model. After this process completes, the software will analyze two growth models, one for the new binary variables and another for the new continuous variables.

As with the financial performance measures, a quadratic growth model was analyzed for the turnover variable, however, this model failed to converge. A linear growth model was then examined and the results indicated significant variability only for the binary intercept ($var = .14$, $p = .04$). The lack of significant variability in the linear slopes suggests a growth model is inappropriate for the turnover variable. As a result, multiple regression analyses were used to test all turnover-related hypotheses.

Section 5.3: Conditional Growth Models

The final step in hypothesis testing was to assess conditional growth models for each outcome variable except turnover. For each financial performance measure, a

conditional growth model was analyzed that included the control variables, main effects, and interactions as simultaneous predictors of the intercept, linear and quadratic slopes. All control variables were for the same year as the main effects and interactions (i.e., control variables for 2003 were used when 2003 TMT diversities were included in the model).

Three points about these analyses should be made. First, the original intention was to include all diversity types in a single analysis, however, due to a small sample size, these models failed to converge. As a result, each diversity type was examined separately. Second, all models with the *Profit*, *Sales*, and *Tobin's Q* dependent variables failed to converge. As a result, only models for the *ROS* and *ROA* financial performance measures are discussed below. Third, the poor reliability and inconclusive CFA results precluded examining the *Organizational Discretion* variable as a latent construct. Additionally, due to excessive missing data from the COMPUSTAT database on these indicators, none of the models including interactions with the *Organizational Discretion* indicators (i.e., *R&D Intensity*, *Advertising Intensity*, *Capital Intensity*) converged. In sum, only models for the *ROA* and *ROS* financial performance measures and with *Environmental Discretion* and *Power Distribution* moderators were successfully analyzed.

Section 5.3.1: Model Results: ROA with 2003 Heterogeneity

Environmental Discretion Results

The first set of analyses included a one-year time lag between TMT heterogeneity and firm performance. The intercept, linear and quadratic slope components of the *ROA* growth model were regressed on TMT heterogeneity in 2003. Table 5.4 displays the fit indices for the set of analyses that included 2003 TMT heterogeneity and the

Environmental Discretion moderator, and Table 5.5 displays the analysis results. A significant main effect was discovered for the intercept for *Age Diversity* (-.05, $p < .05$) and *Sex Diversity* (.53, $p < .10$) had a marginally significant effect. Further, *Race Diversity* had significant main effects on both the linear (-.29, $p < .05$) and quadratic (.04, $p < .05$) slopes. No significant interactions were uncovered for the *Environmental Discretion* moderator. However, although not reported in Table 5.5, the *Environmental Discretion* variable had a positive main effect on the intercept for all diversity types and a positive effect on the quadratic slope for *Firm Tenure*, *Education Level*, *Age*, and *Sex Diversities*.

Power Distribution Results

Table 5.6 displays the fit indices for the set of analyses that included 2003 TMT heterogeneity and the *Power Distribution* moderator. Additionally, Table 5.7 presents the analysis results. Significant main effects were found for the intercept for *Education Background* (-.58, $p < .05$) and *Age Diversities* (-.05, $p < .05$), while *Race Diversity* (.53, $p < .10$) had a marginally significant influence on the intercept. Additionally, *Race Diversity* had a significant main effect on both the linear (-.29, $p < .01$) and quadratic (.04, $p < .01$) slope components. The *Power Distribution* variable had a negative effect on the linear slope for *Firm-Position Tenure*, *Position Tenure*, *Education Background*, *Educational Level*, *Age*, and *Sex Diversities*, and a positive effect on the quadratic slope for *Age Diversity*.

Table 5.4

Model Fit Indices for ROA with 2003 TMT Heterogeneity and Environmental Discretion Moderator

Model[1]	χ^2	*df*	Sig.	CFI	TLI	RMSEA	SRMR
Firm-Position Tenure Diversity	159.27	72	< .001	.92	.90	.09	.07
Position Tenure Diversity	172.88	72	< .001	.91	.88	.10	.07
Firm Tenure Diversity	151.63	72	< .001	.93	.91	.09	.06
Functional Background Diversity	161.71	72	< .001	.94	.82	.08	.06
Education Background Diversity	150.55	72	< .001	.93	.91	.09	.06
Education Level Diversity	151.66	72	< .001	.93	.91	.09	.07
Age Diversity	161.22	72	< .001	.91	.89	.10	.07
Sex Diversity	174.09	72	< .001	.91	.89	.10	.07
Race Diversity	155.88	72	< .001	.93	.91	.09	.07

[1]. For simplicity, only diversity type is reported here; however, in each model all controls and applicable main effects and interactions are included.

Note. CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Residual.

Table 5.5

Quadratic Growth Model Results for ROA with 2003 TMT Heterogeneity and Environmental Discretion Moderator

	Intercept		***Linear Slope***		***Quadratic Slope***	
Path	**Effect**	**Sig.**	**Effect**	**Sig.**	**Effect**	**Sig.**
Firm-Position Tenure Diversity[1]	-.02	*ns*	-.01	*ns*	.00	*ns*
Position Tenure Diversity[2]	-.01	*ns*	-.01	*ns*	.00	*ns*
Firm Tenure Diversity[1]	-.02	*ns*	.01	*ns*	.00	*ns*
Functional Background Diversity[3]	.00	*ns*	.00	*ns*	.00	*ns*
Education Background Diversity[1]	-.29	*ns*	-.10	*ns*	.02	*ns*
Education Level Diversity[1]	-.07	*ns*	.00	*ns*	.01	*ns*
Age Diversity[4]	-.05	< .05	.01	*ns*	.00	*ns*
Sex Diversity[1]	.53	< .10	-.14	*ns*	.01	*ns*
Race Diversity[1]	.43	*ns*	-.29	< .05	.04	< .05
Firm-Position Tenure Diversity x Environmental Discretion	-.01	*ns*	.00	*ns*	.00	*ns*
Position Tenure Diversity x Environmental Discretion	.01	*ns*	.00	*ns*	.00	*ns*
Firm Tenure Diversity x Environmental Discretion	.01	*ns*	.00	*ns*	.00	*ns*
Functional Background Diversity x Environmental Discretion	.00	*ns*	.00	*ns*	.00	*ns*
Education Background Diversity x Environmental Discretion	-.09	*ns*	-.03	*ns*	.01	*ns*
Education Level Diversity x Environmental Discretion	-.20	*ns*	.12	*ns*	-.01	*ns*
Age Diversity x Environmental Discretion	.01	*ns*	.01	*ns*	.00	*ns*
Sex Diversity x Environmental Discretion	.18	*ns*	.04	*ns*	.00	*ns*
Race Diversity x Environmental Discretion	.22	*ns*	-.09	*ns*	.02	*ns*

[1]. $N = 140$.
[2]. $N = 139$.
[3]. $N = 188$.
[4]. $N = 130$.

Table 5.6

Model Fit Indices for ROA with 2003 TMT Heterogeneity and Power Distribution Moderator

Model[1]	χ^2	*df*	Sig.	CFI	TLI	RMSEA	SRMR
Firm-Position Tenure Diversity	143.91	72	< .001	.93	.92	.08	.06
Position Tenure Diversity	142.35	72	< .001	.94	.92	.08	.06
Firm Tenure Diversity	Model failed to converge						
Functional Background Diversity	Model failed to converge						
Education Background Diversity	148.84	72	< .001	.93	.91	.09	.06
Education Level Diversity	145.09	72	< .001	.93	.92	.08	.06
Age Diversity	151.69	72	< .001	.92	.90	.09	.07
Sex Diversity	153.42	72	< .001	.93	.91	.09	.07
Race Diversity	153.06	72	< .001	.93	.91	.09	.06

[1]. For simplicity, only diversity type is reported here; however, in each model all controls and applicable main effects and interactions are included.

Note. CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Residual.

Table 5.7

Quadratic Growth Model Results for ROA with 2003 TMT Heterogeneity and Power Distribution Moderator

	Intercept		***Linear Slope***		***Quadratic Slope***	
Path	**Effect**	**Sig.**	**Effect**	**Sig.**	**Effect**	**Sig.**
Firm-Position Tenure Diversity[1]	.00	*ns*	-.01	*ns*	.00	*ns*
Position Tenure Diversity[2]	-.02	*ns*	-.01	*ns*	.00	*ns*
Firm Tenure Diversity[2]			Model failed to converge			
Functional Background Diversity[3]			Model failed to converge			
Education Background Diversity[1]	-.58	< .05	-.06	*ns*	.01	*ns*
Education Level Diversity[1]	-.05	*ns*	.01	*ns*	.00	*ns*
Age Diversity[4]	-.05	< .05	.01	*ns*	.00	*ns*
Sex Diversity[1]	.38	*ns*	-.11	*ns*	.01	*ns*
Race Diversity[1]	.53	< .10	-.29	< .01	.04	< .01
Firm-Position Tenure Diversity x Power Distribution	.01	*ns*	.00	*ns*	.00	*ns*
Position Tenure Diversity x Power Distribution	.01	*ns*	.00	*ns*	.00	*ns*
Firm Tenure Diversity x Power Distribution			Model failed to converge			
Functional Background Diversity x Power Distribution			Model failed to converge			
Education Background Diversity x Power Distribution	.19	< .05	-.05	< .10	.00	*ns*
Education Level Diversity x Power Distribution	.00	*ns*	-.03	*ns*	.00	*ns*
Age Diversity x Power Distribution	.00	*ns*	.00	*ns*	.00	*ns*
Sex Diversity x Power Distribution	-.02	*ns*	.01	*ns*	.00	*ns*
Race Diversity x Power Distribution	-.38	< .001	.13	< .001	-.02	< .001

[1]. $N = 148$.
[2]. $N = 147$.
[3]. $N = 196$.
[4]. $N = 136$.

Finally, four significant interactions were found: *Education Background Diversity* x *Power Distribution* (.19, $p < .05$) and *Race Diversity* x *Power Distribution* (-.38, $p < .001$) for the intercept, and *Race Diversity* x *Power Distribution* for the linear (.13, $p < .001$) and quadratic (-.02, $p < .001$) slope terms. The *Education Background Diversity* x *Power Distribution* (-.05, $p < .10$) was marginally significant for the linear slope term.

Power Distribution Interaction Interpretations

All interactions were explored using the online utility found at http://www.quantpsy.org and explained in Preacher, Curran, and Bauer (2006). For the multiple regression analyses, all interactions are two-way. However, the interactions for the growth models are three-way interactions, as the interaction between the two independent variables (e.g., *Education Background Diversity* and *Power Distribution*) also interacts with Time (Preacher et al., 2006). Thus, all growth model interaction plots are displayed in two figures; all odd numbered figures (e.g., Figure 5.1) depict the interaction of interest for a high level of either *Environmental Discretion* or *Power Distribution* and all even numbered figures (e.g., Figure 5.2) depict the interaction for a low level of the moderator. Additionally, all plots depict the relationship of interest using values of one standard deviation above (solid line) and below (broken line) the mean for the second independent variable (e.g., *Education Background Diversity*).

Figures 5.1 and 5.2 depict the effect of the interaction between *Education Background Diversity* and *Power Distribution* over time on *ROA*. Figure 5.1 indicates that when large differences in power exist within the TMT, high levels of *Education Background Diversity* (solid line) are negatively related to *ROA* over time, while low levels (broken line) are positively related to *ROA* over time. However, as Figure 5.2

illustrates, when lower *Power Distributions* exist (i.e., small power distances among TMT members), the relationship between high levels of *Education Background Diversity* and *ROA* becomes positive. These results provide support for Hypothesis 6.

Figures 5.3 and 5.4 depict the effect of the interaction between *Race Diversity* and *Power Distribution* over time on *ROA*. The results suggest that for high distributions of power, larger amounts of *Race Diversity* (solid line) are positively associated with *ROA* over time, while for more balanced power distributions the effect is negative. Smaller amounts of *Race Diversity* are positively related to *ROA* over time in both circumstances, though the slope of the relationship is steeper for balanced *Power Distributions*. Though significant, this interaction manifests in the opposite direction from what was hypothesized, thereby failing to support Hypothesis 7.

Section 5.3.2: Model Results: ROS with 2003 Heterogeneity

Environmental Discretion Results

The second set of analyses included a one-year time lag between TMT heterogeneity and firm performance. The intercept, linear and quadratic slope components of the *ROS* growth model were regressed on TMT heterogeneity in 2003. Table 5.8 displays the fit indices for the set of analyses that included 2003 TMT heterogeneity and the *Environmental Discretion* moderator. Additionally, Table 5.9 displays the analysis results. Marginally significant main effects were discovered for the intercept for *Firm-Position Tenure* (.06, $p < .10$), *Sex* (.58, $p < .10$), and *Race* (.71, $p < .10$) *Diversities*, while *Functional Background Diversity* (.00, $p < .05$) had a significant effect on the intercept. Further, *Race Diversity* had significant main effects on both the linear (-.22, $p < .05$) and quadratic (.03, $p < .05$) slopes and *Education Background*

Diversity had a marginally significant main effect on the quadratic slope (.02, $p = .10$). The *Environmental Discretion* variable had a negative main effect on the linear slope for *Firm Tenure Diversity* and positive main effects on the quadratic slope for all diversity types with the exceptions of *Race*, *Functional Background*, and *Position Tenure*. Finally, the *Education Level Diversity* x *Environmental Discretion* interaction was marginally significant for the linear slope term (.16, $p < .10$).

Environmental Discretion Interaction Interpretations

Figures 5.5 and 5.6 illustrate the effect of the interaction between *Education Level Diversity* and *Environmental Discretion* over time on *ROS*. These figures suggest that for high levels of *Environmental Discretion*, higher amounts of *Education Level Diversity* are positively associated with *ROS* over time. When *Environmental Discretion* is low, lower levels of *Education Level Diversity* are positively related to *ROS* over time, whereas higher levels of diversity appear to have no meaningful relationship with *ROS*. These results support Hypothesis 10.

Power Distribution Results

Table 5.10 displays the fit indices for the set of analyses that included 2003 TMT heterogeneity and the *Power Distribution* moderator. Additionally, Table 5.11 presents the analysis results. Marginally significant main effects were found for the intercept for *Firm-Position Tenure* (.06, $p < .10$) and *Sex* (.56, $p < .10$) *Diversities*. Additionally, *Race Diversity* had significant main effects on both the linear (-.21, $p < .05$) and quadratic (.03, $p < .05$) slopes. The *Power Distribution* variable had positive main effects on the intercept for all diversity types except for *Firm Tenure* and *Functional Background Diversities*, negative main effects on the linear slope for all diversity types except for

Firm Tenure, *Functional Background*, and *Race Diversities*, and positive main effects on the quadratic slope for all diversity types except for *Firm Tenure*, *Functional Background*, and *Race Diversities*. Finally, the *Race Diversity* x *Power Distribution* interaction was significant for the linear (.12, $p < .001$) and quadratic (-.02, $p < .001$) slopes.

Power Distribution Interaction Interpretations

Figures 5.7 and 5.8 show the effect of the interaction between *Race Diversity* and *Power Distribution* on *ROS* over time. These figures suggest that for unbalanced power distributions (Figure 5.7), higher amounts of *Race Diversity* are positively associated with *ROS* over time, however, for balanced power distributions (Figure 5.8), smaller amounts of *Race Diversity* are positively associated with *ROS* over time. These results fail to support Hypothesis 7.

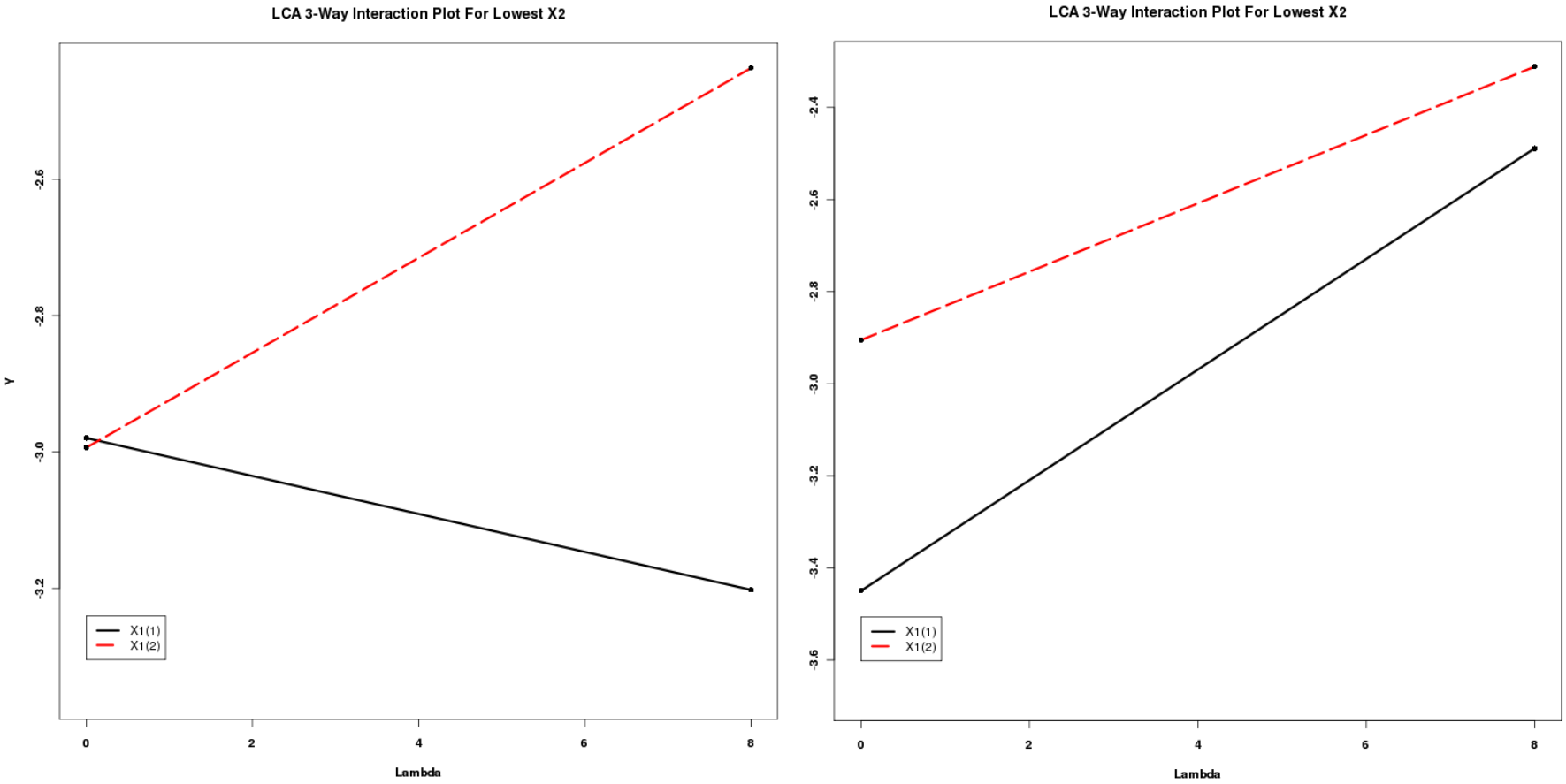
Section 5.3.3: Model Results: ROA with 2004 Heterogeneity

Environmental Discretion Results

The third set of analyses included no time lag between TMT heterogeneity and firm performance. The intercept, linear and quadratic slope components of the *ROA* growth model were regressed on TMT heterogeneity in 2004. Table 5.12 presents the fit indices for the set of analyses that included 2004 TMT heterogeneity and the *Environmental Discretion* moderator. Table 5.13 displays the analysis results. A significant main effect was found for the intercept for *Firm-Position Tenure* (-.07, $p < .05$), and *Education Background* (-.59, $p < .10$) and *Age* (-.03, $p < .10$) *Diversities* had marginally significant effects on the intercept.

Figures 5.1 and 5.2.

2003 Education Background Diversity x Time (Lambda) Interaction for High (left panel) and Low (right panel) Power Distributions for ROA (Y)



Figures 5.3 and 5.4.

2003 Race Diversity x Time (Lambda) Interaction for High (left panel) and Low (right panel) Power Distributions for ROA (Y)

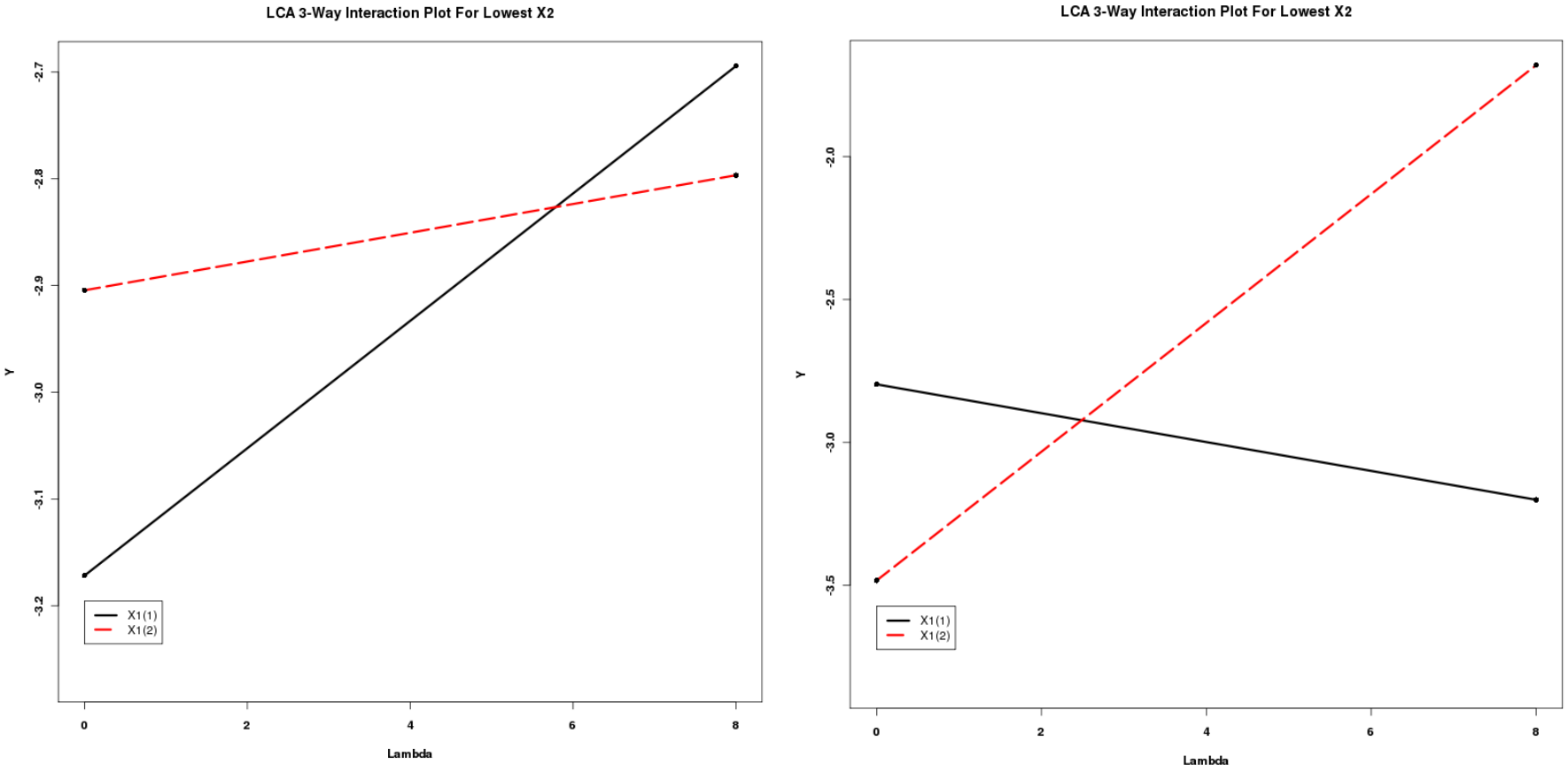


Table 5.8

Model Fit Indices for ROS with 2003 TMT Heterogeneity and Environmental Discretion Moderator

Model[1]	χ^2	*df*	Sig.	CFI	TLI	RMSEA	SRMR
Firm-Position Tenure Diversity	145.04	72	< .001	.94	.93	.09	.05
Position Tenure Diversity	156.86	72	< .001	.93	.91	.09	.05
Firm Tenure Diversity	138.13	72	< .001	.95	.93	.08	.05
Functional Background Diversity	160.04	72	< .001	.94	.93	.08	.05
Education Background Diversity	137.26	72	< .001	.95	.93	.08	.05
Education Level Diversity	141.08	72	< .001	.94	.93	.08	.05
Age Diversity	144.28	72	< .001	.93	.92	.09	.05
Sex Diversity	158.17	72	< .001	.93	.91	.09	.05
Race Diversity	141.84	72	< .001	.94	.93	.08	.05

[1]. For simplicity, only diversity type is reported here; however, in each model all controls and applicable main effects and interactions are included.

Note. CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Residual.

Table 5.9

Quadratic Growth Model Results for ROS with 2003 TMT Heterogeneity and Environmental Discretion Moderator

	Intercept		***Linear Slope***		***Quadratic Slope***	
Path	**Effect**	**Sig.**	**Effect**	**Sig.**	**Effect**	**Sig.**
Firm-Position Tenure Diversity[1]	.06	< .10	.00	*ns*	.00	*ns*
Position Tenure Diversity[2]	.04	*ns*	-.01	*ns*	.00	*ns*
Firm Tenure Diversity[1]	.01	*ns*	.01	*ns*	.00	*ns*
Functional Background Diversity[3]	.00	< .05	.00	*ns*	.00	*ns*
Education Background Diversity[1]	-.19	*ns*	-.15	*ns*	.02	.10
Education Level Diversity[1]	.39	*ns*	-.04	*ns*	.01	*ns*
Age Diversity[4]	.02	*ns*	.00	*ns*	.00	*ns*
Sex Diversity[1]	.58	< .10	-.16	*ns*	.01	*ns*
Race Diversity[1]	.71	< .10	-.22	.05	.03	< .05
Firm-Position Tenure Diversity x Environmental Discretion	-.02	*ns*	.00	*ns*	.00	*ns*
Position Tenure Diversity x Environmental Discretion	.00	*ns*	.00	*ns*	.00	*ns*
Firm Tenure Diversity x Environmental Discretion	.00	*ns*	.00	*ns*	.00	*ns*
Functional Background Diversity x Environmental Discretion	.00	*ns*	.00	*ns*	.00	*ns*
Education Background Diversity x Environmental Discretion	-.05	*ns*	.05	*ns*	.00	*ns*
Education Level Diversity x Environmental Discretion	-.14	*ns*	.16	< .10	-.02	*ns*
Age Diversity x Environmental Discretion	-.01	*ns*	.01	*ns*	.00	*ns*
Sex Diversity x Environmental Discretion	-.28	*ns*	.05	*ns*	.00	*ns*
Race Diversity x Environmental Discretion	.08	*ns*	-.10	*ns*	.02	*ns*

[1]. $N = 140$.
[2]. $N = 139$.
[3]. $N = 180$.
[4]. $N = 130$.

Figures 5.5 and 5.6.

2003 Education Level Diversity x Time (Lambda) Interaction for High (left panel) and Low (right panel) levels of Environmental Discretion for ROS (Y)

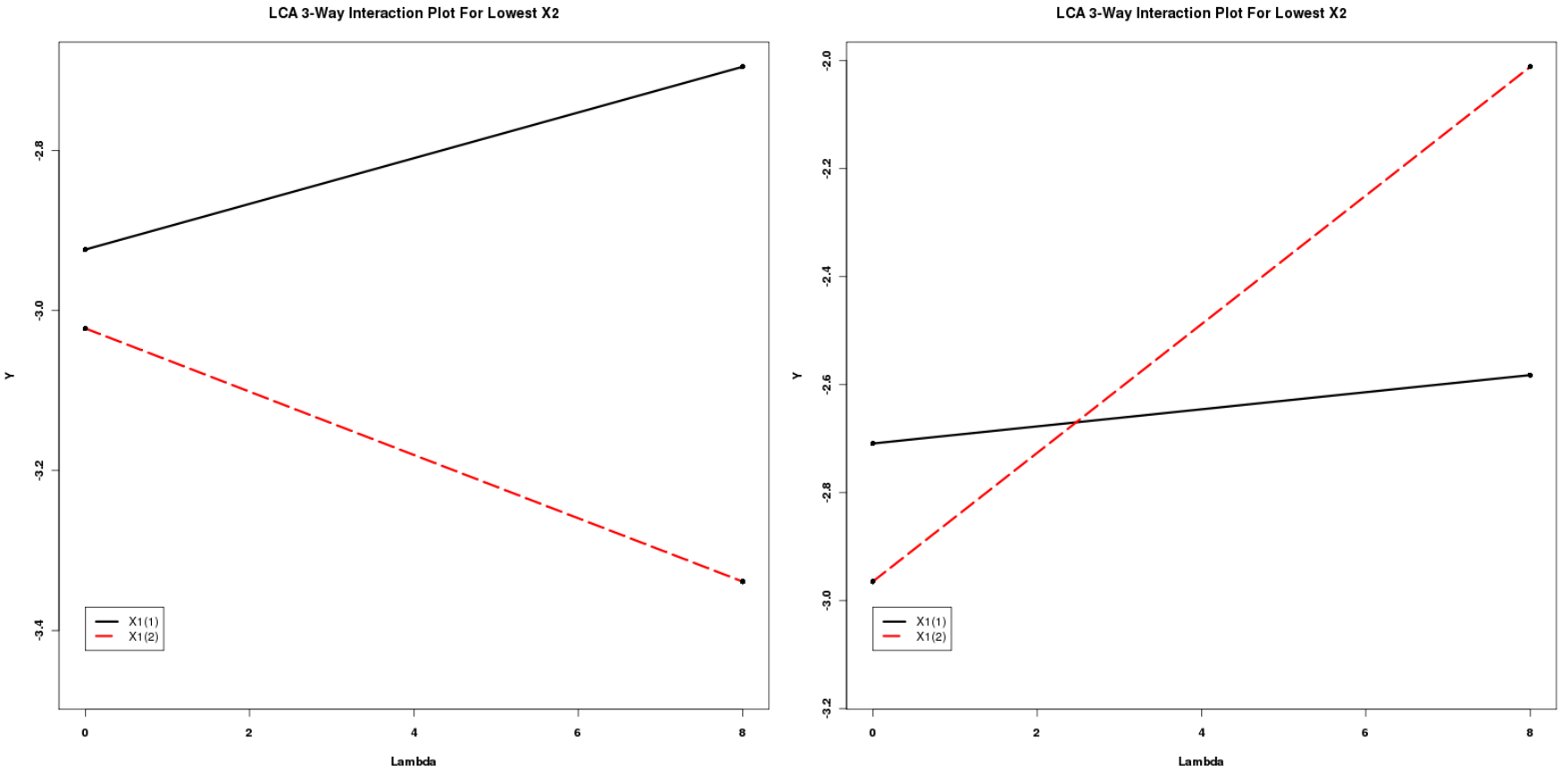


Table 5.10

Model Fit Indices for ROS with 2003 TMT Heterogeneity and Power Distribution Moderator

Model[1]	χ^2	*df*	Sig.	CFI	TLI	RMSEA	SRMR
Firm-Position Tenure Diversity	128.86	72	< .001	.95	.94	.07	.04
Position Tenure Diversity	127.36	72	< .001	.95	.94	.07	.04
Firm Tenure Diversity	Model failed to converge						
Functional Background Diversity	Model failed to converge						
Education Background Diversity	133.02	72	< .001	.95	.94	.08	.04
Education Level Diversity	128.57	72	< .001	.95	.94	.07	.04
Age Diversity	139.58	72	< .001	.94	.92	.08	.04
Sex Diversity	137.27	72	< .001	.95	.93	.08	.05
Race Diversity	139.61	72	< .001	.95	.93	.08	.05

[1]. For simplicity, only diversity type is reported here; however, in each model all controls and applicable main effects and interactions are included.

Note. CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Residual.

Table 5.11

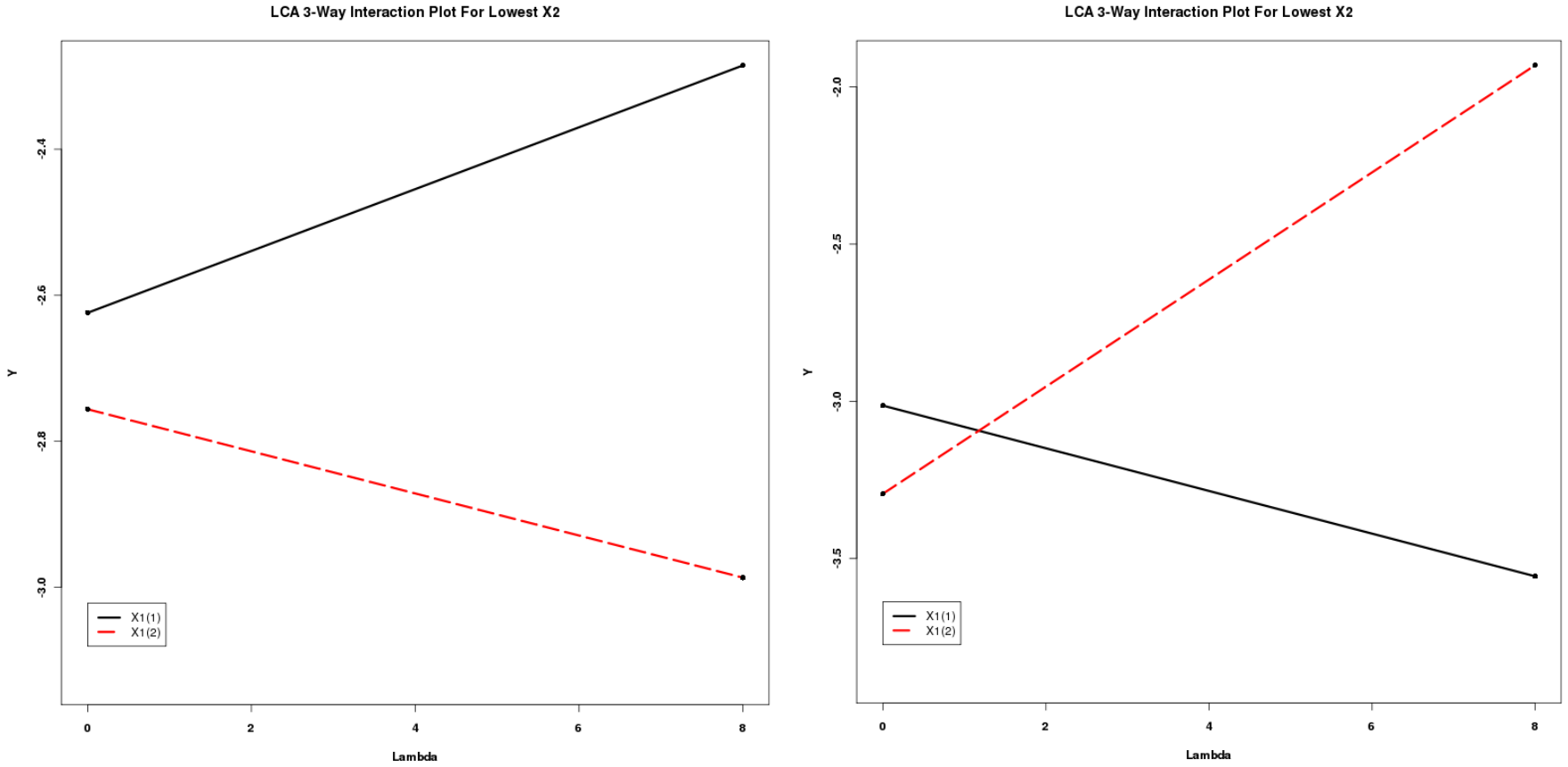
Quadratic Growth Model Results for ROS with 2003 TMT Heterogeneity and Power Distribution Moderator

	Intercept		***Linear Slope***		***Quadratic Slope***	
Path	**Effect**	**Sig.**	**Effect**	**Sig.**	**Effect**	**Sig.**
Firm-Position Tenure Diversity[1]	.06	< .10	-.01	*ns*	.00	*ns*
Position Tenure Diversity[2]	.02	*ns*	-.01	*ns*	.00	*ns*
Firm Tenure Diversity[2]			Model failed to converge			
Functional Background Diversity[3]			Model failed to converge			
Education Background Diversity[1]	-.28	*ns*	-.10	*ns*	.02	*ns*
Education Level Diversity[1]	.40	*ns*	-.04	*ns*	.01	*ns*
Age Diversity[4]	.03	*ns*	.00	*ns*	.00	*ns*
Sex Diversity[1]	.56	< .10	-.13	*ns*	.01	*ns*
Race Diversity[1]	.52	*ns*	-.21	< .05	.03	< .05
Firm-Position Tenure Diversity x Power Distribution	.01	*ns*	.00	*ns*	.00	*ns*
Position Tenure Diversity x Power Distribution	.01	*ns*	.00	*ns*	.00	*ns*
Firm Tenure Diversity x Power Distribution			Model failed to converge			
Functional Background Diversity x Power Distribution			Model failed to converge			
Education Background Diversity x Power Distribution	.04	*ns*	-.03	*ns*	.00	*ns*
Education Level Diversity x Power Distribution	.02	*ns*	.00	*ns*	.00	*ns*
Age Diversity x Power Distribution	.00	*ns*	.00	*ns*	.00	*ns*
Sex Diversity x Power Distribution	-.01	*ns*	.02	*ns*	.00	*ns*
Race Diversity x Power Distribution	-.06	*ns*	.12	.001	-.02	< .001

[1]. $N = 148$.
[2]. $N = 147$.
[3]. $N = 196$.
[4]. $N = 136$.

Figures 5.7 and 5.8.

2003 Race Diversity x Time (Lambda) Interaction for High (left panel) and Low (right panel) Power Distributions for ROS (Y)



The *Environmental Discretion* variable had positive main effects on the intercept and quadratic slope terms for *Firm-Position Tenure*, *Position Tenure*, *Education Background*, *Educational Level*, *Sex*, and *Race Diversities*. Additionally, *Environmental Discretion* had a negative main effect on the linear slope component for *Firm-Position Tenure*, *Education Background*, *Educational Level*, *Sex*, and *Race Diversities*. Finally, the *Firm-Position Tenure Diversity* x *Environmental Discretion* interaction was significant for the intercept (.06, $p < .05$) while the *Position Tenure Diversity* x *Environmental Discretion* interaction was marginally significant for the quadratic slope (.00, $p < .10$).

Environmental Discretion Interaction Interpretations

Figures 5.9 and 5.10 illustrate the effect of the interaction between *Firm-Position Tenure Diversity* and *Environmental Discretion* on *ROA* over time. As depicted in Figure 5.9, when *Environmental Discretion* is high, smaller amounts of *Firm-Tenure Position Diversity* are associated with increased *ROA* over time, while larger amounts of diversity appear to lower *ROA*. However, when discretion is low, the effect reverses; higher amounts of *Firm-Position Tenure Diversity* are associated with increases in *ROA* over time.

Figures 5.11 and 5.12 depict the effect of the interaction between *Position Tenure Diversity* and *Environmental Discretion* on *ROA* over time. Smaller amounts of *Position Tenure* are positively associated with *ROA* over time irrespective of the amount of discretion afforded by the industrial environment. However, when discretion is high larger amounts of *Position Tenure Diversity* are associated with decreases in *ROA* over

time, while a positive relationship holds for situations involving less discretion. Together, the interactions depicted in Figures 5.9-5.12 fail to support Hypothesis 10.

Power Distribution Results

Table 5.14 displays the fit indices for the set of analyses that included 2004 TMT heterogeneity and the *Power Distribution* moderator, and Table 5.15 presents the results of these analyses. Marginally significant main effects on the intercept were found for *Position Tenure* (-.04, $p < .10$) and *Education Background* (-.56, $p < .10$) *Diversities*. The *Power Distribution* variable had a positive main effect on the intercept for *Position Tenure*, *Education Background*, *Educational Level*, and *Race Diversities*. Finally, significant interactions were found for the intercept between *Education Background Diversity* and *Power Distribution* (.24, $p < .01$) and *Race Diversity* and *Power Distribution* (-.26, $p < .05$), while the *Age Diversity* x *Power Distribution* interaction was marginally significant for the linear slope (.00, $p < .10$).

Power Distribution Interaction Interpretations

Figures 5.13 and 5.14 illustrate the effect of the interaction between *Education Background Diversity* and *Power Distribution* on *ROA* over time. These results suggest then when large differences exist in the amount of power each TMT member holds (Figure 5.13), higher amounts of *Education Background Diversity* has a weak but positive influence on *ROA* over time; this effect becomes stronger when power is more evenly distributed among TMT members (Figure 5.14). Additionally, the slope of the relationship between lower amounts of diversity and *ROA* is stronger over time for unbalanced *Power Distributions* and weaker for balanced *Power Distributions*. Together these results provide support for Hypothesis 6.

Table 5.12

Model Fit Indices for ROA with 2004 TMT Heterogeneity and Environmental Discretion Moderator

Model[1]	χ^2	*df*	Sig.	CFI	TLI	RMSEA	SRMR
Firm-Position Tenure Diversity	153.87	72	< .001	.93	.92	.09	.06
Position Tenure Diversity	151.43	72	< .001	.93	.92	.09	.06
Firm Tenure Diversity	135.75	72	< .001	.95	.93	.08	.06
Functional Background Diversity	Model failed to converge						
Education Background Diversity	139.98	72	< .001	.94	.93	.08	.06
Education Level Diversity	139.87	72	< .001	.94	.93	.08	.06
Age Diversity	138.09	72	< .001	.94	.93	.08	.06
Sex Diversity	139.46	72	< .001	.94	.93	.08	.06
Race Diversity	146.35	72	< .001	.94	.92	.08	.06

[1]. For simplicity, only diversity type is reported here; however, in each model all controls and applicable main effects and interactions are included.

Note. CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Residual.

Table 5.13

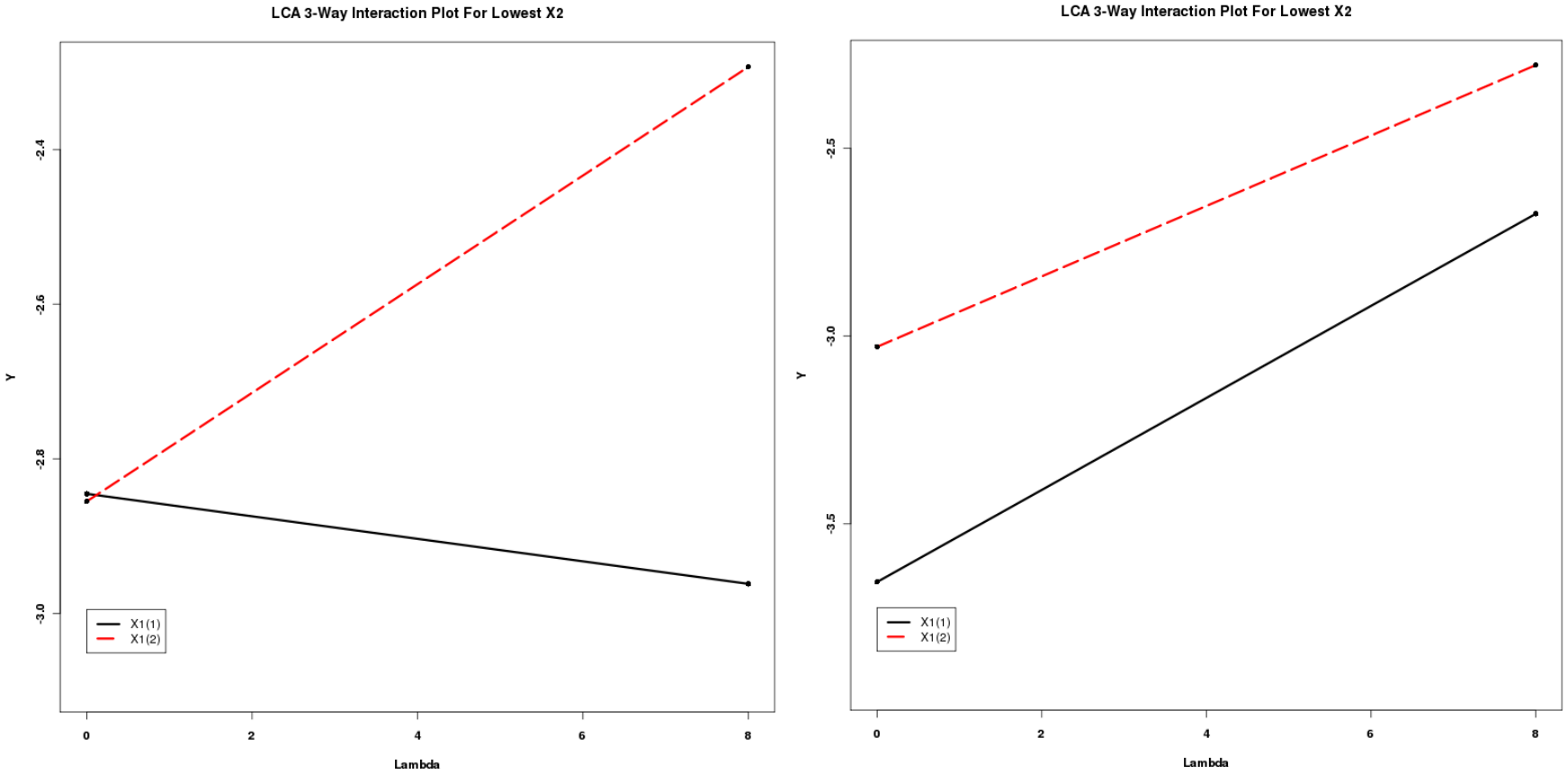
Quadratic Growth Model Results for ROA with 2004 TMT Heterogeneity and Environmental Discretion Moderator

	Intercept		***Linear Slope***		***Quadratic Slope***	
Path	**Effect**	**Sig.**	**Effect**	**Sig.**	**Effect**	**Sig.**
Firm-Position Tenure Diversity[1]	-.07	< .05	-.01	*ns*	.00	*ns*
Position Tenure Diversity[2]	-.04	*ns*	-.01	*ns*	.00	*ns*
Firm Tenure Diversity[1]	-.02	*ns*	.00	*ns*	.00	*ns*
Functional Background Diversity[1]			Model failed to converge			
Education Background Diversity[1]	-.59	< .10	-.02	*ns*	.01	*ns*
Education Level Diversity[1]	.08	*ns*	-.03	*ns*	.01	*ns*
Age Diversity[3]	-.03	< .10	.00	*ns*	.00	*ns*
Sex Diversity[1]	.43	*ns*	-.16	*ns*	.01	*ns*
Race Diversity[1]	.48	*ns*	-.14	*ns*	.02	*ns*
Firm-Position Tenure Diversity x Environmental Discretion	.06	< .05	-.01	*ns*	.00	*ns*
Position Tenure Diversity x Environmental Discretion	.00	*ns*	-.01	*ns*	.00	< .10
Firm Tenure Diversity x Environmental Discretion	.01	*ns*	.00	*ns*	.00	*ns*
Functional Background Diversity x Environmental Discretion			Model failed to converge			
Education Background Diversity x Environmental Discretion	.09	*ns*	.01	*ns*	.00	*ns*
Education Level Diversity x Environmental Discretion	-.19	*ns*	.07	*ns*	.00	*ns*
Age Diversity x Environmental Discretion	.00	*ns*	.00	*ns*	.00	*ns*
Sex Diversity x Environmental Discretion	-.11	*ns*	.05	*ns*	.00	*ns*
Race Diversity x Environmental Discretion	.32	*ns*	-.10	*ns*	.01	*ns*

[1]. $N = 148$.
[2]. $N = 147$.
[3]. $N = 139$.

Figures 5.9 and 5.10.

2004 Firm-Position Tenure Diversity x Time (Lambda) Interaction for High (left panel) and Low (right panel) levels of Environmental Discretion for ROA (Y)



Figures 5.11 and 5.12.

2004 Position Tenure Diversity x Time (Lambda) Interaction for High (left panel) and Low (right panel) levels of Environmental Discretion for ROA (Y)

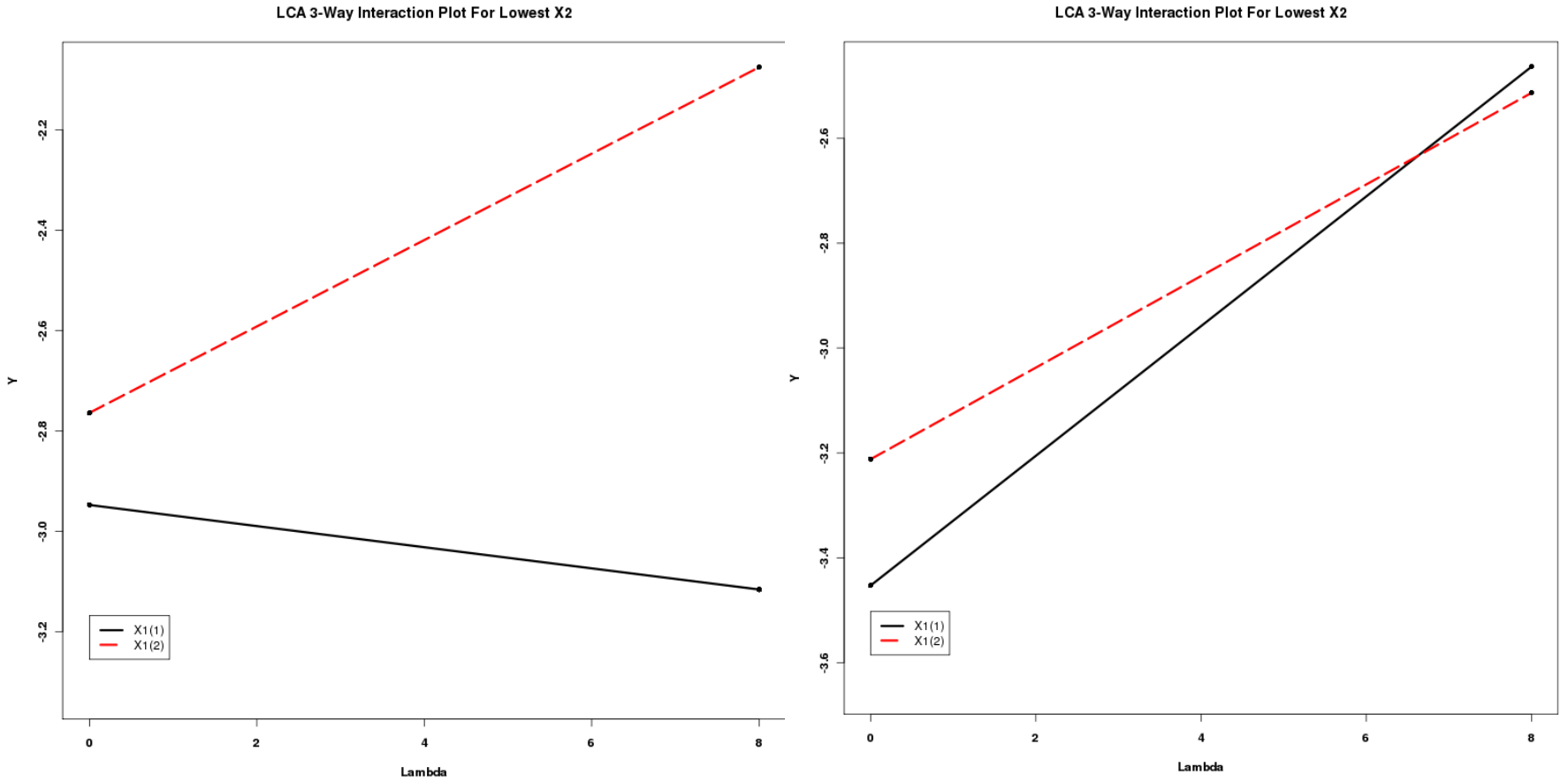


Table 5.14

Model Fit Indices for ROA with 2004 TMT Heterogeneity and Power Distribution Moderator

Model[1]	χ^2	*df*	Sig.	CFI	TLI	RMSEA	SRMR
Firm-Position Tenure Diversity	143.43	72	< .001	.94	.92	.08	.06
Position Tenure Diversity	139.59	72	< .001	.94	.93	.08	.06
Firm Tenure Diversity	136.62	72	< .001	.95	.93	.08	.06
Functional Background Diversity	Model failed to converge						
Education Background Diversity	141.78	72	< .001	.94	.93	.08	.06
Education Level Diversity	136.79	72	< .001	.95	.93	.08	.06
Age Diversity	139.04	72	< .001	.94	.92	.08	.06
Sex Diversity	141.98	72	< .001	.94	.93	.08	.06
Race Diversity	146.20	72	< .001	.94	.92	.08	.06

[1]. For simplicity, only diversity type is reported here; however, in each model all controls and applicable main effects and interactions are included.

Note. CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Residual.

Table 5.15

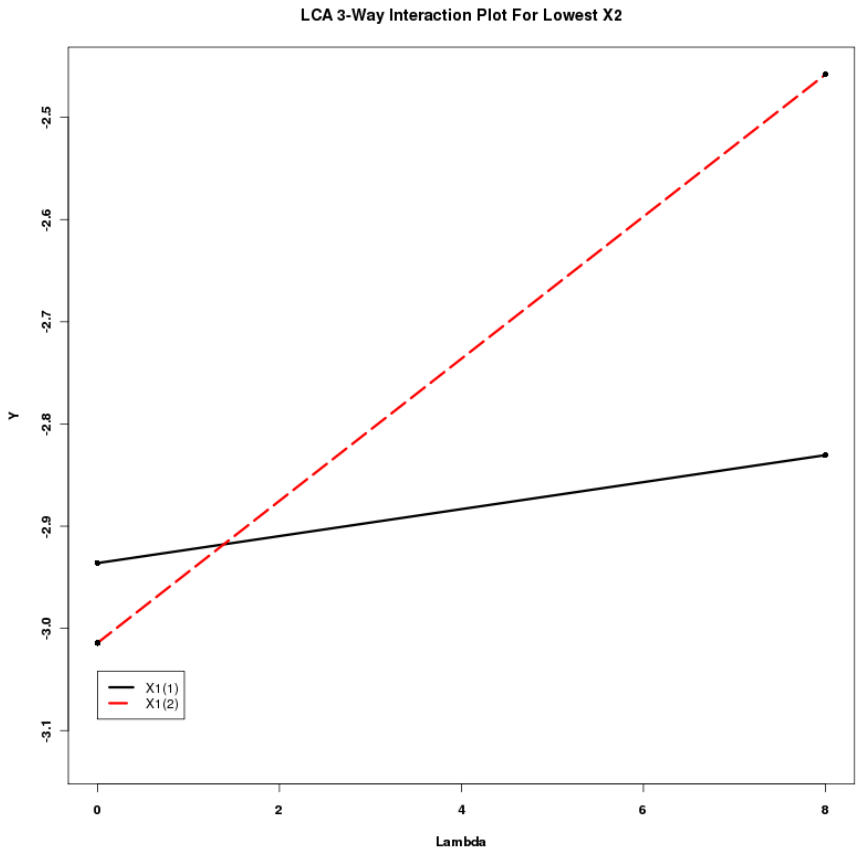
Quadratic Growth Model Results for ROA with 2004 TMT Heterogeneity and Power Distribution Moderator

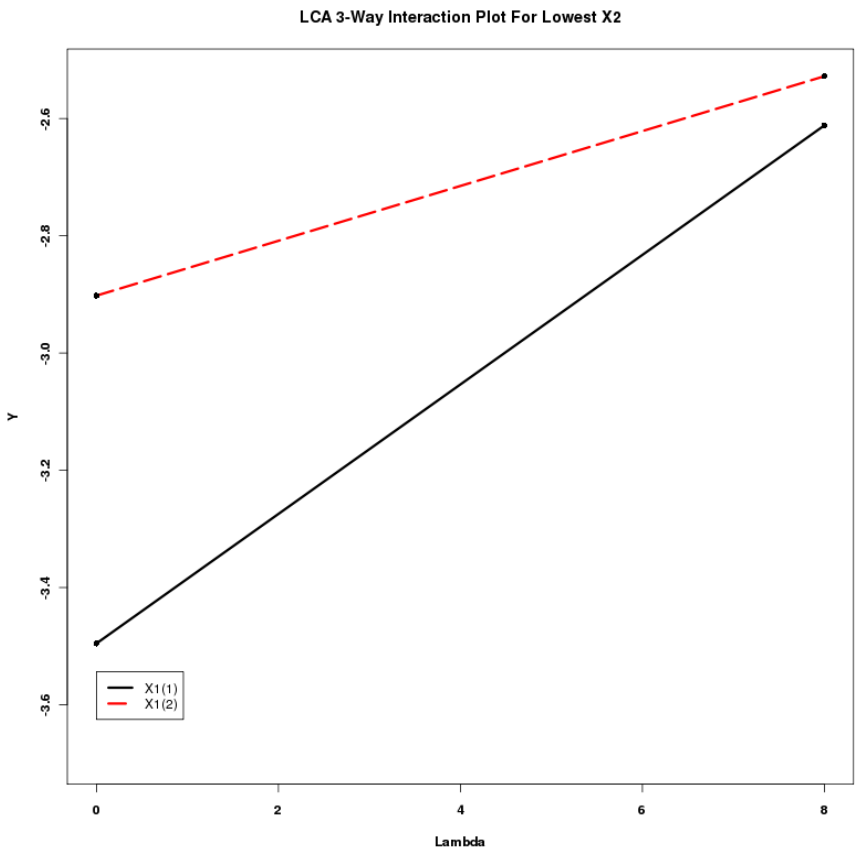
	Intercept		***Linear Slope***		***Quadratic Slope***	
Path	**Effect**	**Sig.**	**Effect**	**Sig.**	**Effect**	**Sig.**
Firm-Position Tenure Diversity[1]	-.05	*ns*	-.01	*ns*	.00	*ns*
Position Tenure Diversity[2]	-.04	< .10	-.01	*ns*	.00	*ns*
Firm Tenure Diversity[1]	-.01	*ns*	.01	*ns*	.00	*ns*
Functional Background Diversity[1]			Model failed to converge			
Education Background Diversity[1]	-.56	< .10	.01	*ns*	.00	*ns*
Education Level Diversity[1]	-.01	*ns*	.01	*ns*	.00	*ns*
Age Diversity[3]	-.03	*ns*	.01	*ns*	.00	*ns*
Sex Diversity[1]	.24	*ns*	-.14	*ns*	.01	*ns*
Race Diversity[1]	.48	*ns*	-.11	*ns*	.02	*ns*
Firm-Position Tenure Diversity x Power Distribution	.00	*ns*	.00	*ns*	.00	*ns*
Position Tenure Diversity x Power Distribution	.01	*ns*	.00	*ns*	.00	*ns*
Firm Tenure Diversity x Power Distribution	.00	*ns*	.00	*ns*	.00	*ns*
Functional Background Diversity x Power Distribution			Model failed to converge			
Education Background Diversity x Power Distribution	.24	< .01	-.04	*ns*	.01	*ns*
Education Level Diversity x Power Distribution	.01	*ns*	-.01	*ns*	.00	*ns*
Age Diversity x Power Distribution	.01	*ns*	.00	< .10	.00	*ns*
Sex Diversity x Power Distribution	.00	*ns*	.01	*ns*	.00	*ns*
Race Diversity x Power Distribution	-.26	< .05	.08	*ns*	-.01	*ns*

[1]. $N = 156$.
[2]. $N = 155$.
[3]. $N = 147$.

Figures 5.13 and 5.14.

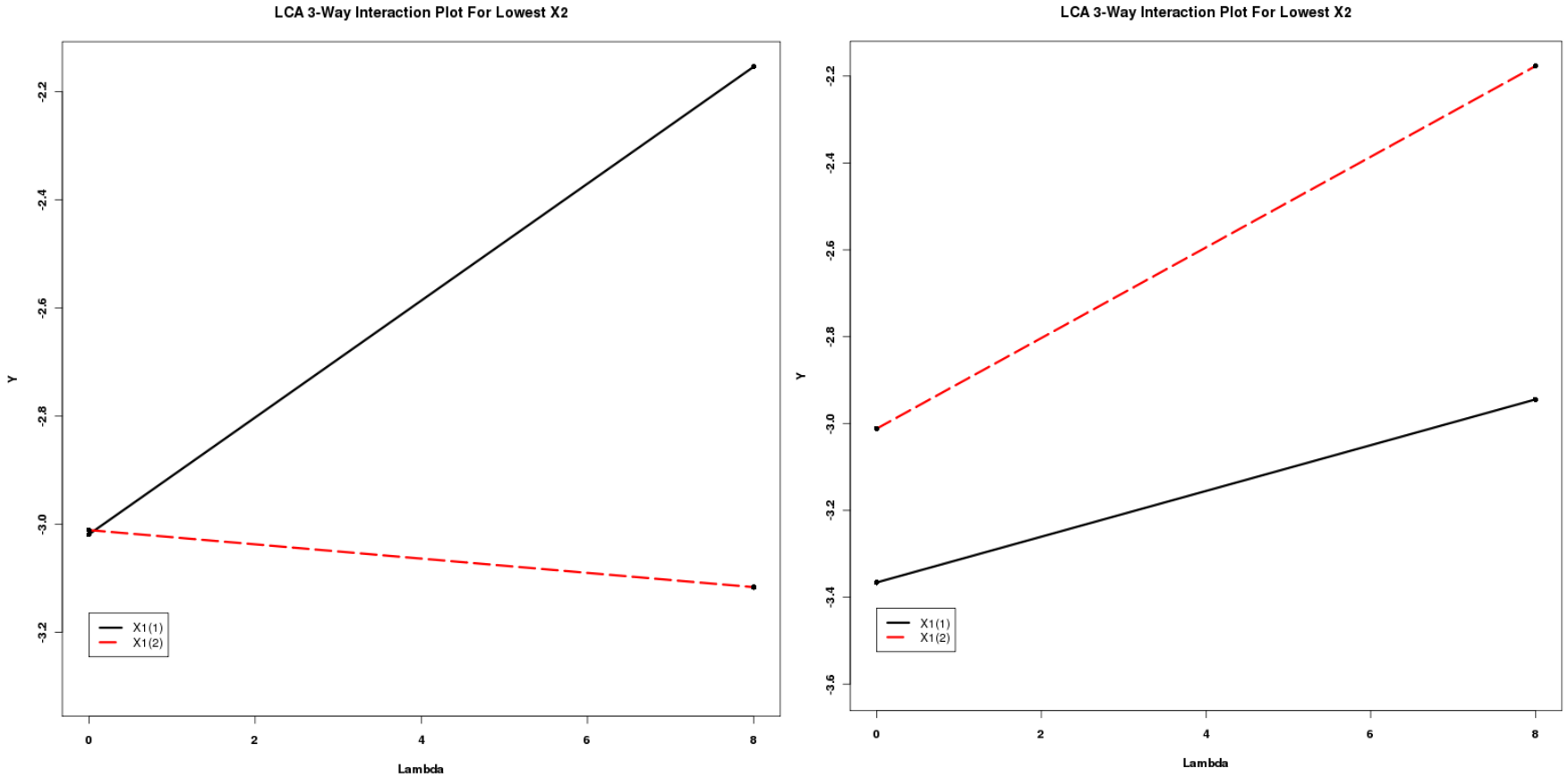
2004 Education Background Diversity x Time (Lambda) Interaction for High (left panel) and Low (right panel) Power Distributions for ROA (Y)





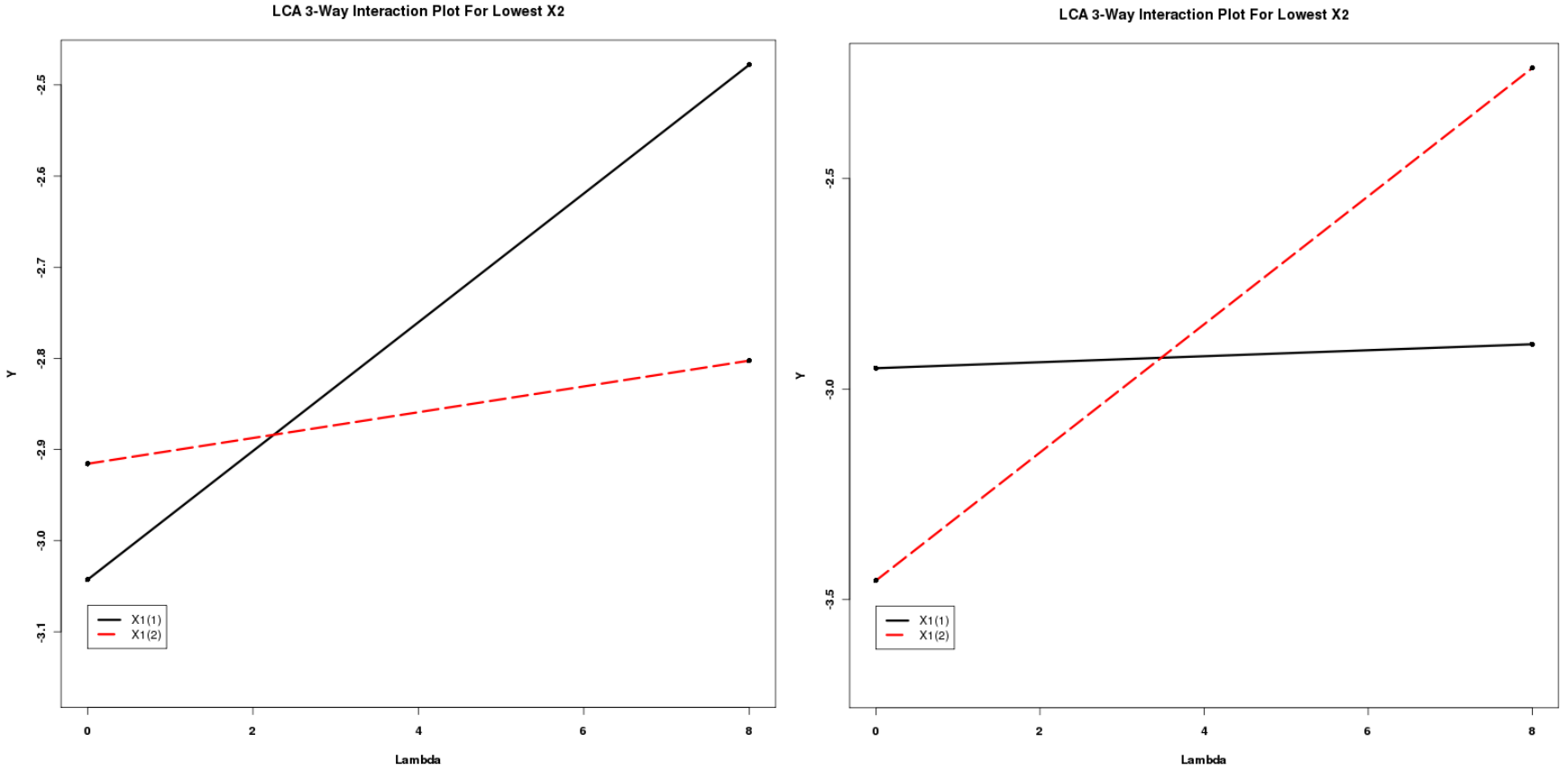
Figures 5.15 and 5.16.

2004 Age Diversity x Time (Lambda) Interaction for High (left panel) and Low (right panel) Power Distributions for ROA (Y)



Figures 5.17 and 5.18.

2004 Race Diversity x Time (Lambda) Interaction for High (left panel) and Low (right panel) Power Distributions for ROA (Y)



Figures 5.15 and 5.16 show the effect of the interaction between *Age Diversity* and *Power Distribution* on *ROA* over time. For unbalanced *Power Distributions* (Figure 5.15), larger amounts of *Age Diversity* are positively associated with *ROA* over time, while smaller amounts of diversity have a weak but negative relation. However, for balanced *Power Distributions*, both high and low amounts of *Age Diversity* are positively associated with *ROA* over time, though the relationship is weaker and has a more negative intercept for larger amounts of diversity than for smaller amounts. These results fail to support Hypothesis 7.

Figures 5.17 and 5.18 depict the effect of the interaction between *Race Diversity* and *Power Distribution* on *ROA* over time. Figure 5.17 shows a strong, positive relationship between higher amounts *Race Diversity* and *ROA* over time for unbalanced power distributions. Figure 5.18 shows that larger amounts of *Race Diversity* have no relationship with *ROA* over time when power is evenly distributed among TMT members. Smaller amounts of *Race Diversity* appear to have a positive influence on *ROA* over time, though the effect is more pronounced when power is evenly distributed. These results fail to support Hypothesis 7.

Section 5.3.4: Model Results: ROS with 2004 Heterogeneity

Environmental Discretion Results

The fourth set of analyses included no time lag between TMT heterogeneity and firm performance. The intercept, linear and quadratic slope components of the *ROS* growth model were regressed on TMT heterogeneity in 2004. Table 5.16 displays the fit indices for the analyses that included 2004 TMT heterogeneity and the *Environmental Discretion* moderator. Additionally, Table 5.17 displays the results of these analyses. A

significant main effect was found for the intercept for *Education Background Diversity* (-.72, $p < .05$). The *Environmental Discretion* variable had a significant negative effect on the linear slope for *Firm-Position Tenure*, *Position Tenure*, *Education Background*, *Educational Level*, *Sex*, and *Race Diversities*, while positive effects on the quadratic slope were found for the same diversity types. Finally, significant interactions between *Environmental Discretion* and *Firm-Position Tenure* (.08, $p < .01$) and *Position Tenure* (.05, $p < .05$) *Diversities* were found for the intercept and the *Race Diversity* x *Environmental Discretion* interaction was significant for the intercept (.91, $p < .01$) and marginally significant for the linear slope (-.15, $p < .10$) terms.

Environmental Discretion Interaction Interpretations

Figures 5.19 and 5.20 depict the effect of the interaction between *Firm-Position Tenure Diversity* and *Environmental Discretion* on *ROS* over time. As shown in Figure 5.19, when executives have a high amount of discretion, more *Firm-Position Tenure Diversity* hinders financial performance, while a positive relationship exists for smaller amounts of diversity. When discretion is low, a positive relationship with *ROS* over time exists for both high- and low diversity TMTs. Taken together these results fail to support Hypothesis 10.

Figures 5.21 and 5.22 illustrate the effect of the interaction between *Position Tenure Diversity* and *Environmental Discretion* on *ROS* over time. The results indicate that for higher levels of discretion, larger amounts of *Position Tenure Diversity* are associated with sharp declines in financial performance, whereas smaller amounts of diversity are associated with performance increases. For low discretion situations, both

larger and smaller amounts of diversity yield increases in *ROS* over time. These results fail to support Hypothesis 10.

Figures 5.23 and 5.24 depict the effect of the interaction between *Race Diversity* and *Environmental Discretion* on *ROS* over time. The results indicate a positive relationship between larger and smaller amounts of diversity and *ROS* over time in both high and low discretion situations, though there is a wider initial disparity in low discretion situations. While a positive relationship exists between diversity and *ROS* over time for high discretion scenarios, because a similar relationship exists for low discretion scenarios, the moderation argument fails to hold, therefore Hypothesis 10 is not supported by these results.

Power Distribution Results

Table 5.18 shows the fit indices for the analyses that included 2004 TMT heterogeneity and the *Power Distribution* moderator, and Table 5.19 reports the results of these analyses. No significant main effects were found for the diversity types, however, *Power Distribution* had a positive effect on the intercept for *Firm-Position Tenure*, *Position Tenure*, *Education Background*, *Educational Level*, *Sex*, and *Race Diversities*. Finally, the *Educational Level* x *Power Distribution* interaction was significant (.19, $p <$ .05) for the intercept, the *Age Diversity* x *Power Distribution* interaction was significant (.00, $p < .05$) for the linear slope, and the *Race Diversity* x *Power Distribution* interaction was marginally significant for the linear (.06, $p < .10$) and quadratic (-.01, $p < .10$) slopes.

Table 5.16

Model Fit Indices for ROS with 2004 TMT Heterogeneity and Environmental Discretion Moderator

Model[1]	χ^2	*df*	Sig.	CFI	TLI	RMSEA	SRMR
Firm-Position Tenure Diversity	141.74	72	< .001	.95	.93	.08	.05
Position Tenure Diversity	135.34	72	< .001	.95	.94	.08	.06
Firm Tenure Diversity	125.19	72	< .001	.96	.95	.07	.05
Functional Background Diversity	Model failed to converge						
Education Background Diversity	132.31	72	< .001	.95	.94	.08	.05
Education Level Diversity	131.32	72	< .001	.95	.94	.08	.05
Age Diversity	128.56	72	< .001	.95	.94	.08	.06
Sex Diversity	130.08	72	< .001	.95	.94	.07	.05
Race Diversity	134.72	72	< .001	.95	.94	.08	.05

[1]. For simplicity, only diversity type is reported here; however, in each model all controls and applicable main effects and interactions are included.

Note. CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Residual.

Table 5.17

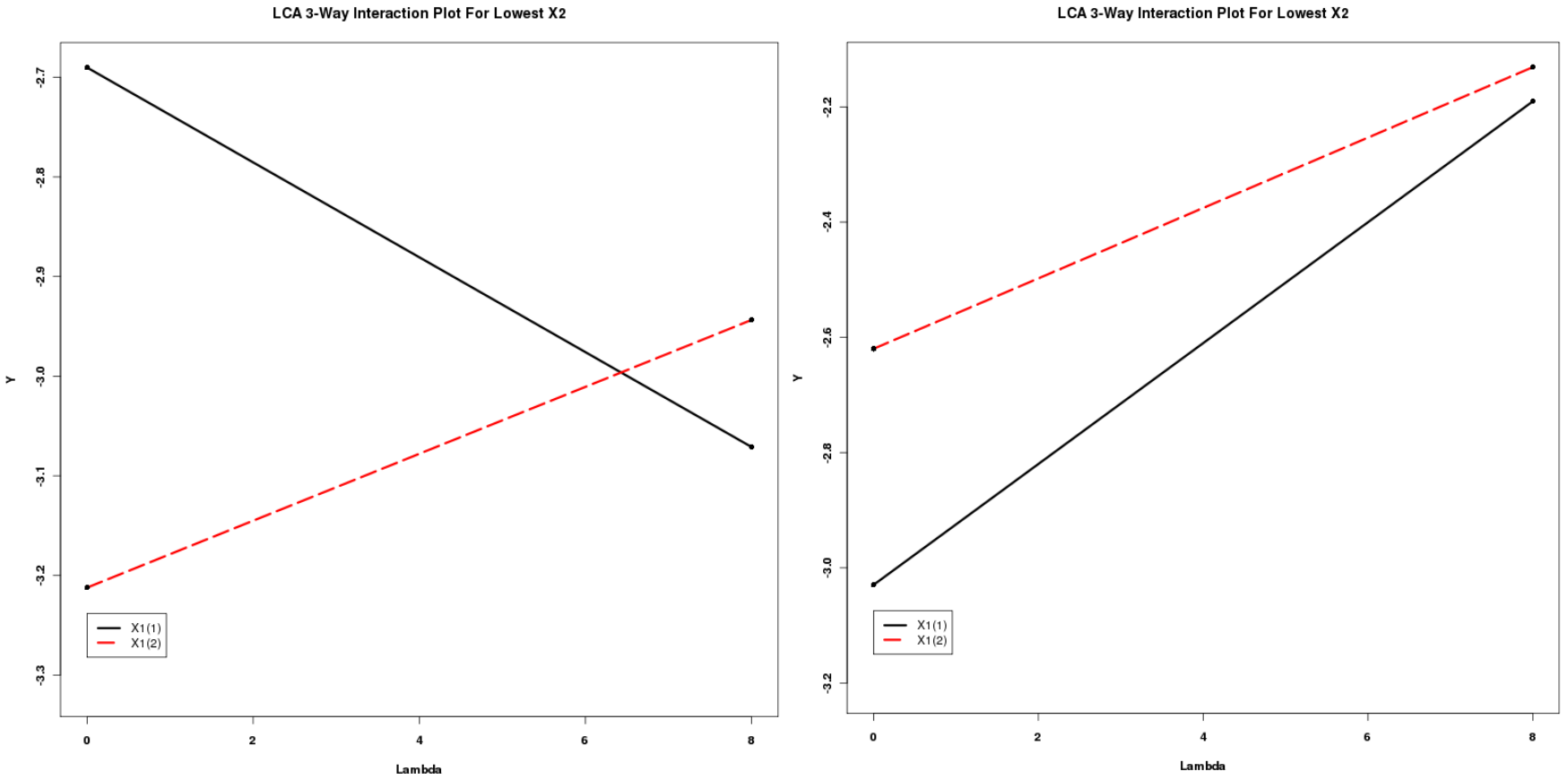
Quadratic Growth Model Results for ROS with 2004 TMT Heterogeneity and Environmental Discretion Moderator

	Intercept		***Linear Slope***		***Quadratic Slope***	
Path	**Effect**	**Sig.**	**Effect**	**Sig.**	**Effect**	**Sig.**
Firm-Position Tenure Diversity[1]	.01	*ns*	.00	*ns*	.00	*ns*
Position Tenure Diversity[2]	.03	*ns*	-.01	*ns*	.00	*ns*
Firm Tenure Diversity[1]	.00	*ns*	.00	*ns*	.00	*ns*
Functional Background Diversity[1]	Model failed to converge					
Education Background Diversity[1]	-.72	< .05	.01	*ns*	.00	*ns*
Education Level Diversity[1]	-.11	*ns*	-.01	*ns*	.01	*ns*
Age Diversity[3]	.01	*ns*	.00	*ns*	.00	*ns*
Sex Diversity[1]	.31	*ns*	-.12	*ns*	.01	*ns*
Race Diversity[1]	.27	*ns*	-.11	*ns*	.02	*ns*
Firm-Position Tenure Diversity x Environmental Discretion	.08	< .01	-.01	*ns*	.00	*ns*
Position Tenure Diversity x Environmental Discretion	.05	< .05	-.01	*ns*	.00	*ns*
Firm Tenure Diversity x Environmental Discretion	.00	*ns*	.00	*ns*	.00	*ns*
Functional Background Diversity x Environmental Discretion	Model failed to converge					
Education Background Diversity x Environmental Discretion	.44	*ns*	.03	*ns*	.00	*ns*
Education Level Diversity x Environmental Discretion	.01	*ns*	.07	*ns*	.00	*ns*
Age Diversity x Environmental Discretion	.03	*ns*	.00	*ns*	.00	*ns*
Sex Diversity x Environmental Discretion	-.12	*ns*	.05	*ns*	.00	*ns*
Race Diversity x Environmental Discretion	.91	< .01	-.15	< .10	.02	*ns*

[1]. $N = 148$.
[2]. $N = 147$.
[3]. $N = 139$.

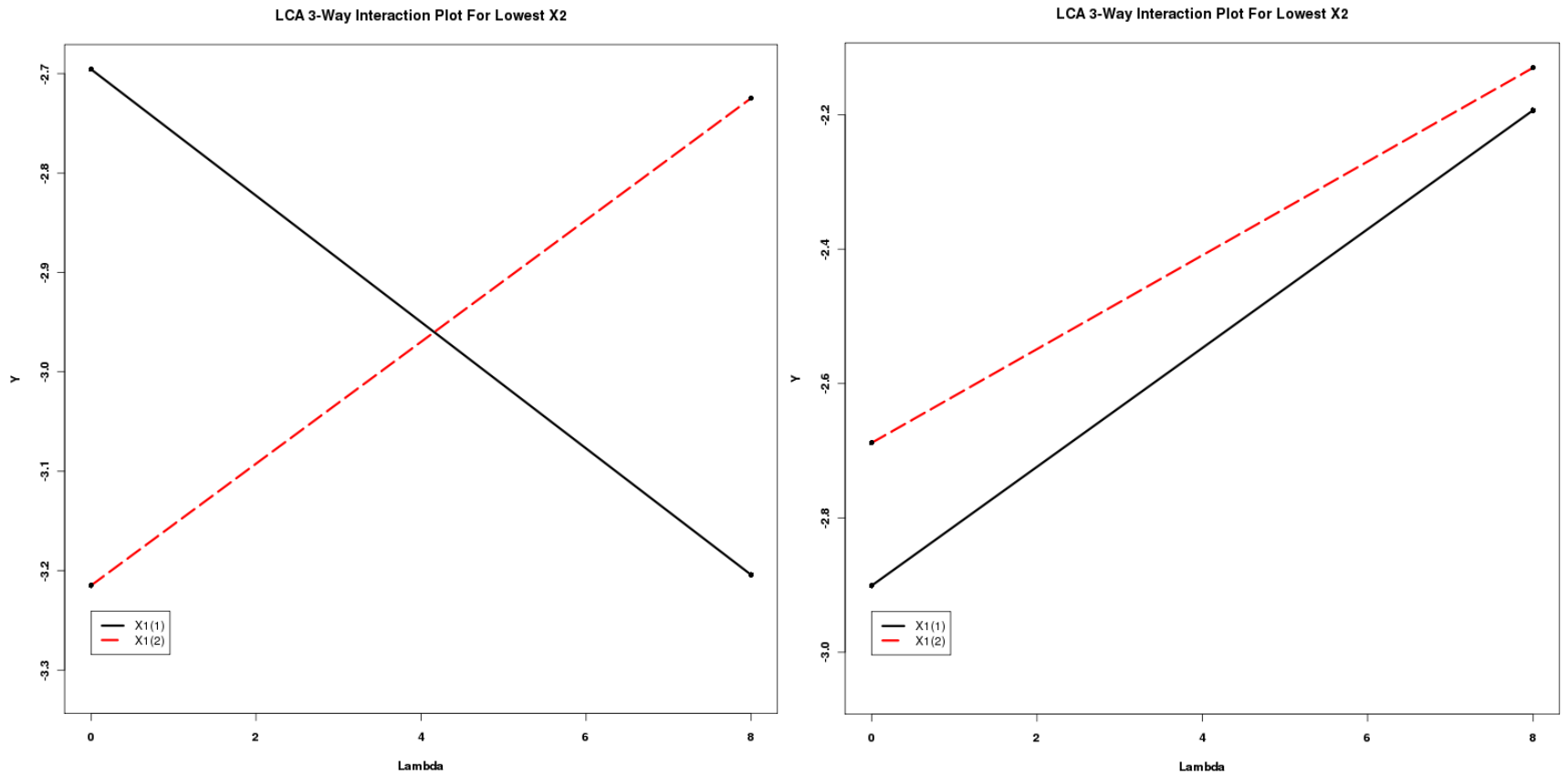
Figures 5.19 and 5.20.

2004 Firm-Position Tenure Diversity x Time (Lambda) Interaction for High (left panel) and Low (right panel) levels of Environmental Discretion for ROS (Y)



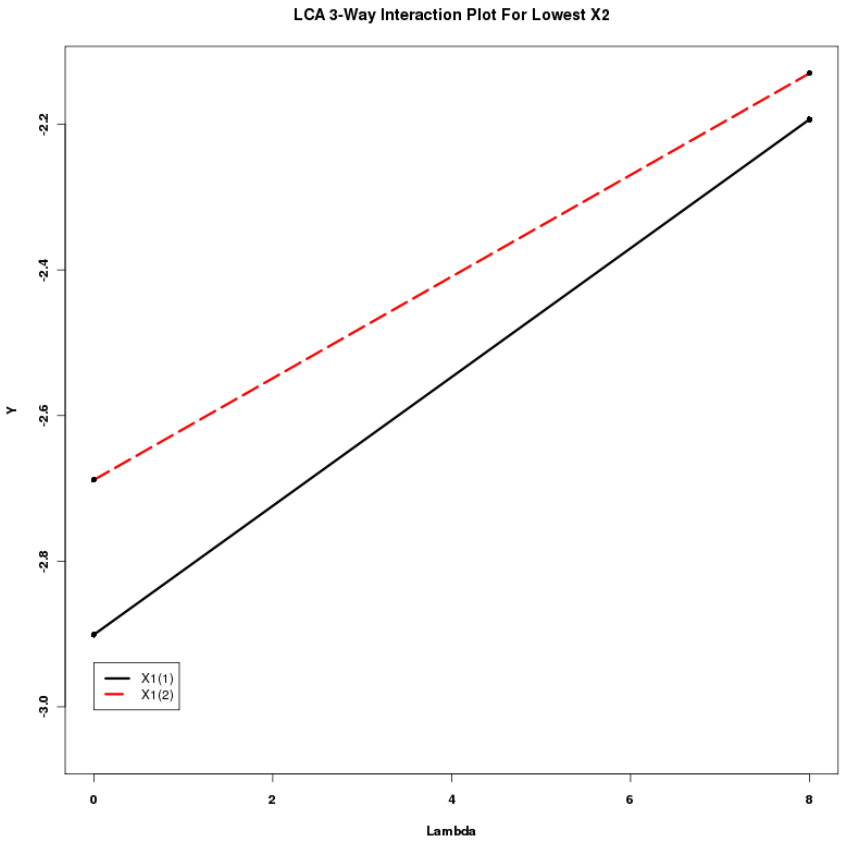
Figures 5.21 and 5.22.

2004 Position Tenure Diversity x Time (Lambda) Interaction for High (left panel) and Low (right panel) levels of Environmental Discretion for ROS (Y)



Figures 5.23 and 5.24.

2004 Race Diversity x Time (Lambda) Interaction for High (left panel) and Low (right panel) levels of Environmental Discretion for ROS (Y)



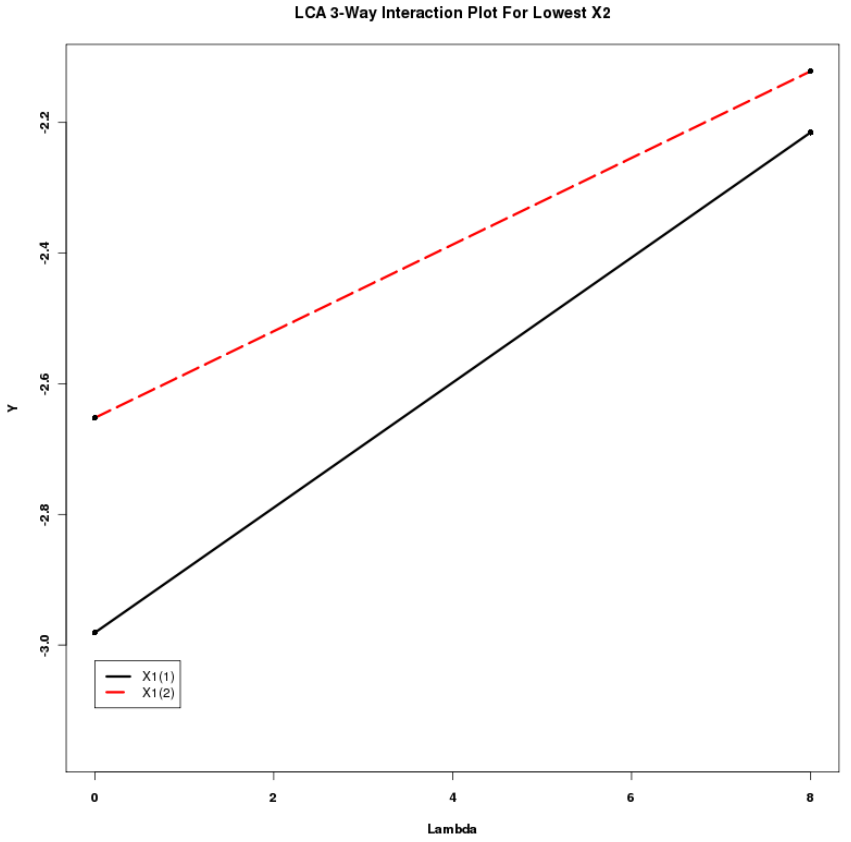


Table 5.18

Model Fit Indices for ROS with 2004 TMT Heterogeneity and Power Distribution Moderator

Model[1]	χ^2	*df*	Sig.	CFI	TLI	RMSEA	SRMR
Firm-Position Tenure Diversity	136.04	72	< .001	.95	.94	.08	.05
Position Tenure Diversity	129.56	72	< .001	.95	.94	.07	.05
Firm Tenure Diversity	Model failed to converge						
Functional Background Diversity	Model failed to converge						
Education Background Diversity	133.44	72	< .001	.95	.94	.07	.05
Education Level Diversity	126.15	72	< .001	.96	.95	.07	.05
Age Diversity	124.27	72	< .001	.96	.94	.07	.05
Sex Diversity	130.09	72	< .001	.95	.94	.07	.05
Race Diversity	135.75	72	< .001	.95	.94	.08	.05

[1]. For simplicity, only diversity type is reported here; however, in each model all controls and applicable main effects and interactions are included.

Note. CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Residual.

Table 5.19

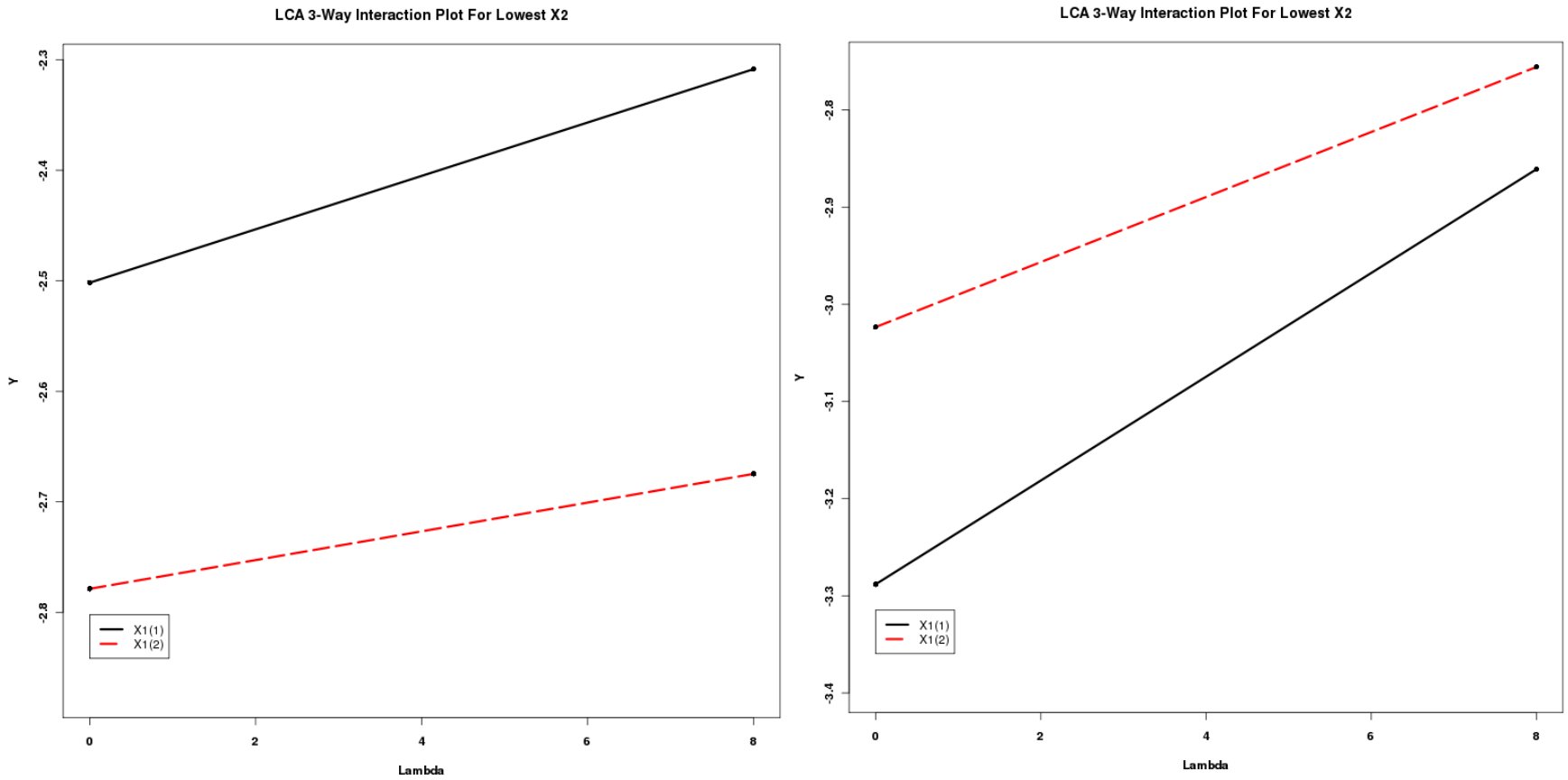
Quadratic Growth Model Results for ROS with 2004 TMT Heterogeneity and Power Distribution Moderator

	Intercept		***Linear Slope***		***Quadratic Slope***	
Path	**Effect**	**Sig.**	**Effect**	**Sig.**	**Effect**	**Sig.**
Firm-Position Tenure Diversity[1]	.03	*ns*	-.01	*ns*	.00	*ns*
Position Tenure Diversity[2]	.01	*ns*	-.01	*ns*	.00	*ns*
Firm Tenure Diversity[1]			Model failed to converge			
Functional Background Diversity[1]			Model failed to converge			
Education Background Diversity[1]	-.47	*ns*	.03	*ns*	.00	*ns*
Education Level Diversity[1]	.01	*ns*	.03	*ns*	.00	*ns*
Age Diversity[3]	.02	*ns*	.00	*ns*	.00	*ns*
Sex Diversity[1]	.21	*ns*	-.10	*ns*	.01	*ns*
Race Diversity[1]	.18	*ns*	-.08	*ns*	.01	*ns*
Firm-Position Tenure Diversity x Power Distribution	.00	*ns*	.00	*ns*	.00	*ns*
Position Tenure Diversity x Power Distribution	.01	*ns*	.00	*ns*	.00	*ns*
Firm Tenure Diversity x Power Distribution			Model failed to converge			
Functional Background Diversity x Power Distribution			Model failed to converge			
Education Background Diversity x Power Distribution	.12	*ns*	-.03	*ns*	.00	*ns*
Education Level Diversity x Power Distribution	.19	< .05	.00	*ns*	.00	*ns*
Age Diversity x Power Distribution	.00	*ns*	.00	< .05	.00	*ns*
Sex Diversity x Power Distribution	.08	*ns*	.00	*ns*	.00	*ns*
Race Diversity x Power Distribution	.08	*ns*	.06	< .10	-.01	< .10

[1]. $N = 156$.
[2]. $N = 155$.
[3]. $N = 147$.

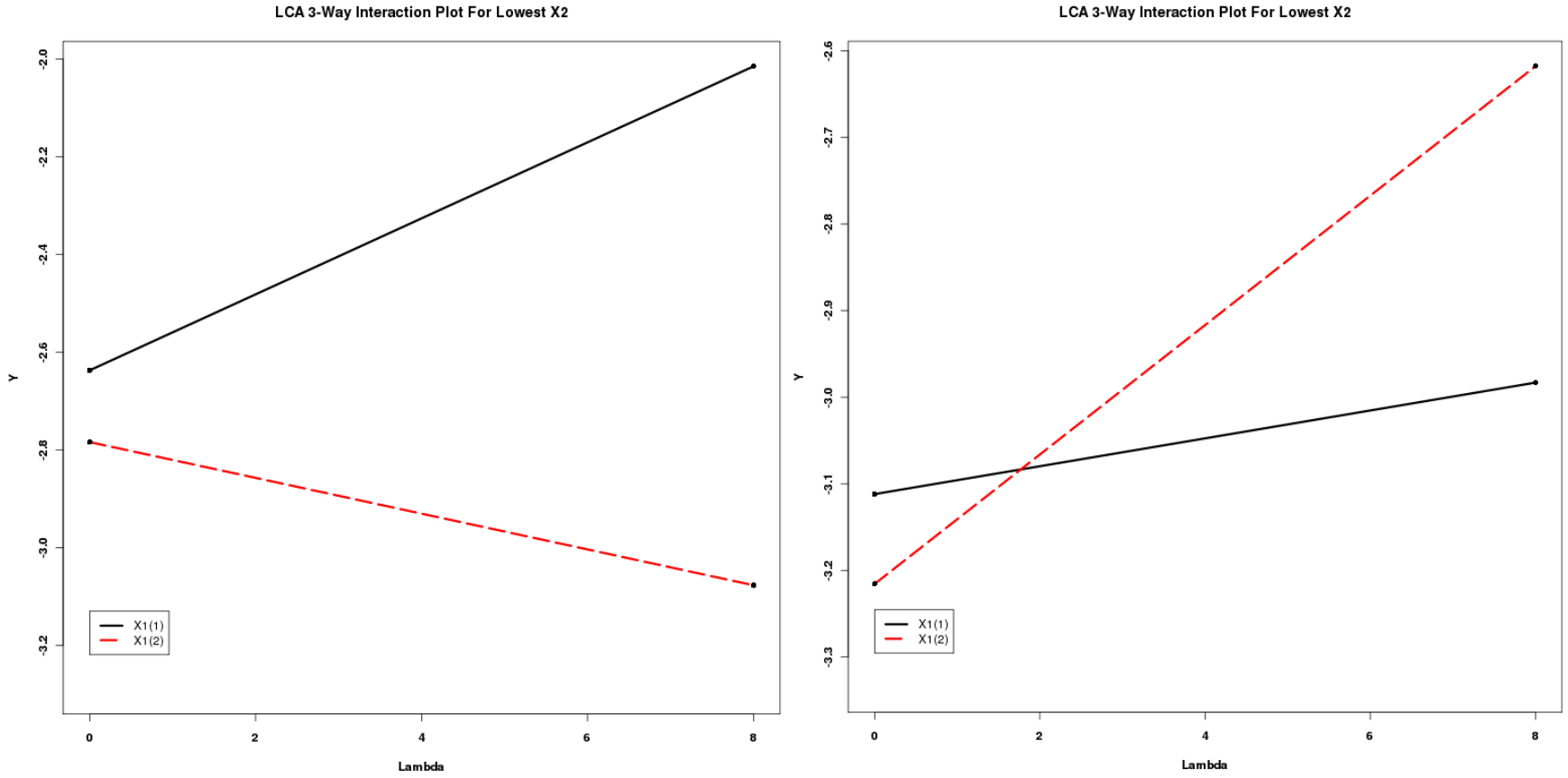
Figures 5.25 and 5.26.

2004 Education Level Diversity x Time (Lambda) Interaction for High (left panel) and Low (right panel) Power Distributions for ROS (Y)



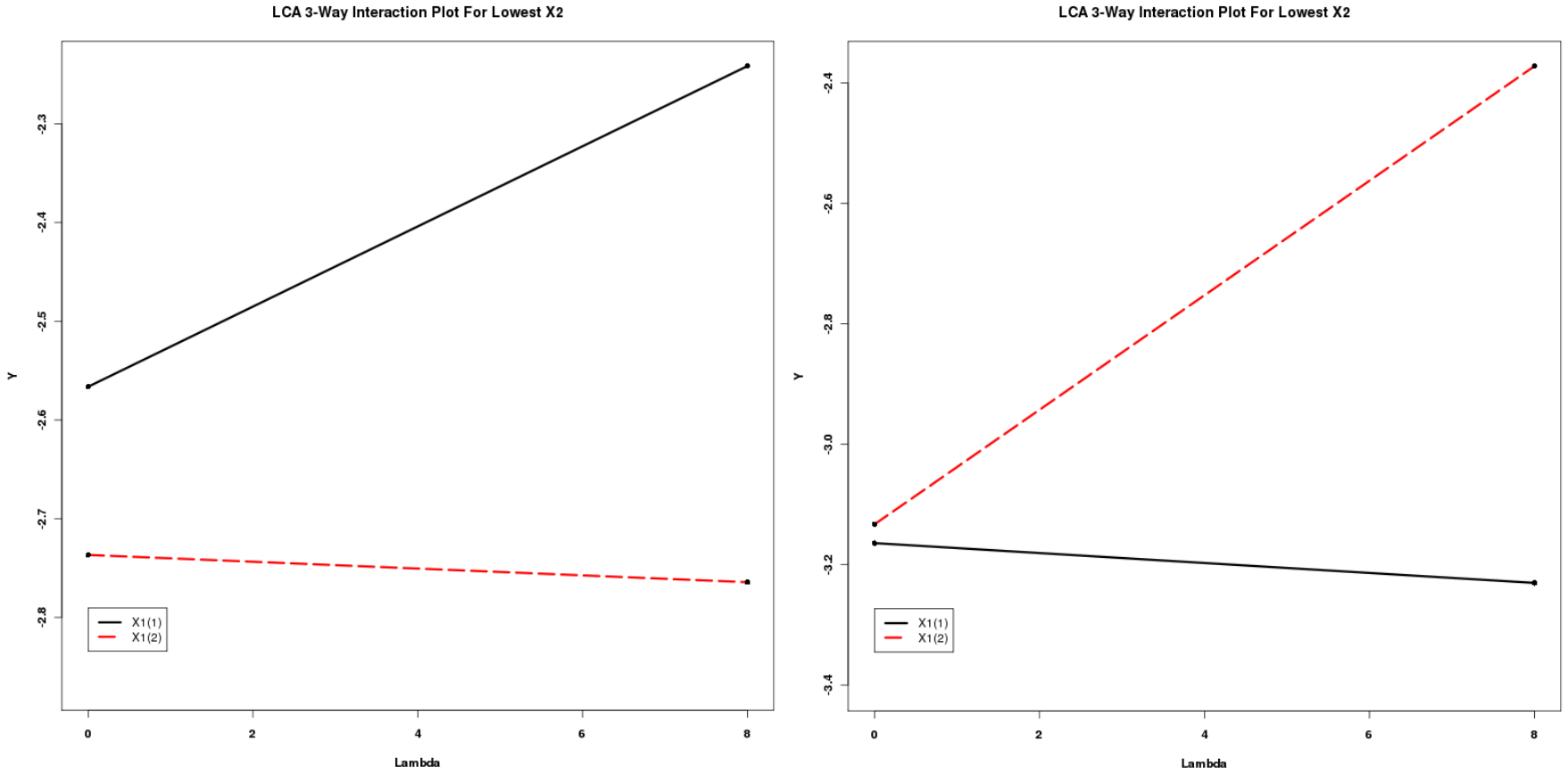
Figures 5.27 and 5.28.

2004 Age Diversity x Time (Lambda) Interaction for High (left panel) and Low (right panel) Power Distributions for ROS (Y)



Figures 5.29 and 5.30.

2004 Race Diversity x Time (Lambda) Interaction for High (left panel) and Low (right panel) Power Distributions for ROS (Y)



Power Distribution Interaction Interpretations

Figures 5.25 and 5.26 illustrate the effect of the interaction between *Education Level Diversity* and *Power Distribution* on *ROS* over time. When power is unevenly distributed (Figure 5.25) there are weak but positive relationships between both high and low levels of diversity and *ROS* over time. However, when power is evenly distributed among TMT members (Figure 5.26), the slopes of these relationships steepen, particularly so for higher level of *Education Level Diversity*. These results support Hypothesis 6.

Figures 5.27 and 5.28 depict the effect of the interaction between *Age Diversity* and *Power Distribution* on *ROS* over time. For high power distance situations (Figure 5.27), more diverse TMTs with respect to *Age* have increases in *ROS* over time, while TMTs characterized as more homogenous on this dimension have decreases in performance. However, when power is more evenly distributed, TMTs with less *Age Diversity* have increases in *ROS*; highly diverse TMTs also have gains in *ROS* over time, though the relationship is less pronounced than for less diverse TMTs. These results fail to support Hypothesis 7.

Figures 5.29 and 5.30 show the effect of the interaction between *Race Diversity* and *Power Distribution* on *ROS* over time. As before, Figure 5.29 depicts a positive association between higher amounts of diversity and *ROS* over time when power is unevenly distributed; this relationship becomes flat when power is evenly distributed. The relationship for more homogeneous TMTs is the opposite, with stronger positive effects when power is evenly distributed. These results fail to support Hypothesis 7.

Section 5.4: Multiple Regression Models

As mentioned above, the two-part growth model analyzed for the turnover variable failed to indicate any meaningful variability in the intercept or slope terms. As a result, multiple regression analyses were conducted on average *TMT Turnover* from 2004-2012. As with the financial performance models, two different sets of analyses were conducted. The first included TMT heterogeneity from 2003 (one-year time lag) while the second included TMT heterogeneity from 2004 (no time lag). Further, separate models were analyzed for each of the five moderators (i.e., *R&D Intensity*, *Advertising Intensity*, *Capital Intensity*, *Environmental Discretion*, and *Power Distribution*). Additionally, whereas with the growth models each diversity type was examined individually, in the multiple regression analyses all diversity types were included simultaneously. The hierarchical function was used to enter all control variables in Step 1, all main effects in Step 2, and all two-way interactions of interest in Step 3. All regression analyses were conducted using the SPSS software package.

Section 5.4.1: Model Results: Turnover with 2003 Heterogeneity

The models that included the *R&D Intensity*, *Advertising Intensity*, *Capital Intensity*, and *Environmental Discretion* moderators failed to achieve substantively meaningful results. In each case, only Step 1 (inclusion of control variables) explained a significant amount of variability in average *TMT Turnover*: *R&D Intensity* model (R^2 = .13, p = .05), *Capital Intensity* model (R^2 = .08, p < .05) and *Environmental Discretion* model (R^2 = .10, p < .01). Additionally, a marginally significant amount of the variability in *TMT Turnover* was accounted for by the *Advertising Intensity* model (R^2 = .12, p < .10). In each model, *Firm Size* (i.e., natural logarithm of number of employees) was

positively related to average *TMT Turnover*: *R&D Intensity* model (β = .13, $p < .05$), *Advertising Intensity* model (β = .12, $p < .05$), *Capital Intensity* model (β = .08, $p < .05$), and *Environmental Discretion* model (β = .09, $p < .01$). *TMT Size* was also marginally related to average turnover in the *Capital Intensity* (β = .08, $p < .10$) model and significantly related to average turnover in the *Environmental Discretion* (β = .09, $p < .05$) model.

The model that included the *Power Distribution* moderator produced meaningful results, though this only extended to the diversity main effects. Specifically, both *Firm* (β = .08, $p = .01$) and *TMT* (β = .09, $p < .05$) *Size* were positively related to average *TMT Turnover* in Step 1, and in Step 2, *Firm-Position Tenure Diversity* was marginally and negatively related to average *TMT Turnover* (β = -.05, $p < .10$). Step 1 explained a significant amount of the variability in average *TMT Turnover* ($R^2 = .08$, $p = .01$), though the added explanatory power of Step 2 was not statistically significant ($R^2 = .14$, $\Delta R^2 = .05$, *ns*). Given the lack of a meaningful relationship between biodemographic diversity and *TMT Turnover*, Hypothesis 5a is not supported. Additionally, although there is a significant relationship between job-related diversity and *TMT Turnover* (i.e., *Firm-Position Tenure Diversity*), the direction of the path was opposite of and therefore does not support Hypothesis 4a.

Section 5.4.2: Model Results: Turnover with 2004 Heterogeneity

The models that included the *R&D Intensity* and *Advertising Intensity* moderators failed to achieve any significant results. The models that included the *Capital Intensity* and *Environmental Discretion* moderators did achieve significant results, though this was only with regard to the control variables. In both cases, the inclusion of Step 1 explained

a significant amount of variability in average *TMT Turnover*: *Capital Intensity* model (R^2 = .07, p < .05) and *Environmental Discretion* model (R^2 = .08, p < .01). Both models returned positive effects for both *Firm* (β = .07, p < .05 and β = .09, p < .01 for *Capital Intensity* and *Environmental Discretion*, respectively) and *TMT* (β = .07, p < .10 and β = .07, p < .10 for *Capital Intensity* and *Environmental Discretion*, respectively) *Size*, though the results for *TMT Size* were marginally significant.

The results for the analysis that included the *Power Distribution* moderator are presented in Table 5.20. As with the prior models, the *Firm Size* control variable was positively related to average *TMT Turnover* (β = .07, p = .01) in Step 1. Additionally, in Step 2 only the negative influence of *Power Distribution* was marginally significant (β = -.02, p < .10). Finally, two interactions were significant: *Functional Background Diversity* x *Power Distribution* (β = .16, p < .05), and *Educational Level Diversity* x *Power Distribution* (β = .17, p = .001), and the *Age Diversity* x *Power Distribution* (β = -.01, p < .10) interaction was marginally significant.

Figure 5.31 depicts the interaction between *Functional Background Diversity* and *Power Distribution* on average *TMT Turnover*. When the distribution of power is high (solid line) diversity has a positive influence on average *TMT Turnover*, whereas when power is more evenly distributed (dashed line) more diversity is associated with a decrease in turnover. Figure 5.32 presents the interaction between *Education Level Diversity* and *Power Distribution* on average *TMT Turnover*. As before, the plot shows that when power is unevenly distributed (solid line) there is a positive relationship between diversity and average *TMT Turnover*. However, when power is more evenly spread out among TMT members, there is a negative relationship between diversity and

turnover. Further, the slope of the balanced *Power Distribution* line appears stronger than the slope of the unbalanced power distribution line. Taken together, these results partially support Hypothesis 8.

Figure 5.33 shows the interaction between *Age Diversity* and *Power Distribution* on average *TMT Turnover*. When power is unevenly distributed among TMT members (solid line) there is a weak but negative relationship between diversity and average *TMT Turnover*, though when power is more evenly distributed there is a strong positive relation. The greater magnitude of the slope for the balanced power distribution supports Hypothesis 9; however, the direction of the relationship is contrary to what was hypothesized. Thus, these results fail to support Hypothesis 9.

Section 5.4.3: Nonlinear Heterogeneity effects on Turnover

Hypotheses 4b and 5b specified a nonlinear relationship between job-related and biodemographic heterogeneity, respectively, and turnover over time. To test these hypotheses, another set of hierarchical regression analyses were conducted. As before, the average turnover from 2004-2012 was regressed onto a series of predictor variables entered in three steps. Step 1 consisted of the control variables (i.e., *Firm Size*, *Firm Age*, *TMT Size*), Step 2 included the main effects of the diversity variables, and Step 3 included the squared diversity terms. Two regression models were analyzed: one with 2003 diversity (one-year time lag) and the other with 2004 diversity (no time lag). As before, all diversity types were entered simultaneously.

Table 5.20

Multiple Regression Results for Average Turnover with 2004 TMT Heterogeneity and Power Distribution Moderator

	Predictor	Effect	Sig	R^2	ΔR^2	Sig.
Step 1				.063	.063	< .05
	Firm Size	.07	.01			
	TMT Size	.06	*ns*			
	Firm Age	.00	*ns*			
Step 2				.130	.067	*ns*
	Firm-Position Tenure Diversity	-.03	*ns*			
	Position Tenure Diversity	.03	*ns*			
	Firm Tenure Diversity	.00	*ns*			
	Functional Background Diversity	.13	*ns*			
	Education Background Diversity	-.10	*ns*			
	Educational Level Diversity	-.07	*ns*			
	Age Diversity	.02	*ns*			
	Sex Diversity	-.20	*ns*			
	Race Diversity	-.08	*ns*			
	Power Distribution	-.02	< .10			
Step 3				.269	.139	< .01
	Firm-Position Tenure Diversity x Power Distribution	.00	*ns*			
	Position Tenure Diversity x Power Distribution	-.01	*ns*			
	Firm Tenure Diversity x Power Distribution	.00	*ns*			
	Functional Background Diversity x Power Distribution	.16	< .05			
	Education Background Diversity x Power Distribution	-.03	*ns*			
	Educational Level Diversity x Power Distribution	.17	.001			
	Age Diversity x Power Distribution	-.01	< .10			
	Sex Diversity x Power Distribution	.06	*ns*			
	Race Diversity x Power Distribution	-.11	*ns*			

$N = 147$.

Figure 5.31.

2004 Functional Background Diversity (X) x Power Distribution Interaction for 2004-2012 Average Turnover (Y)

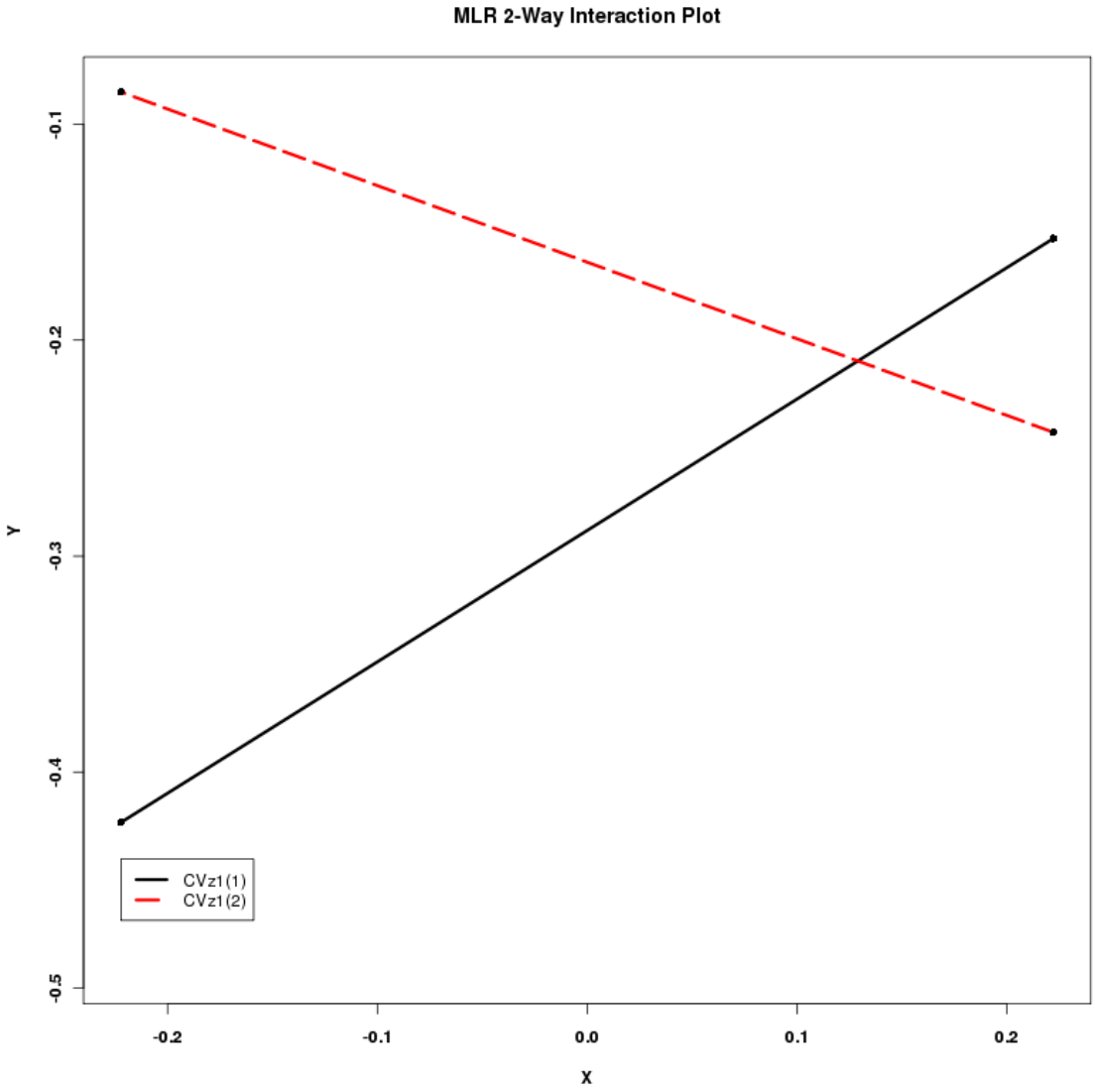


Figure 5.32.

2004 Education Level Diversity (X) x Power Distribution Interaction for 2004-2012 Average Turnover (Y)

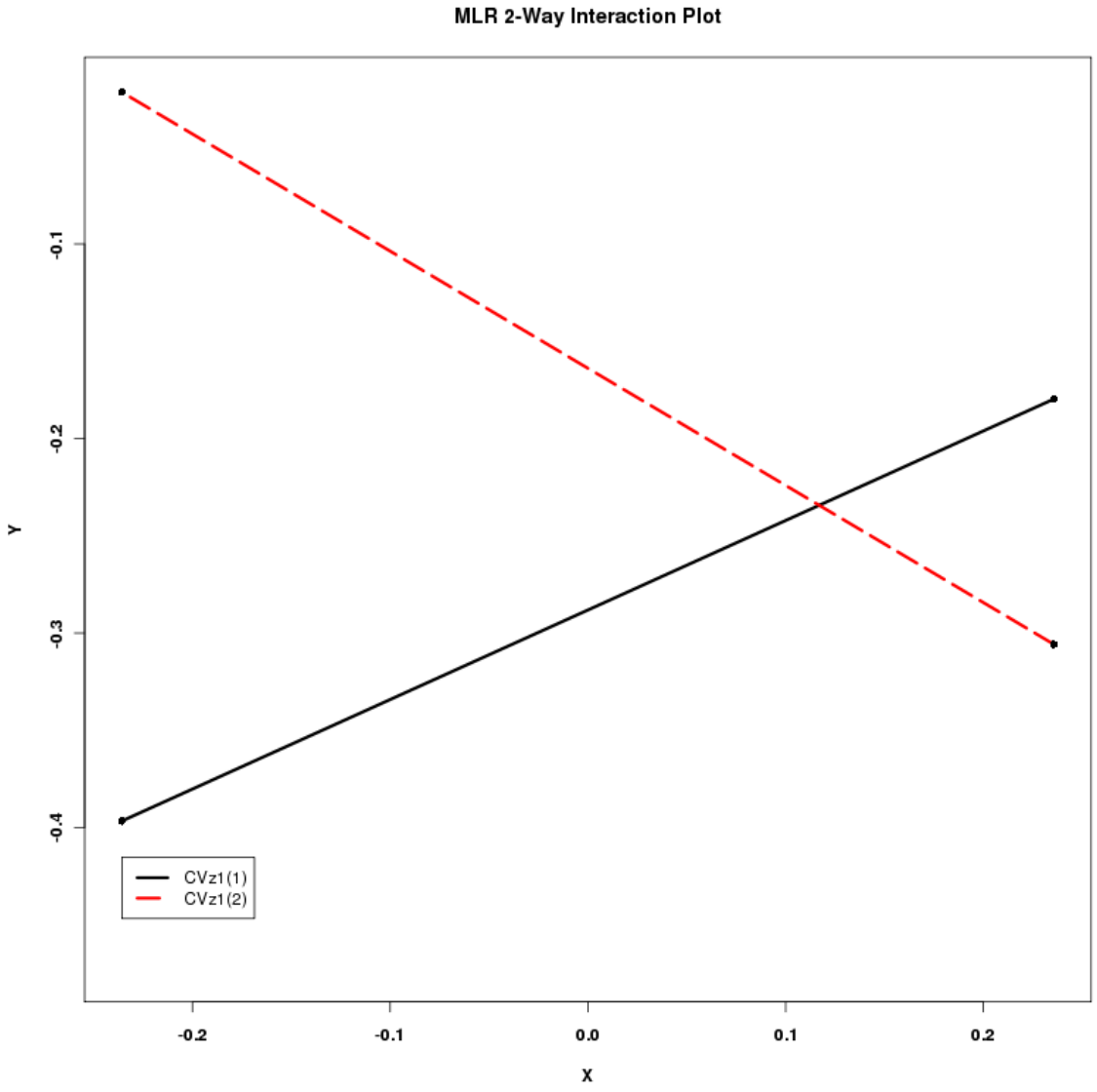
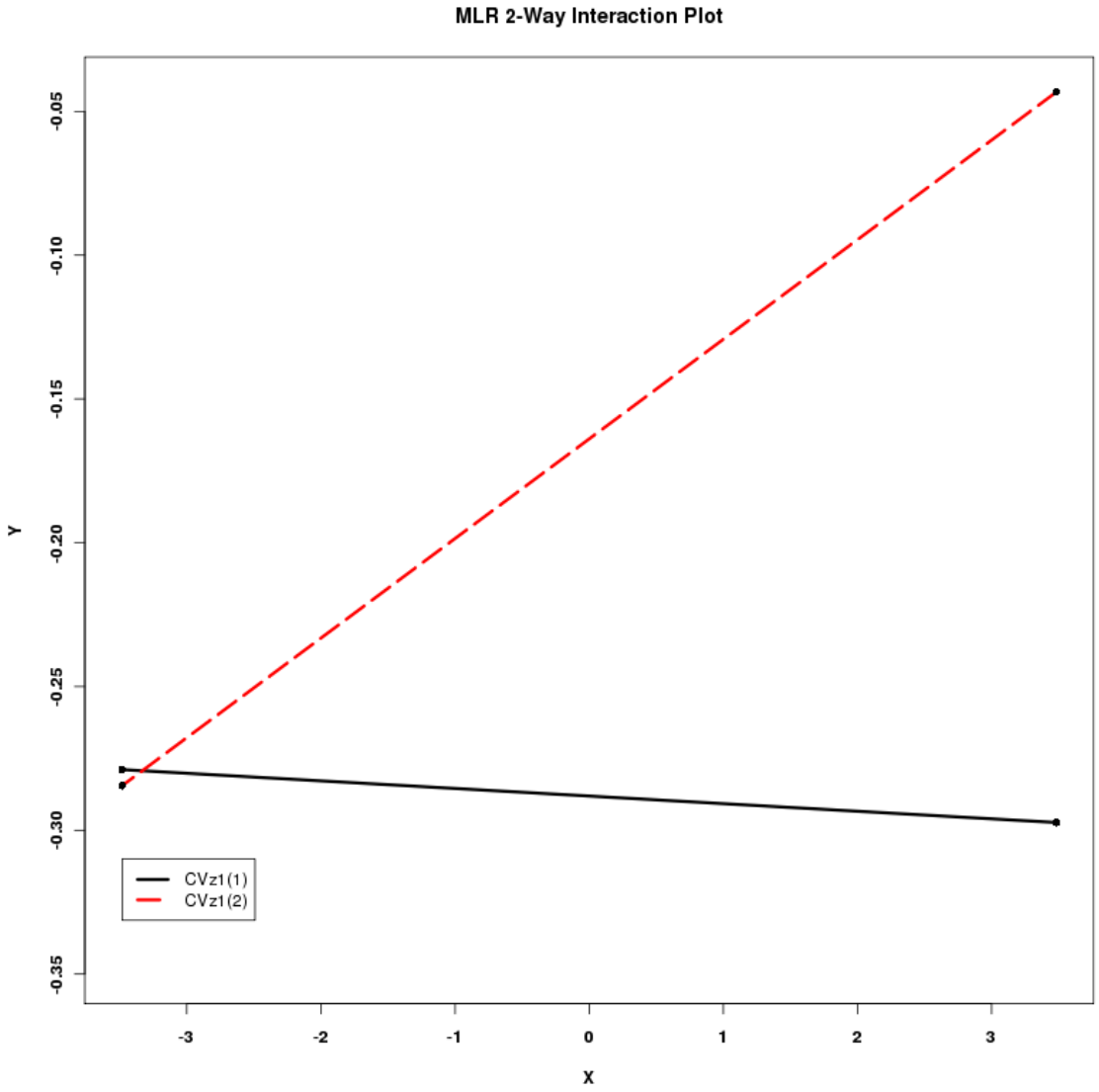


Figure 5.33.

2004 Age Diversity (X) x Power Distribution Interaction for 2004-2012 Average Turnover (Y)



For both 2003 and 2004 TMT diversity, only Step 1 explained a significant amount of variability in average *TMT Turnover* (R^2 = .08, p < .01 and R^2 = .06, p < .05 for 2003 and 2004, respectively). In both cases *Firm Size* was positively related to the outcome (β = .08, p = .01 and β = .07, p = .01 for 2003 and 2004, respectively), and *TMT Size* was also positively related to average turnover for 2003 diversity (β = .09, p < .05). The only significant squared term was for *Firm-Position Tenure Diversity* in 2003 (β = .02, p < .01), though because the linear term was not significant (β = -.04, *ns*) the hypothesized relationship did not appear. Thus Hypotheses 4b and 5b were not supported.

Section 5.5: Post Hoc Analyses

While the above results answer the majority of the hypotheses developed previously, there is one question which has yet to be answered. The first hypothesis suggested that CEOs serve as one influence in creating (or constraining) TMT heterogeneity. In the above analyses these relationships failed to materialize. However, in the attempt to more directly test this hypothesis, an additional set of regression analyses were conducted. Each type of TMT heterogeneity was regressed on its CEO characteristic counterpart. For example, *Firm-Position Tenure Diversity* was regressed on *CEO Firm-Position Tenure*.

Because several CEO characteristics are categorical variables, indicator variables were made for use in the regression analyses. *CEO Race* (0 = non-minority, 1 = minority) and *CEO Sex* (0 = male, 1 = female) were originally coded as indicator variables. However, the others (i.e., *CEO Functional Background*, *CEO Education Background*, *CEO Education Level*) were coded as categorical variables. To simplify the regression analyses, categories were collapsed to create the new indicator variables.

CEO Functional Background was collapsed into three categories consistent with prior work (Hambrick & Mason, 1984; Herrmann & Datta, 2005) in the strategic leadership literature: Output functions (advertising, marketing, research and development, technology), Throughput functions (accounting, finance, engineering, development, operations, manufacturing), and Peripheral functions (computer science, information technology, human resources, legal, management, strategy, planning). *CEO Educational Background* was collapsed into three categories: Business, Science (engineering, medical, science, computer science), and Social Science (communications, law, social science). Finally, *CEO Education Level* was collapsed into two categories: Graduate and Non-Graduate.

The results indicated that CEO Characteristics influenced TMT heterogeneity in five cases. *CEO Firm-Position Tenure* in 2002 was marginally associated with *TMT Firm-Position Tenure Diversity* in the following year ($\beta = .05$, $p < .10$). Additionally, *CEO Position Tenure* in both 2002 ($\beta = .06$, $p < .10$) and 2003 ($\beta = .06$, $p < .10$) was marginally and positively related to *TMT Position Tenure Diversity* in 2003. Finally, 2003 *CEO Race* was positively associated ($\beta = .29$, $p = .01$) with *TMT Race Diversity* in 2004. 2002 *CEO Race* ($\beta = .19$, $p < .10$) was marginally related to *TMT Race Diversity* in 2004. Together, these results partially support Hypothesis 1.

Section 5.6: Summary of Results

In sum, these results illustrate the complicated relationship between executive heterogeneity and firm outcomes. Regarding financial performance measures, heterogeneity appears to have an immediate and fleeting impact. For both measures (i.e., *ROS*, *ROA*), both years of TMT heterogeneity (i.e., 2003, 2004), and both moderators

(i.e., *Environmental Discretion*, *Power Distribution*), most of the diversity types only influenced the intercept terms. Indeed, the only diversity type that did influence financial performance over time was *Race Diversity*, and it was most often positively related to both the intercept and quadratic slope and negatively related to the linear slope. This indicates that *Race Diversity* has a nonlinear (i.e., U-shaped) relationship with financial performance over time.

As for the other diversity types, their influence was sporadically significant, though some patterns are discernible. For example, *Firm-Position Tenure*, *Sex*, and *Race Diversities* – when significant – were nearly always positively associated with the intercept term for financial performance. However, *Position Tenure*, *Education Background*, and *Age Diversities* – when significant – were always negatively associated with the financial performance intercept. The influence of *Education Background Diversity* on financial performance did become positive over time in one model (i.e., a positive influence on the quadratic slope for 2003 TMT heterogeneity, *ROS*) indicating a potential nonlinear relationship between these constructs over time.

Regarding the interactions for the financial performance outcomes, the intercept and linear slope terms were generally positive, but all interactions for the quadratic slope were negative. Delving further into these interactions elucidates patterns of relationships among the diversity types and moderators. For example, some diversity types (i.e., *Firm-Position Tenure*, *Position Tenure*) only interacted with the *Environmental Discretion* moderator while others (i.e., *Education Background*) only interacted with the *Power Distribution* moderator. Still others (i.e., *Education Level*, *Race*) significantly interacted with both moderators. Such patterns may indicate a more nuanced relationship between

executive diversity and the variables that either strengthen or weaken its effects on financial performance, a thought which will be revisited in the following chapter.

Regarding the average *TMT Turnover* outcome, fewer patterns emerge from the findings. In general, the results indicate that for job-related heterogeneity, unbalanced *Power Distributions* can be detrimental to the TMT dynamic, as indicated by increased turnover. However, when power is more evenly distributed, this type of diversity appears to be more useful to the firm. This, along with the opposite conclusion for biodemographic diversity, will be further discussed in the following chapter.

Section 5.6.1: Overview of Hypothesis Support

Though several hypotheses failed to receive support, there were others that received partial or full support (see Table 5.21). A further explication of this support is offered here.

Regarding the first hypothesis, results of the Post Hoc analyses revealed that certain types of CEOs were more likely to increase the amount of diversity on their TMT. Specifically, these results suggested that CEOs who had been in their roles longer (i.e., CEO Position Tenure) and in their firm-specific role(s) for longer (i.e., CEO Firm-Position Tenure) were more likely to have increased levels of the same diversity types in their TMTs. Increased Position Tenure Diversity suggests that longer-tenured CEOs appointed executives with a larger variety of tenures – including those with shorter tenures than themselves – than did shorter-tenured CEOs. Additionally, minority CEOs were more likely to have increased Race Diversity on their TMT, again indicating a willingness to appoint different types of executives to their executive team. These results

suggest that while CEOs may be willing to increase the diversity of their TMTs, some may be more willing than others. These findings partially support Hypothesis 1.

Hypotheses 2a and 3a suggested positive relations between job-related and biodemographic diversities, respectively, and firm performance. The results provided a complicated portrayal of these relationships. On the one hand, there were several occasions when both diversity types were *negatively* related to financial performance and these results came from both performance metrics (i.e., *ROS*, *ROA*) and both years (i.e., 2003, 2004) examined. As with prior studies, this suggests that diversity is detrimental to financial performance and refutes Hypotheses 2a and 3a. On the other hand, there were also times when diversity was associated with increases in performance. For job-related diversity, the positive associations were on the intercept term, indicating an immediate effect on financial performance. However, biodemographic diversity had positive associations mostly with the slope terms, indicating a delayed influence on performance. Because diversity was infrequently associated with performance, and several of the paths only reached marginal significance, Hypotheses 2a and 3a are partially supported.

Hypothesis 3b posited that the positive association between biodemographic diversity and firm performance would increase at a decreasing rate over time, indicating a nonlinear longitudinal relationship. The results did return a nonlinear relationship between one form of biodemographic diversity (i.e., *Race Diversity*) and performance, albeit in an unexpected shape. More specifically, the relationship between *Race Diversity* and financial performance is characterized as U-shaped. Consistent with the hypothesis, this result suggests that the relation is positive over time, though the negative bow is contrary to the hypothesis. Finally, the smaller magnitudes of the coefficients for the

quadratic slopes also indicate the relationship increases at a decreasing rate. Because the nonlinear relationship was discovered but in a different shape than what was hypothesized, this hypothesis receives only partial support.

Hypothesis 6 suggested that the power distribution within the TMT would moderate the relationship between job-related diversity and firm performance. The results largely supported this hypothesis. In situations where power was unevenly distributed among TMT members (odd-numbered figures), higher amounts of diversity (solid line) were negatively related to performance. However, when power was evenly distributed (even-numbered figures), higher amounts of diversity took on positive relations with financial performance. These results held for both *Education Background* and *Education Level Diversities* and for both performance measures (i.e., *ROA*, *ROS*). Thus, Hypothesis 6 was supported.

Hypothesis 8 posited that the TMT power distribution would moderate the relationship between job-related diversity and executive turnover. The results illustrated that the relationship between two diversity types – *Functional Background* and *Education Level Diversities* – and turnover was positive when power was unevenly distributed among TMT members. However, when power was more evenly distributed, both relationships became negative. Further, the steeper slope of the relationship for unbalanced power distributions (solid lines) indicates the relationship is stronger when power is unevenly distributed among executives, especially for *Functional Background Diversity*. These results support Hypothesis 8.

Finally, Hypothesis 10 suggested that TMT discretion would moderate the relationship between job-related heterogeneity and firm performance. The results provide

mixed conclusions regarding this hypothesis. Consistent with the prediction, *Education Level Diversity* was positively associated with performance when *Environmental Discretion* was high. However, two other diversity types, *Firm-Position Tenure* and *Position Tenure*, were either positively related to performance when discretion was low, or were negatively related to performance when discretion was high. Together these results suggest that job-related diversity is more strongly related to performance when discretion is higher, but this is only the case for certain categories of diversity. Thus, Hypothesis 10 was partially supported.

Table 5.21

Summary of Support for Hypotheses

Hypothesis	Support?
1: CEOs will try to appoint people demographically different from themselves to their TMTs.	***Partial***
2a: Job-related TMT heterogeneity is positively related to firm performance.	***Partial***
2b: The positive relationship between job-related TMT heterogeneity and firm performance will increase at a decreasing rate over time.	***No***
3a: Biodemographic TMT heterogeneity is positively related to firm performance.	***Partial***
3b: The positive relationship between biodemographic TMT heterogeneity and firm performance will increase at a decreasing rate over time.	***Partial***
4a: Job-related TMT heterogeneity is positively related to TMT turnover.	***No***
4b: Over time, job-related TMT heterogeneity and TMT turnover will have an inverse U-shaped relationship. The positive relationship between job-related TMT heterogeneity and TMT turnover will become negative over time.	***No***
5a: Biodemographic TMT heterogeneity is positively related to TMT turnover.	***No***
5b: Over time, biodemographic TMT heterogeneity and TMT turnover will have an inverse U-shaped relationship. The positive relationship between biodemographic TMT heterogeneity and TMT turnover will become negative over time.	***No***
6: TMT power distribution will moderate the relationship between job-related TMT heterogeneity and firm performance. The relationship between job-related TMT heterogeneity and firm performance will be stronger for balanced power distributions.	***Yes***
7: TMT power distribution will moderate the relationship between biodemographic TMT heterogeneity and firm performance. The relationship between biodemographic TMT heterogeneity and firm performance will be stronger for balanced power distributions.	***No***
8: TMT power distribution will moderate the relationship between job-related TMT heterogeneity and TMT turnover. The relationship between job-related TMT heterogeneity and TMT turnover will be stronger for unbalanced power distributions.	***Yes***
9: TMT power distribution will moderate the relationship between biodemographic TMT heterogeneity and TMT turnover. The relationship between biodemographic TMT heterogeneity and TMT turnover will be stronger for unbalanced power distributions.	***No***

Table 5.21, continued

Summary of Support for Hypotheses

Hypothesis	Support?
10: TMT discretion will moderate the relationship between job-related TMT heterogeneity and firm performance over time. The relationship between job-related TMT heterogeneity and firm performance will strengthen as TMT discretion increases.	***Partial***
11: TMT discretion will moderate the relationship between biodemographic TMT heterogeneity and firm performance over time. The relationship between biodemographic TMT heterogeneity and firm performance will strengthen as TMT discretion increases.	***No***
12: TMT discretion will moderate the relationship between job-related TMT heterogeneity and TMT turnover. The relationship between job-related TMT heterogeneity and TMT turnover will weaken as TMT discretion increases.	***No***
13: TMT discretion will moderate the relationship between biodemographic TMT heterogeneity and TMT turnover. The relationship between biodemographic TMT heterogeneity and TMT turnover will weaken as TMT discretion increases.	***No***

Chapter 6

Dissertation Discussion and Conclusion

Since Child's (1972) initial work the strategic leadership literature has made impressive advances in expanding our understanding of how corporate executives influence their firms. This dissertation has endeavored to contribute to this literature by taking an evolutionary approach toward TMT heterogeneity. More specifically, antecedents (i.e., CEO characteristics), consequences (i.e., *TMT Turnover*, firm performance), and moderators (i.e., *Environmental Discretion*, *Power Distribution*) were incorporated into the model to better understand where diversity comes from and what factors influence its impact on firm-relevant outcomes. This chapter discusses the study's empirical findings and highlights the contributions offered and concludes with the presentation of a future research agenda. However, study limitations are briefly discussed first.

Section 6.1: Dissertation Limitations

This study focused on TMT heterogeneity in a sample of large, established firms. On average, sampled firms had nearly 70,000 employees and had existed for almost 66 years. As a result, the findings of this study may not be immediately generalizable to smaller and/or younger firms, as these organizations face unique challenges (e.g., liability of newness; Stinchcombe, 1965) that larger firms do not. Further, because the sample for this study was taken from the list of *Fortune* 1000 firms, all were based in the United States (U.S.). As a result, the extent to which these results generalize to non-U.S. firms is unclear. Thus, future research might consider using samples of smaller, younger, or

foreign-based firms to better understand whether these factors alter the relationship between TMT heterogeneity and firm outcomes.

In addition to the sample itself, the timing of data collection for this dissertation may be problematic. Specifically, financial performance and turnover data were collected from 2004 through 2012. However, during this period the U.S. experienced a recession caused primarily by collapses of the domestic housing, automotive, and financial institutions. Due in part to challenges associated with the recession (e.g., reduced consumer spending), firms were negatively impacted during this timeframe and may have experienced below-average performance. Additionally, the weakened economy may have decreased executives' intentions to turnover if their ability to find employment elsewhere became compromised. Thus, future research that collects performance and turnover data amidst more stable economic times may uncover alternative dynamics between TMT heterogeneity and financial performance.

An additional point about the sampling for this study is worth noting. While a longitudinal sample was collected for firm performance and turnover, a lagged design was used to predict changes in firm outcomes. To more directly assess the extent to which TMT heterogeneity influences firm outcomes, heterogeneity could be collected longitudinally as well. Such a sample would allow for assessment of how changes in TMT heterogeneity influence changes in firm performance. While more difficult to execute, such a study would more accurately test the Upper Echelons perspective (Ployhart & Vandenberg, 2010).

Whereas prior work by Zajac and Westphal (Westphal & Zajac, 1995; Zajac & Westphal, 1996) has included the influence of the BOD on CEOs' decision-making, this

study excluded this entity. The rationale was such that both the CEO and BOD should be focused on improving firm performance. To the extent increasing TMT diversity results in superior performance, the BOD should have few objections in its establishment. Because of the assumed agreement between the BOD and CEO, only one entity – the CEO – was included. The lack of inclusion of the BOD may be viewed as a limitation of this study and is discussed in further detail below.

The *Organizational Discretion* moderator may also be considered a limitation of this study. As originally presented by Finkelstein and Boyd (1998), the *Organizational Discretion* construct was comprised of six indicators: market growth, R&D intensity, advertising intensity, demand instability, capital intensity, and concentration. However, three of these (i.e., market growth, demand instability, concentration) more closely align with *Environmental Discretion* as proposed by Hambrick and Finkelstein (1987) and were thus not included in the organization-level variable. This decision may have led to construct deficiency. Additionally, this could be one reason why the latent *Organizational Discretion* construct failed to form. Additional insights may be gained by future work that reexamines the psychometric properties of the *Organizational Discretion* construct.

Lastly, two limitations with respect to the outcome variables of this study warrant mention. First, this study examined both financial performance and executive turnover as outcomes of TMT heterogeneity. However, one benefit of increasing TMT heterogeneity is that novel perspectives and solutions may be arrived at during the decision making process (Cox & Blake, 1991; Williams & O'Reilly, 1998). Accordingly, future research

may more directly assess this possibility by including the novelty of strategic decisions as an outcome.

Finally, the original intention was to consider executive turnover as a categorical variable; however, because the number of occurrences for certain categories were too low, turnover was ultimately considered a count variable. Thus, future research might consider only firms that had turnover events and/or use a different or larger sample that is characterized by higher levels of executive turnover to assess these relationships at a more granular level.

Section 6.2: Discussion of Dissertation Results and Future Research

Four primary research questions guided this study:

1. In what ways are CEOs' characteristics related to the demographic heterogeneity of the TMT?
2. What is the nature of the relationship between TMT heterogeneity, firm performance, and TMT turnover?
3. What are the temporal dynamics of these relationships?
4. How do CEO and TMT power and discretion influence the relationships between TMT heterogeneity, firm performance, and TMT turnover?

Each of these questions is addressed in turn in the following section.

Section 6.2.1: Discussion of Dissertation Results and Study Contributions

Operating on the assumptions that diverse executives add value due to their unique interpretation of information and that this uniqueness is valuable to CEOs, Hypothesis 1 posited that CEOs would appoint individuals different from themselves to their TMT. As reported above, there were five instances in which CEO characteristics

were related to TMT heterogeneity, with three pertaining to CEO tenures and two to CEO race. The positive association between a CEO's Firm-Position and Position Tenures and their respective TMT diversity counterparts indicates that longer tenured CEOs tend to surround themselves with executives of varying tenures, supporting Hypothesis 1. Additionally, the positive relationship between CEO race and TMT racial diversity suggests that CEOs who are racial minorities tend to have more racially diverse TMTs, also supporting Hypothesis 1.

While the two types of CEO tenure and CEO race did relate to TMT heterogeneity, the majority of the CEO characteristics examined had no meaningful relationship to TMT diversity. Several possible explanations are worth exploring. First, Hypothesis 1 assumed both CEOs and their Boards of Directors (BODs) endeavor to increase TMT heterogeneity. Due to this agreement, CEOs should have the ability to appoint whomever they wish. However, it may be that a power struggle still occurs between the CEO and BOD to determine which executives are ultimately hired. If the CEOs in the present sample were less powerful than their BODs, they would be unable to appoint their optimal executives and the relationship between CEO characteristics and TMT heterogeneity would be constrained.

Second, CEOs' interest in TMT diversity may peak immediately after their ascension to the position and wane in subsequent years. Hambrick and Fukutomi (1991) noted that CEO interest in information diversity is high during their first two 'seasons' in office but thereafter begins to decline. The average Firm-Position, Position, and Firm Tenure of the CEOs in the present sample were approximately six years, seven years, and 18 years, respectively. Thus, by the time this study's data collection began CEOs' interest

in TMT diversity may have been lacking. Accordingly, future research may incorporate CEO power relative to the BOD and/or assess CEOs' influence on TMT heterogeneity immediately after their appointment. The foregoing discussion notwithstanding, this study makes a contribution to the strategic leadership literature by finding additional support for the notion that CEOs influence the relative degree of diversity found in their TMTs (e.g., Finkelstein et al., 2009).

The second research question in this study sought to better understand the nature of the relationship between TMT heterogeneity and firm outcomes. Given that executives influence their firms (Hambrick & Mason, 1984) and that diverse executives have access to unique sources of information and experiences with which to evaluate their environment, Hypotheses 2a and 3a argued that TMT heterogeneity would be positively associated with firm performance. However, because dissimilar team members are more likely to turnover (Schneider, 1983), Hypotheses 4a and 5a suggested a positive relationship between TMT heterogeneity and executive turnover.

The results partially supported these hypotheses for financial performance but not executive turnover. Additionally, the influence of TMT diversity differs for the two types of financial performance examined in this study (i.e., *ROA*, *ROS*). Regarding *ROA*, *Age*, *Education Background*, and *Tenure* (both *Firm-Position* and *Position*) *Diversities* were negatively associated with performance while *Sex Diversity* had a positive association. Further, all of these effects were found for the intercept growth model term, indicating a short-term influence for these types of diversity; none were associated with long-term performance. The single exception to this was the influence of *Race Diversity* which will be discussed in conjunction with Research Question 3, below.

With respect to *ROS*, *Firm-Position Tenure* and *Sex Diversities* were associated with increased performance, both in the short-term. *Education Background Diversity* was negatively related to *ROS*, but only in the short-term and only when no time lag was used. However, when a time lag was instituted, *Education Background Diversity* had a positive, long-term (i.e., positive relationship with the quadratic slope) influence on *ROS*. Once again, the relationship between firm performance and *Race Diversity* was more complicated and will be discussed more thoroughly below.

This pattern of results is curious and indicates the relationship between diversity and firm performance may be far more complex than previously thought. For those diversity types that had a persistent negative influence on performance (e.g., *Age Diversity*), it may be that the conflict associated with increased diversity outweighed the benefit of the new perspectives and sources of information. For other types of diversity (e.g., *Sex Diversity*) that had a persistent positive influence on financial performance, the benefits appear to outweigh the costs.

A more complicated picture emerges for the diversity types that have differing effects for *ROA* and *ROS*. For example, *Firm-Position Tenure Diversity* was positively associated with *ROS* but negatively associated with *ROA*. This may indicate that while executives who have served in their firm-specific positions for longer periods of time better understand how their products or services should be positioned in the market, those same executives may be resistant to newer, more efficient ways of managing their finance organization (Hambrick & Fukutomi, 1991). Thus, future research might seek to uncover the optimal match between diversity types and firm performance measures, attempting to

better understand which diversity types influence various types of performance and, more importantly, why this is the case.

Because the majority of studies in the strategic leadership literature are cross-sectional in nature, the third research question that guided this study sought to better understand how the relationships between TMT heterogeneity and firm performance and executive turnover unfold over time. Hypotheses 2b, 3b, 4b, and 5b were developed to address this question. The majority of the diversity types I examined influenced firm performance in the short term. The only meaningful influence was on the intercept term in the performance growth model. Two potential explanations for this finding are explored here. First, from a theoretical perspective, it may be that diversity largely has an immediate influence on firm outcomes. Such a finding might indicate that executives become cognitively integrated not long after joining the TMT, thereby attenuating the influence diversity has on performance. Accordingly, future research might consider assessing diversity and its influence on performance repeatedly over a given period of time and determining whether the influence changes depending on the time of measurement.

Second, from a methodological perspective, the sample size may be insufficient to capture the relationships of interest. This study utilized a sample of 200 firms. For the firm performance growth model, data were collected over nine years (i.e., 2004-2012), producing an effective sample size of 1,800 firm-years for the growth model. However, to assess the relationship between the growth model components and TMT diversity, only one year of data was used (i.e., a sample size of 200). A sample of this size may be too small to produce the amount of power required to uncover the relationships of interest.

Thus, future research might consider using a larger sample and/or collecting heterogeneity over multiple years to increase the effective sample size.

Despite these limitations, significant relationships were found between diversity and firm performance over time. Specifically, using a one year time lag *Education Background Diversity* had a positive influence on the quadratic slope for *ROS*, indicating that this type of diversity has a positive, albeit delayed influence on firm performance. Of the diversity types examined in this study, *Race Diversity* appears to have the most complicated relationship with firm performance. For both *ROA* and *ROS*, *Race Diversity* was positively associated with the intercept term, negatively associated with the linear slope, and positively associated with the quadratic slope term. In other words, *Race Diversity* displayed a nonlinear (i.e., U-shaped) relationship with both *ROA* and *ROS* over time.

Considering Research Questions 2 and 3, this study makes several contributions to the strategic leadership literature. First, it provides additional support to the rich literature that argues in favor of executive influences on firm outcomes (Hambrick & Mason, 1984). Second, by including multiple types of diversity, it illustrates a complicated association between diversity and firm performance; some diversity types are persistently negatively related to performance regardless of type while others have a pervasive positive association. For other types, however, the direction of the relationship depends on the performance metric used. Third, responding to prior calls for longitudinal samples and analyses (e.g., Beckman & Burton, 2011), this study found that some diversity types have a fleeting influence on firm performance, some have a delayed influence, and others have non-linear relationships with performance over time.

The final research question guiding this study focused on how TMT power distribution and discretion influence the relationship between heterogeneity and firm outcomes and is addressed by Hypotheses 6 through 13. In many cases, both moderators had significant main effects on financial performance. The generally positive main effect for *Environmental Discretion* suggests that financial performance is better when executives have more say over what goes on in their firms, which is consistent with the original argument laid out by Hambrick and Finkelstein (1987). The negative influence on the linear slope and positive influence on the quadratic slope for both *ROA* and *ROS* in 2004 further suggests that the relationship between financial performance and *Environmental Discretion* is nonlinear (i.e., U-shaped).

The main effects for *Power Distribution* are a bit more curious. In 2004, all main effects for *Power Distribution* were positive, while in 2003 there was a negative influence on the linear slope for *ROA* and a nonlinear (i.e., U-shaped) relationship with *ROS*. Because *Power Distribution* was operationalized as the average power distance between the most powerful and all other executives, these relations suggest that as the power distance grows (i.e., the CEO becomes more powerful than the remaining TMT members), financial performance increases. These results support prior work suggesting the CEO has a unique and primary influence on the firm and should therefore be the focus of strategic leadership and corporate governance research (e.g., Daily & Johnson, 1997).

Hambrick and Finkelstein (1987) originally argued that executives have a stronger influence on firm outcomes when discretion is high than when it is low. Because diversity is thought to result in superior decision making, executives should presumably

have a *positive* influence on firm outcomes in high discretion situations. However, the results from this study are far less straightforward. Regarding executive tenure (*Firm-Position Tenure* and *Position Tenure*), when discretion is high both forms of tenure diversity are associated with declines in firm performance. When discretion is low, both low and high levels of diversity have positive relations with firm performance, though low diversity often has a less negative intercept. Lower levels of *Race Diversity* appear to be more beneficial regardless of the level of discretion afforded to executives. The only interaction that is consistent with the original discretion argument is between *Environmental Discretion* and *Education Level Diversity*. When discretion is high, more diversity is associated with positive gains in financial performance, while lower levels of diversity are beneficial when discretion is low. As argued above, this is likely the case because high environmental uncertainty is an antecedent to elevated discretion (Hambrick & Finkelstein, 1987), and in such situations the novel viewpoints that stem from increased diversity are of increased importance.

The interactions with power distance present an equally intriguing set of results. Broadly speaking, when a high degree of power distance exists between the CEO and the rest of the TMT, increased biodemographic diversity (i.e., *Age* and *Race Diversity*) is associated with increased financial performance, while decreased biodemographic diversity is better associated with smaller power distances. The opposite result was found for job-related diversity. Specifically, *Education Background Diversity* was negatively related to firm performance when a high power distance existed and when a low power distance existed both high and low diversity firms saw increases in financial performance.

Broadly speaking, these results suggest that different types of information may be gained from various types of diversity (e.g., biodemographic, job-related). Further, depending on the situation a particular firm faces (e.g., high power distance, low discretion), these different types of diversity appear to be differentially effective. When matched correctly – as in the case of high biodemographic diversity and high power distance – diversity can yield performance gains. However, getting the match incorrect – as in the case of high job-related diversity and high power distance – can result in performance losses. Thus far the majority of executive diversity research has argued that job-related diversity is largely beneficial and biodemographic diversity is at best unimportant (Horwitz & Horwitz, 2007), however, these results suggest otherwise. Thus, future work may focus on the particular types of information gained from different diversity types, so that scholars and managers can better understand what type(s) of diversity will be maximally beneficial.

The interactions for executive turnover present still different results from those of financial performance. Specifically, when there is a high distribution of power between the CEO and the rest of the TMT, both *Functional Background* and *Education Level Diversities* are associated with increased executive turnover. As discussed previously, this is likely because diverse executives are more likely to turnover than those who are similar to others (Schneider, 1983), and reducing their ability to influence the firm (i.e., having an uneven distribution of power) exacerbates this problem. On the other hand, when power is more evenly distributed, both diversity types exhibit a negative relation with turnover. Curiously, when a high *Power Distribution* exists *Age Diversity* is unrelated to turnover, though for balanced *Power Distributions* a positive relation with

turnover was observed. Once again, these results highlight the peculiar nature of different executive diversity types.

Considering Research Question 4, this study makes several contributions to the strategic leadership literature. First, significant main effects were found – albeit not always in the hypothesized directions – for both moderators (i.e., *Power Distribution*, *Environmental Discretion*), indicating that they have meaningful direct relations with firm outcomes. Further, the main effects manifested in different patterns (i.e., linear, nonlinear), and at different times (immediately, lagged effect). Thus, to suggest that, for example, more discretion is necessarily better is not always accurate. Second, this dissertation contributes to the strategic leadership literature by expressly including intervening variables long thought to influence the relationship between executives and their firms but seldom included in studies of TMTs. Future research might consider including additional moderators and/or mediators to further clarify executive influences on firm outcomes.

The results of these analyses illustrate the complexity associated with effectively managing executive diversity. Importantly, a different set of contingencies was found for the two main diversity types (i.e., biodemographic, job-related). Thus, by examining multiple types of diversity, this study found that different forms of diversity may bring different types of information into the firm, and that these information types may be more beneficial under certain circumstances than for others.

Section 6.2.2: Future Research Agenda

In addition to clarifying the contributions this study makes, the preceding section of this chapter also offered suggestions for future research. This section briefly discusses several projects planned to extend this study's findings.

The primary focus will be on publishing the results of this study. As explained in the contributions listed previously, this study responds to prior calls for a) longitudinal samples (Beckman & Burton, 2011; Cannella & Holcomb, 2005), b) inclusion of multiple types of diversity (Carpenter et al., 2004), and c) moderators that further clarify the influence executives have on their firms (Lawrence, 1997). The data collection for this study also affords the opportunity to examine more complex relationships among the constructs of interest. As mentioned previously, while performance was assessed over time (i.e., latent growth model), the same was not true for executive diversity. Additional questions of interest focus on the extent to which changes in TMT diversity occur over time and how those changes influence changes in firm performance and executive turnover.

Additionally, in most of the prior literature a similar pattern of results is expected for the majority of firms. In other words, job-related diversity is expected to be positively associated with firm performance in general. However, this may not necessarily be the case. Instead, groups of firms may exist that benefit from unique combinations of diversity types. The application of latent profile analysis may uncover latent groups such as these. The relationship between these groups and their performance over time can then be examined to explore whether certain diversity types complement each other to bring about positive changes in performance.

One assumption this study made was that the BOD and CEO would be in agreement with respect to the benefits of increased TMT diversity. However, it may be that these two entities have differing views regarding the composition of the TMT. One perspective would suggest that BOD members would prefer a TMT comprised of executives similar to themselves (Schneider, 1983), though another would argue that BOD members might value the unique, valuable information resources that dissimilar executives would bring to the TMT (Pfeffer & Salancik, 1978). Accordingly, a future study is directed at considering the influence of the level of BOD heterogeneity on the heterogeneity of the TMT.

Because diversity is thought to increase the quality and creativity of the decision making processes, an alternative outcome to financial performance may be the extent to which firms are able to exploit new opportunities. In other words, firms with more diverse TMTs may embody a more entrepreneurial orientation (EO; see Covin & Lumpkin, 2011 for an introduction to the EO construct) which may increase firm performance (Rauch, Wiklund, Lumpkin, & Frese, 2009). Thus, future work will focus on the influence of TMT heterogeneity on a firm's EO.

Though executive turnover and financial performance were both included as outcomes in this study, relations between the two were not examined. An additional future study could be directed at examining how turnover and performance influence each other over time. For example, executives at poorly performing firms may experience more turnover as the CEO and BOD attempt to 'right the ship.' Executives at highly performing firms may also experience increased turnover, though for different reasons. High performing executives may exit the firm to take on a position of increased

responsibility at another firm. Because they would likely focus on maintaining or increasing their performance, turnover would likely be lower at average performing firms. This suggests a U-shaped relationship between firm performance and executive turnover over time.

Additionally, one of the limitations of this study is that it focused on large, established firms based in the U.S. As a result, the extent to which the above results generalize to smaller firms and/or foreign firms is unclear. This is problematic given that small firms are critically important to global economies (Koellinger & Thurik, 2012) and that international trade is becoming increasingly common (World Trade Organization, 2013). Accordingly, subsequent to an additional data collection effort to capture executive heterogeneity in multinational firms, a future study will examine the effects of executive teams on firms based in countries outside of the U.S.

Section 6.3: Lessons Learned

While working on this dissertation I learned many lessons that will help guide my future research projects. Several of these lessons pertain to this particular study, while others refer to conducting strategic leadership research generally. First, thoroughly vetting available archival databases would have been helpful early on. The data for this study largely came from executive biographies. Some executive characteristics are also available from existing databases, if only for certain executives (i.e., CEO and CFO) and for limited characteristics (e.g., sex). Starting with those databases and filling in missing data would have helped progress more rapidly through the data collection effort. Relatedly, data were collected such that each variable was collected separately (i.e., TMT

heterogeneity then TMT power). In the future, collecting all necessary data for a given individual at once might also help expedite data collection.

Having a contingency plan for study variables would have been helpful as well. Prior work (e.g., Gove et al., 2000) has encountered challenges with Finkelstein's (1992) conceptualization of power. In retrospect, anticipating difficulty with the power model and proactively establishing a viable alternative (e.g., using CEO duality as a proxy of power) would have helped speed up variable calculations and data analyses.

Regarding research in general, *time management is crucial* to successfully completing a dissertation. Each step takes time, often more than originally thought. Rushing the process leads to mistakes and oversights and while taking one's time to complete each phase of the study can make the process take longer, it will likely result in a better final product.

Organization is key. With a study this size, it becomes distressingly easy to overlook and lose track of the pieces. Keeping detailed records about, for example, how a particular variable was coded, calculated, transformed, and analyzed will make later stages of the process proceed more smoothly. Similarly, *collect more data than you think you will need*. Whether this entails increased granularity for a variable, collecting alternative forms of a particular variable, or a different variable altogether, having the added flexibility is worth the extra effort in the earlier stages of the research process.

Put together a high performing team. Research is inherently a collaborative process. A dissertation is intended to be a single-author study, though insights are gained and experience drawn from the experts pooled to guide the process. Understanding the strengths of each committee member and how those strengths work together to

complement the author's (still developing) skill set is paramount. Anyone can contribute something to a dissertation, however, putting together a team of high-performing experts will ensure proper procedure is followed and will ultimately result in a higher quality final product than would otherwise be the case.

Have patience. Patience is said to be a virtue. Dissertations – at least the present one – are large, slowly progressing studies. They take time to do correctly and as a result they are a phenomenal learning experience. Not everything goes according to plan, and when that happens it is critical to have patience and believe in the process.

The greatest lesson learned throughout this process is perhaps the most obvious: *large studies are difficult to execute*. Adding multiple moderators, antecedents, and a longitudinal data collection and analysis to what is already a complicated phenomenon makes for an even thornier dissertation. I have learned a great deal having worked on a project so large and am fortunate to have multiple studies that will likely stem from this dissertation. That said, focusing on one or more pieces and/or scaling back the magnitude of the model may have resulted in a more manageable and less stressful study to complete.

Section 6.4: Conclusion

As organizations become increasingly diverse (Van Knippenberg & Schippers, 2007) and environments increasingly complex (D'Aveni, 2010), the formula for establishing and maintaining superior firm performance has never been more vital to executives. One method to improve the decision making process and the resulting firm performance is to increase the diversity of the executive team. However, effectively managing this diversity is equally important to its existence.

Taking an evolutionary approach to the phenomenon, this dissertation sought to better understand the precursors and consequences of executive heterogeneity. Additionally, two contingency variables were considered to better understand not just *whether* diversity impacts firm outcomes, but also *when* and *how* they are likely to do so. While further refinement of its model and constructs is needed, this study has advanced the strategic leadership literature by finding additional support for the influence of CEOs in establishing diversity in their TMTs and for the long-held belief that executives influence firm outcomes (Hambrick & Mason, 1984). Perhaps this study's most compelling contributions suggest a far more complicated relationship between executive heterogeneity and firm performance. Specifically, some types of diversity have immediate and fleeting effects on performance while others have delayed and nonlinear influences. Additionally, significant – and at times nonlinear – relations between two often used moderators (i.e., power distribution, executive discretion) and firm performance were discovered. Ultimately, this study's greatest contribution was to take a step toward opening the 'black box' of organizational demography research (Lawrence, 1997) to better understand the complexities associated with the effective management of executive diversity.

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Appendix I

Dissertation Sample

	Ticker	Firm Name	Primary SIC		Ticker	Firm Name	Primary SIC
1	MMM	3M	2670	28	BAC	Bank of America Corp.	6020
2	ABT	Abbott Laboratories	2834	29	BKS	Barnes & Noble	5940
3	AET	Aetna	6324	30	BAX	Baxter International	2836
4	A	Agilent Technologies	3825	31	BBT	BB&T Corp.	6020
5	APD	Air Products & Chemicals	2810	32	BDX	Becton Dickinson	3841
6	AKS	AK Steel Holding	3312	33	BRK-A	Berkshire Hathaway	6331
7	MO	Altria Group	2111	34	BBY	Best Buy	5731
8	AMZN	Amazon.Com	5961	35	BIG	Big Lots	5331
9	AEE	Ameren	4931	36	BA	Boeing	3721
10	AEP	American Electric Power	4911	37	BMY	Bristol-Myers Squibb	2834
11	AXP	American Express	6199	38	CHRW	C.H. Robinson Worldwide	4731
12	ABC	AmerisourceBergen	5122	39	CVC	Cablevision Systems	4841
13	AMGN	Amgen	2836	40	CPB	Campbell Soup	2030
14	AAMRQ	AMR	4512	41	COF	Capital One Financial	6141
15	APC	Anadarko Petroleum	1311	42	CAH	Cardinal Health	5122
16	AMAT	Applied Materials	3559	43	CNP	CenterPoint Energy	4931
17	ADM	Archer Daniels Midland	2070	44	SCHW	Charles Schwab	6211
18	ARW	Arrow Electronics	5065	45	CHTR	Charter Communications	4841
19	ASH	Ashland	2820	46	CI	Cigna	6324
20	T	AT&T	4812	47	C	Citigroup	6199
21	ALV	Autoliv	3714	48	CLX	Clorox	2842
22	ADP	Automatic Data Proc.	7374	49	CMS	CMS Energy	4931
23	AZO	AutoZone	5531	50	CL	Colgate-Palmolive	2844
24	AVY	Avery Dennison	2670	51	CMCSA	Comcast	4841
25	AVP	Avon Products	2844	52	CAG	ConAgra Foods	2000
26	BHI	Baker Hughes	1381	53	ED	Consolidated Edison	4931
27	BLL	Ball	3411	54	GLW	Corning	3679

Appendix I, continued

Dissertation Sample

	Ticker	Firm Name	Primary SIC		Ticker	Firm Name	Primary SIC
55	COST	Costco Wholesale	5399	82	FITB	Fifth Third Bancorp	6020
56	CVH	Coventry Health Care	6324	83	FE	FirstEnergy	4911
57	CCK	Crown Holdings	3411	84	FLR	Fluor	1600
58	CMI	Cummins	3510	85	FL	Foot Locker	5661
59	DHR	Danaher	3823	86	F	Ford Motor	3711
60	DRI	Darden Restaurants	5812	87	GCI	Gannett	2711
61	DF	Dean Foods	2026	88	GPS	Gap	5651
62	DE	Deere	3523	89	GD	General Dynamics	3790
63	DELL	Dell	3571	90	GE	General Electric	9997
64	DVN	Devon Energy	1311	91	GIS	General Mills	2040
65	D	Dominion Resources	4911	92	GM	General Motors	3711
66	DOW	Dow Chemical	2821	93	GPC	Genuine Parts	5013
67	DTE	DTE Energy	4931	94	GS	Goldman Sachs Group	6211
68	DUK	Duke Energy	4931	95	GT	Goodyear Tire & Rubber	3011
69	EMN	Eastman Chemical	2821	96	GPI	Group 1 Automotive	5500
70	EIX	Edison International	4911	97	HAL	Halliburton	1389
71	LLY	Eli Lilly	2834	98	HOG	Harley-Davidson	3751
72	EMC	EMC	3572	99	HIG	Hartford Financial Services	6331
73	EME	Emcor Group	1731	100	HNT	Health Net	6324
74	EMR	Emerson Electric	3600	101	HPQ	Hewlett-Packard	3570
75	ETR	Entergy	4911	102	HD	Home Depot	5211
76	EL	Estée Lauder	2844	103	HON	Honeywell International	3728
77	EXC	Exelon	4911	104	HUM	Humana	6324
78	ESRX	Express Scripts	6411	105	ITW	Illinois Tool Works	3540
79	XOM	Exxon Mobil	2911	106	IM	Ingram Micro	5045
80	FDX	FedEx	4513	107	IP	International Paper	2621
81	FNF	Fidelity National Financial	6361	108	JCP	J.C. Penney	5311

Appendix I, continued

Dissertation Sample

	Ticker	Firm Name	Primary SIC		Ticker	Firm Name	Primary SIC
109	JEC	Jacobs Engineering Group	1600	136	NI	NiSource	4931
110	JNJ	Johnson & Johnson	2834	137	JWN	Nordstrom	5651
111	JCI	Johnson Controls	2531	138	NSC	Norfolk Southern	4011
112	K	Kellogg	2040	139	NOC	Northrop Grumman	3812
113	KMB	Kimberly-Clark	2621	140	NUE	Nucor	3312
114	KSS	Kohl's	5311	141	ODP	Office Depot	5940
115	KR	Kroger	5411	142	OMC	Omnicom Group	7311
116	LEA	Lear	2531	143	ORCL	Oracle	7372
117	LNC	Lincoln National	6311	144	OMI	Owens & Minor	5047
118	LMT	Lockheed Martin	3760	145	OC	Owens Corning	3290
119	L	Loews	6331	146	OI	Owens-Illinois	3221
120	LOW	Lowe's	5211	147	PCAR	Paccar	3711
121	MAN	Manpower	7363	148	PH	Parker Hannifin	3490
122	MRO	Marathon Oil	1311	149	PEP	PepsiCo	2080
123	MAR	Marriott International	7011	150	PFE	Pfizer	2834
124	MAT	Mattel	3942	151	PCG	PG&E Corp.	4931
125	MCD	McDonald's	5812	152	PBI	Pitney Bowes	3579
126	MHFI	McGraw-Hill	7370	153	PAA	Plains All American Pipeline	4220
127	MCK	McKesson	5122	154	PPL	PPL	4911
128	MRK	Merck	2834	155	PX	Praxair	2810
129	MSFT	Microsoft	7372	156	PG	Procter & Gamble	2840
130	MHK	Mohawk Industries	2273	157	PRU	Prudential Financial	6311
131	MS	Morgan Stanley	6211	158	PEG	Public Service Enterprise Group	4931
132	MUR	Murphy Oil	2911	159	RRD	R.R. Donnelley & Sons	2750
133	NAFC	Nash Finch	5141	160	RTN	Raytheon	3812
134	NCR	NCR	3578	161	RAD	Rite Aid	5912
135	NWL	Newell Rubbermaid	3089	162	ROK	Rockwell Automation	3620

Appendix I, continued

Dissertation Sample

	Ticker	Firm Name	Primary SIC		Ticker	Firm Name	Primary SIC
163	R	Ryder System	7510	182	USTR	United Stationers	5000
164	SWY	Safeway	5411	183	UTX	United Technologies	3720
165	SRE	Sempra Energy	4931	184	UNH	UnitedHealth Group	6324
166	SHW	Sherwin-Williams	2851	185	LCC	US Airways Group	4512
167	SFD	Smithfield Foods	2011	186	VZ	Verizon Communications	4812
168	SAH	Sonic Automotive	5500	187	VFC	VF Corporation	2300
169	SO	Southern Company	4911	188	VC	Visteon	3714
170	LUV	Southwest Airlines	4512	189	GWW	W.W. Grainger	5000
171	SPLS	Staples	5940	190	WAG	Walgreens	5912
172	HOT	Starwood Hotels & Resorts	7011	191	WMT	Wal-Mart Stores	5331
173	STI	SunTrust Banks	6020	192	WM	Waste Management	4953
174	SVU	Supervalu	5411	193	WLP	Wellpoint	6324
175	TECD	Tech Data	5045	194	WFC	Wells Fargo	6020
176	THC	Tenet Healthcare	8062	195	WCC	Wesco International	5063
177	TSO	Tesoro	2911	196	WY	Weyerhaeuser	2400
178	TXT	Textron	3721	197	WHR	Whirlpool	3630
179	TJX	TJX	5651	198	WMB	Williams	4922
180	UNP	Union Pacific	4011	199	XRX	Xerox	7374
181	UPS	United Parcel Service	4210	200	YUM	Yum Brands	5812