Antecedents and Consequences of Top Management Team Diversity: Expanding the Upper Echelons Research Stream

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Prof. Dr. Thomas Bieger

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Abstract

Top managers' characteristics play a key role in affecting organizational outcomes, yet the question of how organizations can build and benefit from diverse top management team (TMT) composition remains unanswered. This dissertation examines both antecedents and consequences of TMT diversity and, by focusing on the interface between the chief executive officer and the top management team (CEO-TMT), provides new insights into the upper echelons research stream. In particular, in four cumulative studies the dissertation explores: (a) the current state of research on the CEO-TMT interface and its contribution to the upper echelons literature; (b) the role of different selection strategies (external hiring versus internal promotion) as antecedents of diverse TMT composition; (c) the moderating impact of individual level dissimilarity and career experience diversity on the relationship between external CEO succession and firm performance; and (d) the firm performance effects of TMT diversity faultlines and the moderating role of CEOs' characteristics.

The empirical setting is based on 310 large listed firms headquartered in four European countries (Germany, the Netherlands, Switzerland and the United Kingdom) over the period 2005 to 2009. Four key findings are drawn from the papers. First, to adequately understand the antecedents and consequences of TMT composition, upper echelon researchers should pay careful attention to the interaction between the attributes of the CEO and the characteristics of other top managers. Second, different selection strategies act as key determinants of TMT composition. Organizations build diverse TMT membership by selecting dissimilar executives from inside the firm, rather than from the external labor market. Third, CEOs hired from the external labor market have a negative impact on firm performance after their appointment, except if they are demographically similar to other TMT members and possess diverse career experience. Fourth, to realize the performance benefits of TMT diversity faultlines, firms need to match the attributes of the CEO with those of other senior executives.

Overall, the central message of the dissertation is that firms should continue to embrace TMT diversity but, at the same time, they should not assume that the benefits of diverse TMT composition will be activated automatically. To enhance performance benefits from TMT diversity, firms should pay careful attention to the selection strategies through which they alter diverse TMT membership over time, as well as to the importance of the team leader (i.e., the CEO) in reducing team diversity costs and in realizing performance advantages.

Zusammenfassung

Der demographische Hintergrund von Führungskräften hat einen massgeblichen Einfluss auf unternehmerische Erfolgsgrössen. Dennoch ist wenig darüber bekannt, wie Organisationen die diverse Zusammensetzung ihres Top Management Teams (TMT) in für sie vorteilhafter Weise gestalten können. Diese Dissertation beschäftigt sich mit den Determinanten und Konsequenzen von TMT Diversität. Insbesondere die Schnittstelle zwischen CEO und TMT (CEO-TMT) wird genauer betrachtet und es werden neue Einsichten zur Upper Echelon Theorie generiert. Die Dissertation ist in vier kumulative Kapitel gegliedert: (a) Überblick über den gegenwärtigen Stand der Forschung zur CEO-TMT Schnittstelle sowie deren Beitrag zur Upper Echelons Theorie; (b) Untersuchung des Einflusses von unterschiedlichen Selektionsstrategien auf die Diversität von TMT (externe Berufung vs. interne Beförderung); (c) Analyse des Einflusses von individueller Diversität - insbesondere Kariere Erfahrung - auf die Beziehung zwischen externer CEO Berufung und Unternehmenserfolg; sowie (d) Analyse der Erfolgseffekte sogenannter "TMT Faultlines" unter Berücksichtigung des demographischen Hintergrundes des CEOs.

Der empirische Rahmen besteht aus einer Stichprobe von 310 grossen, börsennotierten Unternehmen mit Hauptsitz in vier europäischen Ländern (Deutschland, Niederlande, Schweiz und Grossbritannien) zwischen 2005 und 2009. Die Analyse lässt sich in vier zentrale Resultate zusammenfassen. Erstens: Um die Determinanten und Konsequenzen der Zusammensetzung von TMTs adäquat zu erfassen, müssen Upper Echelon Forscherinnen und Forscher die Wechselwirkung zwischen den demographischen Attributen des CEO und jener der anderen Führungskräfte berücksichtigen. Zweitens: Unterschiedliche Selektionsstrategien zählen zu den bedeutendsten Determinanten zur Erklärung der Zusammensetzung von TMTs. Organisationen erhöhen die Diversität ihres TMTs eher durch die Berufung interner Führungskräfte als über die Rekrutierung am externen Arbeitsmarkt. Drittens: CEOs, welche über den externen Arbeitsmarkt angeworben werden, haben einen negativen Einfluss auf den Unternehmenserfolg, ausser wenn sie demographisch ähnlich zu den anderen Führungskräften sind und unterschiedliche Karriereerfahrung haben. Viertens: Um Kosten von TMT Faultlines zu reduzieren, müssen Firmen auf die Kompatibilität des CEO mit den anderen Führungskräften achten.

Die zentrale Erkenntnis dieser Dissertation ist somit, dass Unternehmen nicht erwarten können, dass die Vorteile von Diversität automatisch eintreten. Dazu müssen Firmen geeignete Selektionsstrategien für Führungskräfte anwenden und dürfen die Bedeutung des CEO für die Realisierung von Diversitätsvorteilen nicht unterschätzen.

Table of contents

List of figures

List of tables

Alphabetical list of acronyms and abbreviations

B.Sc.	Bachelor of Science
CEM	Categorization-Elaboration Model
CEO	Chief Executive Officer
CEO-TMT	Chief Executive Officer and Top Management Team
CHE	Switzerland
DEU	Germany
DOI	Degree of Internationalisation
e.g.	exempli gratia (for example)
et al.	et alii (and others)
EU	European Union
€	Euro (currency)
Fau	Faultlines
FS/TS	Foreign sales to total sales
GBR	Great Britain
GLS	Generalised least-squares
HLM	Hierarchical Linear Model
i.e.	id est (this is)
log	logarithm
LSE	London Stock Exchange
MBA	Master of Business Administration
M&A	Mergers and Acquisitions
min.	minimum

M.Sc.	Master of Science
NLD	the Netherlands
OLS	Ordinary least squares
PhD	Doctor of Philosophy
R&D	Research & Development
ROA	Return on Assets
ROS	Return on Sales
SEM	Structural Equation Modeling
SIC	Standard Industry Classification
SIX	Swiss Stock Exchange
SNSF	Swiss National Science Foundation
Stata	Statistical analysis software
TLAP	Tenure Overlap
TMT	Top Management Team
UK	United Kingdom
US	United States
VIF	Variance Inflation Factor
vs.	versus (in contrast with)

1 Introduction

1.1 Relevance of the study

Institutional, economic, and organizational factors have contributed to a demographic shift that evolves at all organizational levels, including the upper levels of organizations' management. This demographic shift refers to the rising levels of diversity in top management teams (TMTs) and other working groups. Studies show that the demographic profile of executive teams in advanced economies is becoming increasingly diverse not only with regards to social attributes such as age, gender, and race, but also with regards to experiences and education (Earley & Gibson, 2002; Heijltjes, Olie, & Glunk, 2003; Rhode & Packel, 2010). Recently, European commission reports put pressure on public-listed firms to promote increasing levels of diversity in their upper tiers of management, posing challenges for organizations to develop mechanisms that allow them to benefit from diverse TMT composition (European Commission, 2012).

Based on the central assumption of upper echelons theory that organizations are reflections of their top managers (Hambrick & Mason, 1984; Hambrick, 2007), understanding how firms can optimize the benefits of diverse TMT composition is of key practical and theoretical relevance. Organizations should be aware about the factors that need to be considered at the time of executive selection in order to promote TMT diversity in a way to eventually enhance performance gains. At the same time, when encouraging firms to increase levels of TMT diversity, policy makers should know the conditions under which diverse TMT membership may have disadvantageous consequences for organizations.

Despite the relevance of this topic, however, upper echelon studies provide inconclusive results on the effects of diverse TMT composition on firm outcomes (Carpenter, Geletkanycz, & Sanders, 2004; Nielsen, 2010). Some studies show that TMT diversity has a positive impact on firm performance (Carpenter, 2002), while others provide evidence for a negative (Michel & Hambrick, 1992), or even a non-significant effect (West & Schwenk, 1996). To overcome this inconsistency, upper echelons research should adopt approaches that simultaneously consider both the drivers and consequences of TMT composition (Boone, van Olffen, van Witteloostuijn & de Brabander, 2004; Carpenter et al., 2004; Nielsen, 2009). In this vein, this dissertation attempts to increase our knowledge concerning how TMT diversity emerges and affects organizational outcomes. In doing so, it focuses on addressing the following research gaps in the prior upper echelons literature.

First, upper echelon studies that have examined the antecedents of diverse TMT configuration (e.g., Boone et al., 2004; Nielsen, 2009) have not yet considered the selection routes (i.e., external hiring versus internal promotion) through which firms select dissimilar executives and alter TMT diversity levels. This dissertation sheds light on this topic and provides practical and theoretical implications concerning the selection strategies through which firms overcome their inclinations towards homosocial reproduction and diversify TMT membership. It also demonstrates how the choice to select dissimilar executives through different selection routes eventually produces different firm performance consequences.

Second, upper echelons research has conceptualized diversity as a team level construct (for a review, see Nielsen, 2010). Very few studies have considered diversity at the individual level (e.g., Bunderson & Suttcliffe, 2002; Buyl, Boone, Hendriks & Mathyssens, 2011). To capture this adequately, the dissertation focuses on two dimensions of individual level diversity: (a) intrapersonal experience diversity and (b) demographic similarity of an individual to the rest of the TMT. The former refers to whether an individual possesses diverse career experience (Bunderson & Suttcliffe, 2002), while the latter characterizes the extent to which an individual shares common demographic attributes with other members of the team (Guillaume, Brodbeck & Ricketta, 2012; Riordan, 2000; Tröster & van Knippenberg, 2012). Examining the impact of these two individual level constructs of TMT diversity on organizations, the dissertation provides relevant implications to the field of upper echelons.

Third, scholars suggest that different forms of diverse TMT composition have different effects on organizational outcomes (Harrison & Klein, 2007). Recent studies have paid attention to the impact of diversity faultlines (or subgroups) on team performance (Bezrukova, Jehn, Zanutto & Thatcher, 2009). However, research on diversity faultlines in TMTs is limited and has provided inconclusive results (Cooper, Patel & Thatcher, *forthcoming*; Thatcher & Patel, 2012; van Knippenberg, Dawson, West & Homan, 2011). To fill this gap, the dissertation adopts a longitudinal and dynamic approach to examine how different forms of TMT faultlines affect organizational performance, and the role of the CEO in affecting this relationship.

Including all the above, the relevance of this dissertation is centered on its focus on the interface between the CEO and the TMT. According to Jackson (1992), a key paradox in upper echelons research is that, whereas it emphasizes the important role of top leaders, it disregards the distinct role of the CEO compared to the rest of the TMT. While the effects of the executive team as a whole have repeatedly been tested and received empirical support (Nielsen, 2010), the role of the CEO as the leader of the

team who influences the effects of TMT composition needs to be understood to a greater extent and integrated in the upper echelons model (Hambrick, 1994; Jackson, 1992; Klimoski & Koles, 2001). Therefore, the contribution of the dissertation to upper echelons research is also stemmed from its emphasis to understand how the CEO-TMT interface impacts TMT composition and firm outcomes.

1.2 Aim of the study and research questions

The doctoral dissertation aims to contribute to the field of upper echelons by expanding our knowledge on how and under which conditions firms are more likely to build and benefit from diverse TMT composition. To achieve this aim, the dissertation first offers an extensive review of the CEO-TMT interface in upper echelons research (research question 1). The conceptual review provides a platform based on which the three empirical chapters of the dissertation eventually treat the CEO and the TMT separately and explore the antecedents and consequences of TMT diversity (research questions 2 to 4). As CEOs play a key role in determining TMT characteristics and outcomes (Hambrick, 1994; Jackson, 1992), reviewing prior research on the CEO-TMT interface allows us to approach the research questions of the dissertation adequately and contribute to the upper echelons research stream.

Overall, the four cumulative papers of the dissertation try to answer the following questions:

Research question 1. What is the current state of the literature on the CEO-TMT interface? How should further research in this area move forward to advance the upper echelons model?

Research question 2. Through which hiring modes firms promote diverse TMT composition? What impact CEOs' characteristics, as well as organizational and environmental level factors have in this process?

Research question 3. What is the moderating impact of CEOs' individual-level experience diversity and demographic similarity with other senior executives on the relationship between CEO succession origin and firm performance?

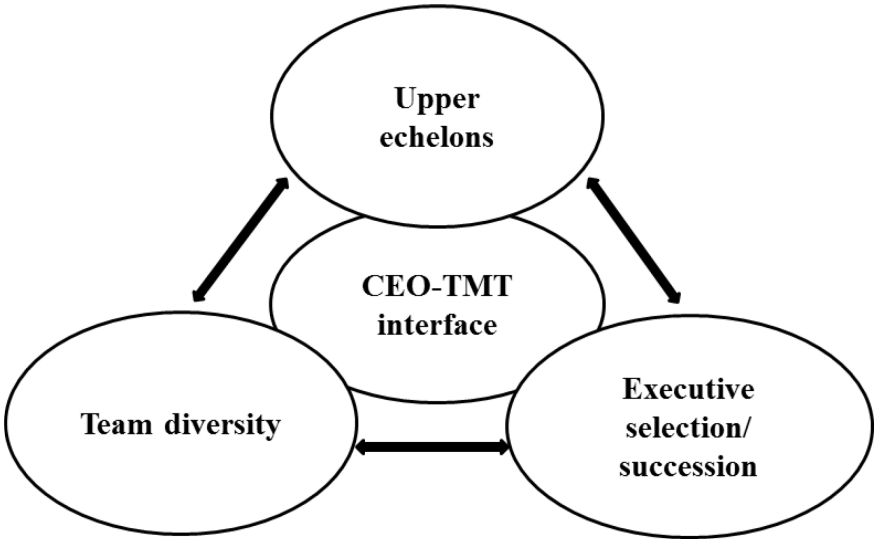
Research question 4. What is the relationship between different forms of TMT diversity faultlines and firm performance, and how do CEOs' characteristics moderate this relationship?

Focusing on these research questions, the dissertation aims to systematically highlight the distinct yet interactive roles of the CEO and the rest of the TMT in the upper echelons literature. It also attempts to contribute to the TMT diversity literature by revealing the critical factors that determine when the benefits of individual and team level diversity outweigh the costs. Next, the research scope and theoretical perspectives of the dissertation are discussed, followed by a description of the empirical setting and the structure of the dissertation.

1.3 Research scope

This doctoral dissertation draws primarily on three different research streams: (a) upper echelons, (b) team diversity, and (c) executive selection and succession (see Figure 1.1). The motivation of linking these research streams is to provide a 'dynamic view' on how diverse TMT composition emerges and impacts organizations.

Figure 1.1: Research scope



Source: Author

Interrelations among the research streams have been established in the prior literature. First, the research streams of team diversity and executive selection have often been linked to explain how diversity emerges in managerial elites. Prior studies have found that TMT diversity is a result of selective hiring and firing of TMT members over time (Boone et al., 2004; Nielsen, 2009). In addition, other studies have shown that executives who enter managerial positions through different selection routes differ in their demographic characteristics (Petersen & Saporta, 2004) and backgrounds (Bidwell, 2011). Building on these insights, the doctoral thesis explores

how different selection strategies (external hiring versus internal promotion) result in the appointment of TMT members who are demographically dissimilar to the existing team. Hence, the thesis bridges the fields of upper echelons, team diversity and executive selection to explain the antecedents of diverse TMT composition.

Second, past research has linked the fields of upper echelons and executive selection to explore the impact of the origin of CEO succession on firm performance (Finkelstein, Hambrick & Cannella, 2009). For example, prior studies have shown that the selection of new CEOs from the external labor market impacts firm level financial outcomes (Mackey, 2008), and that this relationship is determined by the changes that occur in the TMT after the appointment of a new CEO (Karaevli, 2007). By assessing the moderating impact of individual level diversity of CEOs on the performance effects of outside CEO succession, the thesis links the fields of upper echelons and executive succession with team diversity literature. In doing so, it provides important insights on how diversity attributes at the individual level (i.e., the CEO level) are critical factors on the performance effects of CEO succession.

Third, the link between TMT diversity and firm performance has been widely assessed in the prior literature (Nielsen, 2010). A number of diversity studies have focused on the notion of diversity faultlines. This type of diversity promotes separation among team members and is likely to produce negative performance outcomes (for a review, see Thatcher & Patel, 2012). Recent studies have integrated the concept of diversity faultlines with upper echelons theory to examine how the presence of subgroups at the TMT level impacts firm-level outcomes (Cooper et al., *forthcoming*; van Knippenberg et al., 2011). However, these studies provide inconclusive results and call for further research to investigate the conditions under which TMT diversity faultlines have a negative or a positive effect on firm performance (Cooper et al., *forthcoming*). Linking upper echelons with team diversity theories, this dissertation investigates how different forms of TMT diversity faultlines affect firm performance, and the moderating impact of CEOs' tenure and individual level diversity on this relationship.

At the center of the model in Figure 1.1 is the CEO─TMT interface which appears in all four papers of the dissertation to explain how CEOs and other senior executives interactively affect TMT composition and firm outcomes. Overall, the main theoretical perspective on which the doctoral thesis draws is the upper echelons perspective. However, as the thesis links different research fields, the use of different theories is essential to develop hypotheses and adequately answer the research questions of the dissertation.

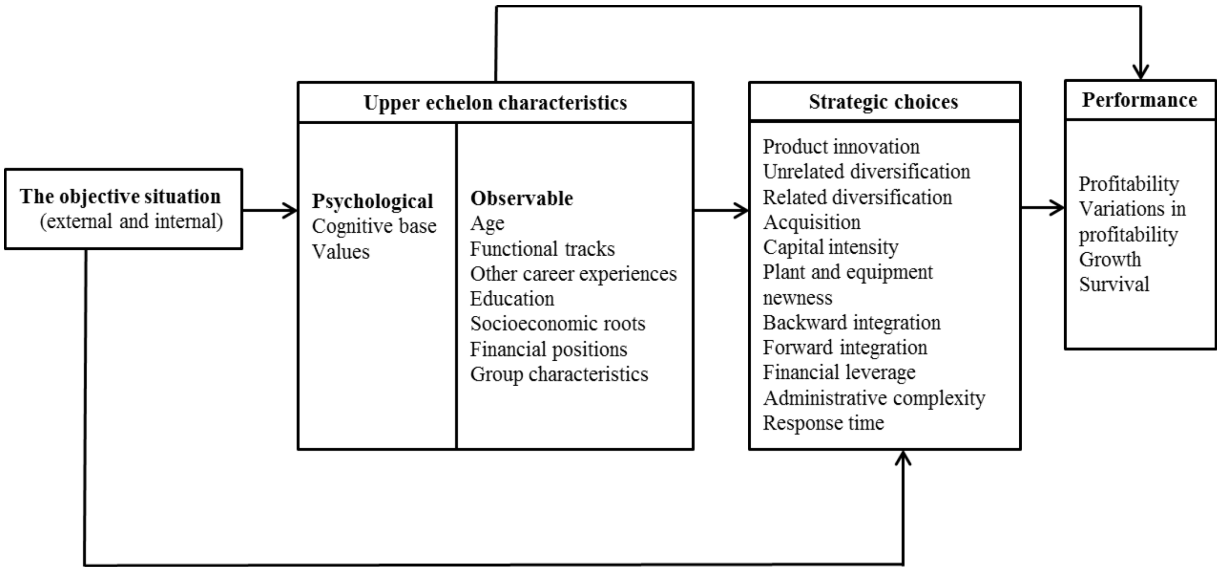
1.4 Main theoretical perspectives

1.4.1 Upper echelons theory

Rooted in Cyert & March's (1963) behavioural theory of the firm, the upper echelons perspective (Hambrick & Mason, 1984) implies that organizational decisions are not reflections of rational choices, but are rather results of top managers' "cognitive maps" through which different problems are viewed and interpreted (Dutton, Fahley & Narayanan, 1983: 310). Like other social aggregates, executive teams make decisions based on their members' cognitive frames and past experiences - as they "construct, rearrange, single out, and demolish many 'objective' features of their surroundings" (Weick, 1979: 164). Thus, assessing the impact of top managers on organizations is a worthwhile research endeavor (Boone et al., 2004; Hambrick, 2007).

In their initial upper echelons model, Hambrick & Mason (1984) illustrate a process through which top managers make strategic choices that eventually impact firm performance (see Figure 1.2).

Figure 1.2: The upper echelons perspective



Source: Hambrick & Mason, (1984: 198)

The authors claim that as human decisions are limited to the way in which individuals interpret a given situation, top managers find solutions to problems based on two types of characteristics: (a) their psychological attributes and (b) their observable demographics - such as their age, gender, nationality and experience. Since

individuals' psychological characteristics are difficult to measure and quantify, executives' demographics can be used as substitutes for examining their values, beliefs and cognitions (Hambrick & Mason, 1984). In support of this theory, several studies have shown that demographic characteristics of executives can indeed have an impact on firm actions and outcomes. At the same time, other studies have contributed to the development of the upper echelons perspective by examining how TMT composition in terms of demographic diversity affects organizations (for a review, see Nielsen, 2010).

While the upper echelons perspective has been applied widely to explain the impact of top managers' characteristics on organizations, scholars have criticized this perspective by claiming that past TMT research has neglected to address the processes through which executive characteristics are reflected on firm consequences (Cannella & Holcomb, 2005; Lawrence, 1997). In addition, other studies argue that the extant upper echelons literature has not yet empirically tackled reverse causality and endogeneity issues concerning whether TMT characteristics are a cause or an effect of organizational outcomes (Carpenter et al., 2004). Accounting for such endogeneity issues is important as it helps to avoid misinterpretation of results and make causal conclusions (Bascle, 2008). Thus, dealing with endogeneity is crucial for upper echelon research to understand the actual impact of top managers on organizations (Hambrick, 2007).

In their influential review, Carpenter et al., (2004) extended Hambrick & Mason's (1984) initial upper echelons model by providing a range of suggestion on how further research can enhance a greater explanatory power of the upper echelons model, including: (a) the need to mix upper echelons theory with theories from other disciplines beyond strategic management, such as economics and social psychology, (b) the importance of examining how environmental factors impact TMT composition and its effects on organizations, (c) the need to adopt longitudinal research designs to capture causality issues in upper echelons research, and (d) the importance to understand the role of the CEO in affecting TMT composition and firm level outcomes.

1.4.2 Team diversity theories

As mentioned before, research on team diversity offers inconsistent results. The inconsistent findings have resulted to the development of two broad categories of diversity theories: the one category describes the advantages and the other focuses on the disadvantages of team diversity (Herring, 2009; Jackson & Joshi, 2011). Below we present theories for each of the two categories.

1.4.2.1 Theories on the advantages of team diversity

Studies mainly draw on three theories to describe the advantages of diversity in teams and working groups (Jackson & Joshi, 2011). First, the *requisite variety perspective* (Ashby, 1956) suggests that organizations need to have a certain degree of diversity that corresponds to the level of complexity embedded in their environments. To adequately cope with complexity, firms need TMTs with a repertory of diverse resources (Milliken & Martins, 1996). Upper echelon studies have used this perspective to explain how diversity is generated in TMTs over time (Boone et al., 2004), as well as the subsequent effects of TMT diversity on firm performance under conditions of environmental complexity (Wiersema & Bantel, 1992).

Second, while the requisite variety perspective focuses on the macro level, the *information processing theory* emphasizes the team level, suggesting that diversity has beneficial effects in decision-making teams that face task complexity (Bantel & Jackson, 1989; Tushman & Nadler, 1978). Relative to homogeneous teams, diverse teams are better in handling complex tasks due to their greater ability to process and use diverse information (Eisenhardt & Schoonhoven, 1990). Proponents of the information processing perspective suggest that team diversity is also beneficial for decision making. As diverse teams possess variety of experiences and information, they are able to search for solutions more broadly and to develop innovative strategic decisions (Hambrick, Finkelstein, & Mooney, 2005). The information processing theory has informed several upper echelon studies about the impact of TMT characteristics and experiences on team and firm outcomes (Carpenter, 2002; Finkelstein et al., 2009; Sanders & Carpenter, 1998).

Third, the *social capital perspective* implies that diverse teams can benefit from their broad networks (Athanassiou & Nigh, 1999; Jackson & Joshi, 2011). Past studies have shown that diverse TMT members can act as boundary spanners who link the organization with its external environment (Barkema & Shvyrkov, 2007; Cannella, Park, & Lee, 2008). High levels of TMT diversity therefore imply a more diverse network base, as well as better understanding of the organization's external environmental contingencies (Connelly, Certo, Ireland, & Reutzel, 2011).

1.4.2.2 Theories on the disadvantages of team diversity

Apart from the theoretical arguments concerning the positive effects of team diversity, a different research stream that originates from the field of social-psychology sees team diversity as a factor that induces separation and "process loss" (Herring, 2009: 208; see also, Jackson & Joshi, 2011). First, *self-categorization theory*

suggests that individuals tend to identify themselves as members of social categories with regards to their attributes and backgrounds. They are inclined to view dissimilar others negatively and to interact with those who are similar to them (Tajfel, 1978; Turner, 1987). This self-categorization tendency creates a negative attitude within a diverse team and results to low intra-team cooperation and performance (Hogg & Terry, 2000). Prior upper echelon studies have used the self-categorization perspective to explain how interpersonal differences in TMTs often result to conflictual disagreements among executives and negative firm and team outcomes (Carpenter et al., 2004; Finkelstein et al., 2009; Michel & Hambrick, 1992).

Second, rooted in the similarity attraction paradigm (Byrne, 1971), the *relational demography perspective* suggests that an individual's likelihood of integrating in a team is determined by the extent to which this individual shares common characteristics with other team members (Wagner, Pfeffer & O'Reilly, 1984). Relational demography theorists suggest that individuals who are similar to the incumbent team in demographic attributes such as age, gender, and nationality, have a higher likelihood of gaining acceptance by the rest of the team and receiving the support of other team members (Jackson, Stone & Alvarez, 1993). At the same time, individuals or new members who are dissimilar to the rest of the team are likely to receive less support from existing team members, and thus, have a lower likelihood of making a positive contribution to the performance of the team (O'Reilly, Caldwell & Barnett, 1989). While the demographic similarity of candidates is equated to "ease of communication and acceptance", dissimilar individuals are perceived as "socially uncertain" (Kanter, 1977: 58), and are therefore less likely to integrate in the team after their appointment (Schneider, 1987). In the area of upper echelons, recent studies have drawn on the relational demography perspective to explain how newly appointed executives who belong to demographic minorities are less likely to receive mentoring and support from other team members (McDonald & Westphal, 2013).

Third, building on Taylor and Rae's (1969) notion of *crosscutting cleavages,* Lau and Murnighan's (1998) *faultlines theory* offers a model for studying the separation of team members into subgroups based on their alignment across multiple characteristics. The faultlines framework suggests that strong *faultlines* exist when team members are aligned into distinct homogeneous subgroups. The presence of strong faultlines can lead to high levels of cross-subgroup tension and conflict and low performance (Bezrukova, Thatcher, & Jehn, 2007; Lau & Murnighan, 1998). In the context of TMTs, empirical studies have found that strong faultline settings typically produce negative firm and team performance outcomes (Li & Hambrick, 2005;

Thatcher & Patel, 2012). Recent studies, however, show that under certain conditions the presence of TMT subgroups is also associated with some benefits (Cooper et al., *forthcoming*; van Knippenberg et al., 2011).

1.4.3 Labor market and skill specificity theories

Labor market theories distinguish between two paths through which firms can hire candidates to fill managerial positions. The first path is to promote individuals from inside the firm, while the second is to select individuals from the external labor market (Doeringer & Piore, 1971; Granovetter, 1981). Labor market theories have focused on matching the characteristics of candidates who enter firms through different selection routes (external hiring or internal promotion) to the demands of different positions (Baker, Gibbs & Holmstrom, 1994; Rosenbaum, 1979).

First, *human capital theory* classifies skills into two categories: specific and generic skills (Becker, 1975). Specific skills are "context-bound" (Perkins & Salomon, 1989: 18) and the level of skill specificity is therefore determined by the specificity of the context to which the skills are attached. In contrast, generic skills are highly transferable across different contexts (Castanias & Helfat, 1991; Sturman, Walsh & Cheramie, 2008). As internal candidates have previously worked inside the firm, they tend to possess a greater degree of firm specific skills and knowledge of the organization compared to externally hired candidates (Becker, 1975). This lack of firm specific knowledge puts externally appointed executives on a disadvantageous position compared to internally selected candidates. In the context of management teams, recent research shows that internally promoted individuals tend to outperform those hired from outside the organization due to the latters' lack of knowledge concerning the internal environment of the firm (Bidwell, 2011). However, studies have shown that the selection of external candidates matches better to positions and situations in which innovation and change is essential (Haleblian & Finkelstein, 1993). Under such conditions, external candidates are more likely to offer benefits to teams and organizations (Karaevli, 2007).

Second, *incomplete information theory* suggests that relative to internal candidates, organizations possess less information about an external candidate's skills and abilities (Granovetter, 1981). This is because internal candidates have previously worked within the firm, and thus, they have demonstrated the skills and abilities developed during their prior tenure within the organization (O'Reilly, Chatman & Caldwell, 1991). In contrast, external candidates have not worked inside the firm, and thus, information on their past performance is often unavailable to the organization

(Zajac, 1990). Research has shown that information on an external candidate's actual skills and competencies acquired from external sources, such as recruitment agencies or references from a previous employer, cannot substitute for information acquired from direct interaction with the candidate (Crain, 1984). Essentially, information derived from inside the firm is more valuable and accurate in judging the suitability of the candidate (Bills, 1999). Studies have used this theory to explain the fact that executives hired through different selection routes have different characteristics and experiential backgrounds (Bidwell, 2011; Petersen & Saporta, 2004).

1.5 Empirical setting

The initial sample of the dissertation is based on the 400 largest listed organizations headquartered in four European countries (Germany, the Netherlands, Switzerland and the United Kingdom). To select the largest firms in each country, all listed companies were first ranked based on their market capitalization as of December 31st 2005. Subsequently, we selected the largest 100 firms in each country and included them in the initial sample. The following eligibility criteria were subsequently applied to ensure that sample companies were large firms that were active during the period between January 1st 2005 and December 31st 2009, and had the autonomy to make independent strategic decisions.

First, firms that were categorized as small and medium enterprises (SMEs) based on the European Union's (EU) definition (i.e., had less than 250 employees and lower than €50 million in annual revenue as of December 31st 2005) (EU Commission, 2012) were not included in the sample. Second, firms that merged or acquired by other companies, were not active during the entire period 2005 to 2009, or were subsidiaries of other large organizations were also excluded. This filtering resulted in a sample of 310 companies (1550 firm-year combinations) headquartered in the four countries. Specifically, the data set encompasses 84 Swiss firms, 78 British firms, 65 Dutch firms, and 83 German firms. These firms were operating in 49 different industries based on their two-digit SIC industry classification. At the individual level, the data set comprises 8680 individual-firm-year combinations. In particular, 1698 individual level profiles of executives were coded for 2005, 1751 for 2006, 1739 for 2007, 1745 for 2008 and 1747 for 2009.

The four countries were chosen for specific reasons. First, large companies in the four European countries experience a tendency towards demographic change and increasing TMT diversity. This offers a suitable context for examining the antecedents and consequences of diversity in TMTs of large European firms over time. Second, the stock exchanges in all four countries are among the leading stock exchanges in

Europe. As of December 31, 2005, the London Stock Exchange (LSE), the Euronext Amsterdam, the Deutsche Börse and the Swiss Stock Exchange (SIX) were ranked among the top five European stock exchanges in terms of domestic market capitalization (World Federation of Exchanges, 2013). These stock exchanges are the homes of several large international listed organizations which attract executive candidates with various demographic attributes and backgrounds. Third, all countries have adopted reporting practices that allows the collection of executives' demographic characteristics from archival sources (e.g., corporate websites and annual reports) (Ruigrok, Georgakakis & Greve, *forthcoming*). This helps to gather information with regards to executives' demographic profiles and career experiences.

The data collection effort was based on three different levels: individual-team, firm and industry levels (for similar data collection structures see also, Greve 2009; Tacheva, 2007). Information on the demographic characteristics and experiences of individual executives was collected from firms' annual reports, corporate websites and various biographical databases, such as Lexis Nexis, Munzinger Online and Who is Who in European Business. Firm and industry level information was gathered from the Thomson ONE Banker database and double-checked from annual reports. An important strength of the research design of the dissertation is that it is based on longitudinal data from firms that operate in different industries and countries. Indeed, prior upper echelons research has stressed that to provide generalizable conclusions concerning the impact of TMT composition on organizational outcomes, studies should adopt longitudinal approaches that consider environmental effects (Hambrick, 2007; Nielsen, 2010). By employing a longitudinal data set of firms from various industries and countries, this dissertation attempts to provide empirical results that are generalizable across different industry and country contexts.

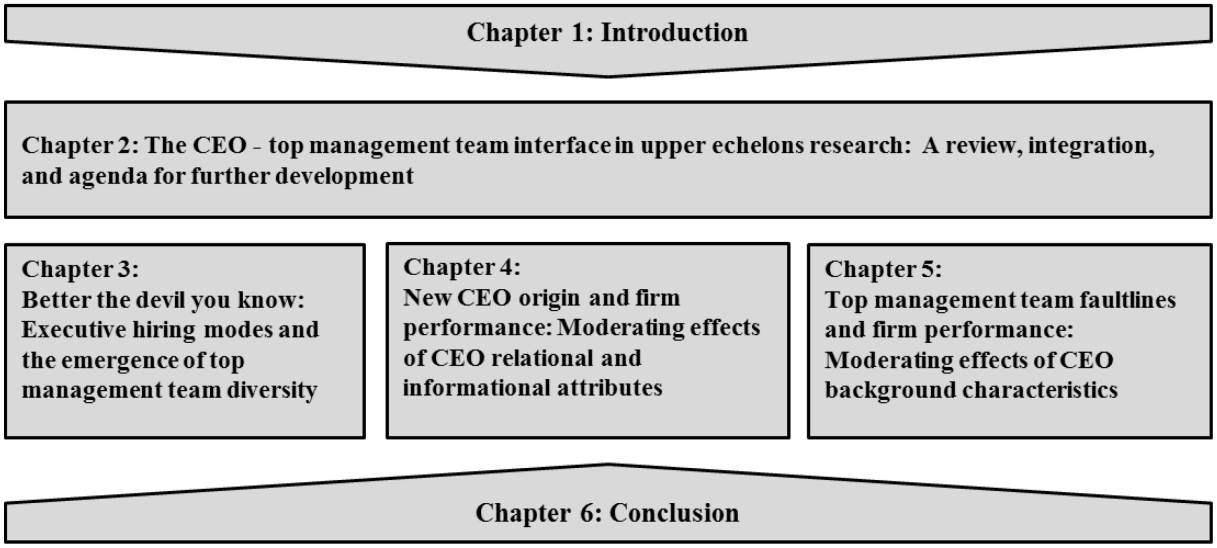
For the analysis of the data, three different research techniques were employed. A hierarchical linear modeling (HLM) research technique was used to examine the impact of selection strategies on the emergence of TMT diversity. Further, a simple ordinary least squares (OLS) regression was used to investigate the moderating impact of individual CEO characteristics on the relationship between outside CEO succession and firm performance. Finally, a generalized least squares (GLS) regression was employed in the third empirical chapter to investigate the longitudinal effects of TMT diversity faultlines on firm performance. Endogeneity tests and other supplementary analyses were also applied to check the robustness of the empirical results.

1.6 Structure of the dissertation

This doctoral dissertation consists of six chapters: an introduction, four cumulative papers and a conclusion chapter (see Figure 1.3). Chapter 2 provides a review of prior studies on the CEO-TMT interface. The aim of this chapter is to highlight the importance of considering the CEO and the TMT as two different yet interactive factors that impact team composition and firm-level outcomes. It also attempts to synthesize prior upper echelon work on the CEO-TMT interface into a research framework and to identify areas for further development that future research can take up and contribute to the broader field of upper echelons.

Chapter 3 provides a multilevel investigation of how different hiring modes act as antecedents of TMT composition, while chapter 4 looks at the construct of individual level diversity as a moderator, and investigates the impact of CEO's individual level experience diversity and similarity to other TMT members on the relationship between outside succession origin and post-succession firm performance. Chapter 5 focuses on a type of team diversity – diversity faultlines – and considers the role of the CEO's background characteristics in reducing the costs of TMT faultlines and realizing performance advantages. Finally, chapter 6 is the conclusion chapter of the dissertation. It summarizes main findings and provides implications for both theory and practice.

Figure 1.3: Structure of the dissertation



Source: Author

2 The CEO – Top Management Team Interface in Upper Echelons Research: A Review, Integration, and Agenda for Further Development

THE CEO – TOP MANAGEMENT TEAM INTERFACE IN UPPER ECHELONS RESEARCH: A REVIEW, INTEGRATION, AND AGENDA FOR FURTHER DEVELOPMENT

Abstract

The chief executive officer and top management team (CEO-TMT) interface, defined as the linkage or interaction between the CEO and the TMT, has received increasing attention in the last decade. Scholars have recognized that research on the distinct yet interactive role of the CEO and the TMT can help to resolve debates and shortcomings in the broader field of upper echelons. Despite the growing number of studies on the CEO-TMT interface, however, no study has systematically reviewed past work to identify dominant relationships in this area and provide suggestions for further development. To fill this gap, this paper reviews prior research on the CEO-TMT interface, identifies main relationships, and synthesizes extant knowledge in a research framework. In integrating prior work, the paper provides a number of opportunities that future research should take up in order to contribute to the broader field of upper echelons.

Keywords: Upper echelons; top management teams; chief executive officer

2.1 Introduction

Research on top management teams (TMTs) has been developed as a subfield within the area of teams and work groups, primarily due to the key impact of executives on firms' actions and outcomes (Hambrick, 2007). Extant TMT research has mainly drawn on the upper echelons perspective, which suggests that organizations are reflections of their dominant coalitions – that is, of their top executives (Hambrick & Mason, 1984). Based on this perspective, a range of studies have focused on the effects of the entire executive team (Carpenter et al., 2004), and therefore, do not distinguish between the different roles of the CEO and the rest of the TMT in affecting organizational outcomes. Scholars have criticized this approach and suggest that a research focus on the interface – or the common boundary – between the CEO and the TMT can help to overcome shortcomings and debates in the upper echelons literature (Cannella & Holocomb, 2005; Cao, Simsek, Zhang, 2010; Finkelstein et al., 2009; Hambrick, 1994; Jackson, 1992; Klimoski & Koles, 2001).

Following this suggestion, an increasing number of upper echelon studies have turned their focus on the CEO-TMT interface and examined how the linkage and interaction between the CEO and the TMT impacts organizations (Buyl et al., 2011; Ling, Simsek, Lubatkin & Veiga, 2008; Klimoski & Koles, 2001). While these studies have shed important light on the distinct yet interactive role of CEOs and TMTs, empirical findings in this area remain widely dispersed and need to be integrated in a research framework. A systematic review and synthesis of extant research on the CEO-TMT interface can help to advance our knowledge on how CEOs' and TMTs' characteristics are interactively reflected in organizational outcomes, identify areas for further development, and contribute to the broader field of upper echelons.

On this basis, the purpose of this study is threefold. Next, it provides an overview of the upper echelons perspective and outlines how research on the CEO-TMT interface can help to fill gaps identified in the upper echelons literature. These gaps are related to: (a) the antecedents of TMT composition, (b) the consequences of TMT characteristics and processes on firm level outcomes, and (c) other theoretical and methodological issues in the field of upper echelons. Subsequently, it reviews empirical studies on the CEO-TMT interface that have been published in the top 50 academic journals over a 29-year period (i.e., from the year in which Hambrick & Mason (1984) developed their upper echelons model to 2012) and synthesizes prior work in a research framework. Finally, it outlines a number of opportunities that further CEO-TMT research should take up in order to advance our knowledge about

the different yet interactive impact of CEOs and other executives on TMT composition and firm outcomes.

2.1.1 Upper echelons theory and the CEO-TMT interface

The upper echelons perspective suggests that managers' choices vary based on their values, beliefs and demographic characteristics (Hambrick & Mason, 1984). As organizations are reflections of their top managers, TMT demographic composition has an important impact on firm outcomes. Another central assumption of Hambrick & Mason's (1984) upper echelons perspective is that the effects of top managers can be assessed better based on the characteristics of the entire TMT, rather than based on the attributes of each top executive separately (Hambrick & Mason, 1984). This assumption is based on the notion that power is equally distributed among members of the dominant coalition (Cyert & March, 1963), and has inspired several studies to assess the collective impact of the entire group of top managers by treating the CEO the same as other senior executives (Carpenter et al., 2004; Finkelstein et al., 2009).

However, proponents of the upper echelons perspective have criticized this approach by arguing that the disproportionate impact and different roles of the CEO and the TMT should be taken into account (Hambrick, 1994; Jackson, 1992; Klimoski & Koles, 2001; Menz, 2012; Papadakis & Barwise, 2002). As early as 1992, Jackson pointed out that a main paradox of upper echelons research is that it treats the TMT as a whole, and thus, it ignores the different role of the CEO as the most powerful TMT member "who has the potential to neutralize both beneficial and debilitating composition effects" (1992: 371). In a similar vein, Hambrick recognized this limitation in the upper echelons literature, commenting that:

> "Perhaps out of a zeal to move away from undue focus on the single top executive, researchers of top groups have been noticeably silent on the distinct role and impact of the group leader. Yet, everyday observation and a wealth of related literature indicates that the top group leader has a disproportionate, sometimes nearly dominating influence, on the group's various characteristics and outputs" (1994: 180).

This implies that upper echelon researchers should neither focus on the effects of single executives in isolation – nor treat the CEO the same as other TMT members, but should rather consider the linkage or interaction between the CEO and the TMT in predicting team and firm level outcomes (Jackson, 1992; Peterson, Smith, Mortorana

& Owens, 2003). Indeed, scholars have recently suggested that work on the CEO-TMT interface can significantly advance TMT research and contribute to the unresolved debates identified in the upper echelons literature (Cannella & Holcomb, 2005; Klimoski & Koles, 2001). The following paragraphs present some gaps in the upper echelons literature that can be filled by further research on the CEO-TMT interface.

2.1.1.1 The antecedents of TMT composition

In their pioneering review, Carpenter et al., (2004) stressed that further upper echelon research is required to focus on the antecedents of TMT composition. The main motivation for understanding the antecedents of TMT configuration is to enhance causality in our conclusions about the subsequent outcomes of TMT characteristics on organizations. Addressing the factors that make executive teams to "look the way they do" (Pettigrew, 1992: 176) is important as it helps to eventually address reverse causality issues about the impact of top executives on organizations (Hambrick, 2007).

Research on the evolution of TMT composition and strategic leadership suggests that both the CEO and other senior executives interactively determine the demographic profile of the executive group through the selection of new members (Finkelstein et al., 2009). According to Klimoski & Koles, (2001: 241) "the responsibility of selecting new members resides with the CEO. […] Nevertheless, it would be naïve to say that the CEO makes staffing decisions without […] other top managers". Research on the CEO-TMT interface can therefore provide rich insights in the area of the antecedents of TMT composition and characteristics by examining the interactive effect of CEOs and other senior executives on TMT composition over time (Carpenter et al., 2004; Hambrick, 2007).

2.1.1.2 The processes through which TMTs impact firm outcomes

Past studies have criticized upper echelons research by arguing that demographic characteristics are unreliable in explaining executives' effects on firm actions and outcomes (Lawrence, 1997; Pettigrew, 1992; Priem, Lyon, & Dess, 1999). These studies suggest that upper echelon scholars need to investigate the intra-team processes through which executives impact organizations. As Carpenter et al. (2004: 761) stressed, further upper echelon research is required to open the "black-box of TMT interactions and processes" through which executive attributes are translated into organizational outcomes.

Recently, Cannella & Holcomb, (2005: 224) described the CEO as the individual who "exerts a powerful influence on TMT functioning by establishing the

process through which decisions are made". In a similar vein, Klimoski & Koles (2002: 223) stressed that CEOs are mainly responsible for setting the "appropriate direction for processes prior to carrying out actions and implementing ideas". According to the authors, the effects of CEOs on TMT processes include their impact on managing the dynamics of the executive team, and their ability to integrate the diverse resources available to the TMT in a way that promotes better team performance. Thus, a close look on the CEO-TMT interface can advance our understanding of the interaction and intervening processes through which TMT composition is reflected into organizational outcomes.

2.1.1.3 The multilevel nature of the upper echelons model

Past studies stress that upper echelons research is multilevel in nature, as it is a mix of micro (individual), meso (team/organizational) and macro (environmental) levels of theory and analysis (Cannella & Holcomb, 2005; Carpenter et al., 2004; Nielsen, 2009). In general, the importance of matching levels of theory with levels of analysis has been discussed widely in the extant literature. Inconsistency between individual level theory and group level analysis is problematic due to issues of ecological fallacy that can lead to the incorrect interpretation of results (Klein, Dansereau, & Hall, 1994).

Recently, Cannella & Holcomb, (2005) criticized past upper echelons research by arguing that some studies focus on the effects of individual CEO characteristics on team and firm level outcomes without paying attention to different theoretical levels. To avoid potential problems of ecological fallacy, the authors suggested that future upper echelons research should use different level theories to explain how individual level characteristics of CEOs and TMTs are interactively reflected in organizations. Therefore, studies on the CEO-TMT interface hold promise for explaining the interactive effects of CEOs and TMTs under different organizational and environmental level settings. This will significantly contribute to the development of a better understanding of the multilevel nature of the upper echelons model.

2.2 Review of the CEO-TMT interface (1984-2012)

2.2.1 Scope of the review and sample selection

To provide a comprehensive review of extant research on the CEO-TMT interface, the following choices were made. First, the year 1984 was set as the review's starting point. Starting from the year that Hambrick & Mason (1984) launched their upper echelons theory allows to provide a broader view on how

research on the CEO-TMT interface has progressed from this year until 2012. Second, as the aim of the review is to integrate empirical findings on the CEO-TMT interface literature, we limited our search to papers that are empirical in nature. Third, in line with the recommendations of Short (2009) that good reviews are not limited to a small number of academic journals (see also, Menz 2012), we searched for articles about the CEO-TMT interface in the top 50 journals of the management category as indicated by the Web of Science Journal Citation Report 2012 (Thomson Reuters, 2012). All journals provided in the Web of Science 2012 list were first ranked by the 5-year average impact factor and the top 50 were included in the review. To identify relevant articles in these top 50 journals, we conducted a keyword search on the EBSCO-host database using the keywords 'top management', 'TMT', 'chief executive', 'CEO' and 'board of directors'. Subsequently, we searched all papers that included these keywords one by one to find studies that had at least one hypothesis on the CEO-TMT interface. In line with prior literature (Hambrick, 1994; Jackson, 1992; Klimoski & Koles, 2001), studies on the CEO-TMT interface were defined as those that had at least one of the following two elements: (a) explored a linkage between the CEO and the TMT; and (b) examined an interaction or intervening effect of the CEO and the TMT on team and firm outcomes.

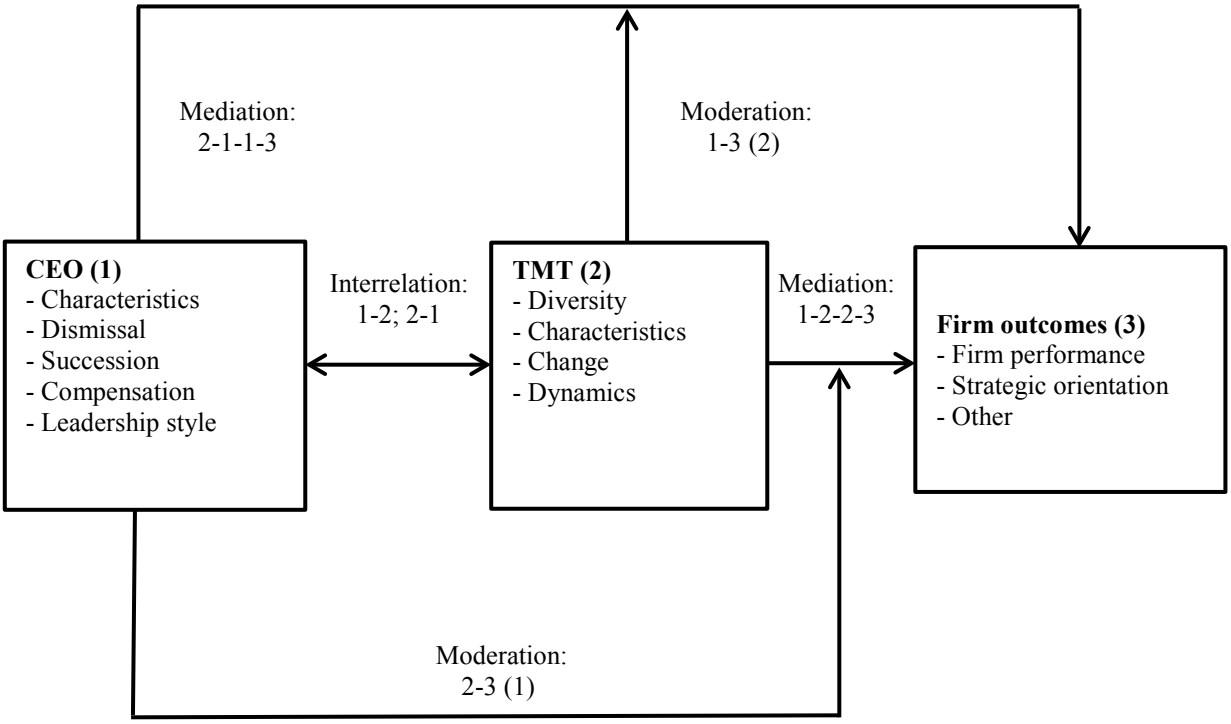
This search resulted in 39 articles, as illustrated in Appendix 1. Interestingly, the majority of studies were published between 2002 and 2012 (69 percent), while 31 percent of the identified studies were published between 1990 and 2001. This high proportion of studies published in the top 50 management journals over the last decade confirms that the CEO-TMT interface is an emerging area of research in the broader field of upper echelons.

2.2.2 Past research on the CEO-TMT interface (1984-2012)

Based on the 39 studies identified, we develop a framework that integrates the main relationships tested in prior CEO-TMT research (see Figure 2.1). In line with the gaps identified in the prior upper echelons literature, we organized our review into three subareas. In the first subarea, we review past research that examined the linkage between the CEO and the TMT. This refers to prior studies that adopt a research focus of 1-2 or 2-1 as illustrated in Figure 2.1, and mainly contribute to the antecedents of TMT composition, characteristics, and dynamics. In the second subarea, we review work on the interaction or intervening effects of CEOs and TMTs on firm level outcomes. Studies in this subarea adopt a research focus 1-3(2) and 2-3(1), as well as 1-2-2-3 and 2-1-1-3 and contribute to the consequences of CEOs and TMTs on

organizational outcomes. Finally, the third subarea mainly focuses on other methodological and theoretical issues in upper echelons research.

Figure 2.1: Framework of research on the CEO-TMT interface*



*Research focus is provided in the numbers under each interrelation, moderation or mediation effect
Source: Author

2.2.3 The CEO-TMT linkages: Antecedents of TMT composition, and dynamics (research focus: 1-2 and 2-1)

Hambrick, (1994: 206) portrayed the CEO as "the central element of the group, who not only is influenced by other group characteristics, but also who, more than any other member of the group, can significantly alter its configuration". Indeed, the review supports this statement and shows that the CEO-TMT linkage is 'multidirectional' in nature (see Figure 2.1). On the one hand, CEOs' attributes can affect TMT composition and dynamics (research focus: 1-2), while TMT composition and dynamics can also impact CEO attributes (research focus: 2-1). This implies that research on the CEO-TMT linkages is characterized by reverse causality and endogeneity issues that future studies need to take into consideration. Importantly, no study included in our review identified or addressed this reverse causality and endogeneity problem.

In general, the reviewed studies show that CEOs and other senior executive team members play an interactive role in affecting TMT attributes such as demographic composition, structure, compensation (Carpenter & Wade, 2002; Friedman & Saul, 1991; Kesner & Dalton, 1994; Ward, Bishop & Sonnenfeld, 1999; Zajac & Westphal, 1996), as well as team dynamics (de Hoogh & den Hartog, 2008; Ling et al., 2008; Simsek, Veiga, Lubatkin & Dino, 2005; Simsek, 2007; Stoker, Grutterink & Kolk, 2012) (see Appendix 1).

First, most of studies have examined the effects of CEO succession origin on TMT change (Friedman & Saul 1991; Kesner & Dalton, 1994; Ward et al., 1999) and have provided insights into how outside CEO succession acts as an antecedent of TMT membership. These studies show that CEO succession is an important determinant of TMT composition as it is likely to alter TMT membership through inbound and outbound mobility of executives at the post-succession stage. At the same time, other studies show that the characteristics of incumbent executives can also impact the succession origin of new CEOs (Shen & Cannella, 2002a; Zhang & Rajagopalan, 2004). Specifically, these studies show that the larger number of incumbent executives on the board (i.e., candidates for the CEO position) the greater the likelihood of CEO dismissal (Shen & Cannella, 2002a) and replacement by another inside executive director (Zhang & Rajagopalan, 2004).

While the interrelation between CEO succession and TMT membership change has been well examined in the prior literature, extant research has neglected to investigate how CEO succession origin impacts the demographic composition of the TMT at the post-succession stage. Only the study of Westphal & Zajac (1995) examined the impact of CEOs' demographic profile on TMT composition. Drawing on the similarity attraction perspective, the authors found that powerful CEOs are more likely to replace TMT members with individuals who resemble themselves in demographic characteristics. To the extent that CEO succession and TMTs composition are two interrelated aspects, it would be interesting to address how the characteristics of new CEOs interact with the demographic composition of the incumbent TMT to determine the characteristics of new non-CEO TMT members. This would help us to better understand TMT composition as a result of the interaction between the CEO and the incumbent TMT.

Second, research has paid attention to the role of CEO's leadership style in affecting TMT behavioral dynamics. Drawing on prior research on transformational leadership, de Hoogh & den Hartog, (2008) and Stoker et al., (2012) found that transformational CEOs are likely to promote TMT consensus and effectiveness.

Meanwhile, other studies have assessed and found evidence that TMTs can also impact CEO leadership style and behavior (Chen, Tjosvold & Liu, 2006). Plambeck & Weber (2010), for example, assessed how functional diversity at the TMT level affects CEO decision making behavior. Based on the logic that functionally diverse TMTs bring different knowledge, perspectives and opinions at the time of decision making, the authors proposed that high TMT functional diversity increases the CEO's ambivalence in decision making. Studies adopting this focus have opened up new avenues for further research on the effects of top managers on CEOs' leadership behavior and performance. The limited number of studies in this area have contributed to the black box of upper echelons research by showing that CEO leadership style and TMT dynamics are mainly determined by the interface between the CEO and the TMT.

In sum, research on CEO-TMT linkages has shown that TMT composition, characteristics and dynamics are results of the interrelation between the CEO and the rest of the TMT. From the above review, it becomes clear that in order to understand the antecedents of TMT composition, upper echelon scholars should move away from a focus on the entire TMT to a more appropriate consideration of the multidirectional linkage between the CEO and the incumbent executive group.

2.2.4 The CEO-TMT interface and firm level consequences

2.2.4.1 Effects of CEOs on firm outcomes and the moderating role of the TMT (research focus: 1-3(2))

Empirical studies have focused on the role of TMTs in affecting the relationship between CEO characteristics and organizational outcomes (see Appendix 1). The theoretical premise of these studies is based on the idea that CEOs' effects on firm decisions and outcomes vary based on the composition of the entire TMT (Hambrick, 1994). Studies in this area have mainly focused on the moderating impact of TMT change on the relationship between CEOs' characteristics (such as succession origin and human capital) and firm outcomes (such as firm strategy and performance) (Carpenter, Sanders & Gregersen, 2001; Jensen & Zajac, 2004).

First, studies show that CEO succession in isolation can cause different organizational outcomes than when it is combined with post-succession change in TMT membership (Karaevli, 2007; Tushman & Rosenkopf, 1996; Virany, Tushman & Romanelli, 1992). Yet, research findings in this area are mixed and inconclusive. For example, Virany et al., (1992) found that CEO succession combined with TMT change can trigger second order learning and higher firm performance in firms facing

environmental uncertainty. On the other hand, Karaevli, (2007) has recently shown that outside CEO succession is associated with negative performance outcomes when TMT change in the post-succession period is high. The inconsistent findings can be attributed to the fact that past studies do not take into account changes in the demographic profile of TMTs after the succession of the new CEO. As Tushman & Rosenkopf (1996: 949) stress, "contradictory results in the CEO succession literature may be untangled if greater attention is paid to […] changes in team demographic characteristics triggered by CEO succession." Further CEO succession research that takes TMT demographic characteristics into account can therefore significantly contribute to the upper echelons literature.

Second, studies have examined the moderating impact of the TMT experiential composition on the relationship between CEO human capital and firm outcomes. Carpenter et al. (2001), for example, found that the positive effect of CEOs' international experience on firm performance is more pronounced when the TMT (excluding the CEO) consists of members who have worked in various countries. Further, Cao et al., (2010) argued that CEOs with extensive networks are more likely to promote both exploitation of a firm's current capabilities and exploration of new capabilities. This relationship is more pronounced when the TMT consists of members that complement the CEO in terms of functional background, and when communication richness between the CEO and the TMT is enhanced. Overall, research in this area helps to understand how CEO and TMT complementarity in demographic and experiential characteristics impact organizations. It also shows that firm strategy and performance are effects of the interaction between the composition of the TMT and the characteristics of the CEO.

2.2.4.2 Effects of TMTs on firm outcomes and the moderating role of the CEO (research focus: (2-3(1))

Our review shows that very little attention has been paid to the moderating role of the CEO in affecting the relationship between TMT composition and firm outcomes. Specifically, only 7 out of the 39 studies adopt a research focus of 2-3(1). This is surprising, given Jackson's (1992) suggestion that CEOs are more likely to have a moderating impact on the relationship between TMT composition and firm outcomes, rather than an isolated direct effect on organizations. Studies that adopt this research focus have mainly paid attention to two dimensions of TMT composition: (a) TMT diversity and (b) compatibility between the CEO and the TMT in demographic characteristics and leadership style.

First, studies show that the relationship between TMT diversity and firm performance conditionally depends on the characteristics of the CEO. Based on a sample of 33 Dutch and Belgian firms, Buyl et al., (2011) tested the moderating role of three CEO characteristics in affecting the relationship between TMT functional diversity and firm performance. The results of this study showed that the performance gains of TMT functional diversity are more likely to materialize when the CEO shares common experience with other executives and has acquired specialized functional expertise. In a similar vein, Minichilli, Corbetta & MacMillan, (2010) found that the linkage between TMT diversity faultlines and firm performance in family firms depends on the attributes of the CEO. Specifically, the authors found that the presence of a family CEO is likely to strengthen conflicts between family and non-family TMT members and negatively affect firm performance. These studies highlight the key role of the CEO in determining the link between different forms of diverse TMT configuration and firm outcomes.

Second, past research has consistently shown that compatibility between non-CEO executives and the CEO affects the strategic orientation of the firm. CEO characteristics such as low tenure in the firm (Tian, Haleblian, & Rajagopalan, 2011) or leadership style (Jansen, Gerard, van den Bosch & Volberda, 2008) have been found to have a key impact on the relationship between TMT characteristics (such as shared vision, social integration, contingency rewards and experiences) and strategic outcomes (e.g., organizational ambidexterity or strategic growth). These studies suggest that TMT characteristics have an effect on organizations, yet this effect is contingent on the attributes and leadership style of the CEO (Jansen et al., 2008; Tian et al., 2011).

To sum up, the above studies illustrate that firm outcomes is a reflection of the interaction between CEO characteristics and TMT composition. This supports the notion that in order to adequately explain the impact of top managers on organizations, upper echelons researchers should focus on the CEO-TMT interaction. Due to the sparse research in this area, however, there is a need to gain a deeper understanding on the moderating impact of CEOs on the relationship between TMT composition and firm outcomes.

2.2.4.3 Intervening effects of CEOs and TMTs on firm outcomes (research focus: 1-2-2-3 and 2-1-1-3)

According to Hambrick (2007), the intermediate processes through which TMTs affect strategic decisions and their consequences need to become sufficiently

understood and integrated in the upper echelons model. Our review shows that the mediating effect of TMTs on the relationship between CEO characteristics and firm performance has received increasing attention. Studies that adopt this research focus reveal that CEOs' (a) demographic characteristics, (b) personality attributes and (c) leadership style affect TMT dynamics that, in turn, impact firm behavior and outcomes (e.g., Carmelli et al., 2012; Chen et al., 2006; Colbert, Brown, Bradley, & Barrick, 2008; Ling et al. 2008).

First, with regards to CEO characteristics, Simsek (2007) found that TMT entrepreneurial orientation has a key mediating effect on the relationship between CEO tenure and firm level innovation and performance. The author concluded that long tenured CEOs promote innovation and high performance through their positive effect on TMT risk taking propensity. In addition, Westphal, (1999) found that CEO incentive alignment and friendship ties with other board members is likely to foster board participation in decision making and positively impact on organizational performance. These studies establish a mediating link through which CEO and TMT demographic characteristics promote different types of team behavior that impact firm performance.

Second, Peterson's et al., (2003) study went beyond demographic characteristics and examined how CEO psychological attributes such as conscientiousness, extraversion and emotional instability result in high levels of TMT risk taking behavior that subsequently affects income growth. The authors argued that upper echelons research should expand beyond demographic characteristics and start examining the psychological attributes through which CEOs and other executives affect organizational outcomes. Indeed, the study of Peterson et al., (2003) is a first attempt to open the black box processes through which executives impact organizations (Carpenter et al., 2004). However, from 2004 onwards, no other study in our review examined the mediating processes through which CEOs' psychological attributes impact TMT behavioral dynamics and firm performance. Further work in this area can expand our knowledge on how CEOs' and TMTs' deep level characteristics are reflected in organizations (Hambrick, 2007).

Third, extant leadership research has paid attention to understanding how CEO leadership style influences TMT dynamics and behavior that, eventually affect organizational outcomes. The most widely assessed attribute related to TMT dynamics is behavioral integration, which represents "the extent to which the executive team engages in mutual and collective interaction" (Hambrick, 2007: 336). Studies consistently show that CEOs with a transformational leadership style are more likely

to promote behavioral integration in the TMT (Carmeli, Schaubroek & Tishler, 2011; Colbert et al., 2008; Ling et al., 2008). These studies also show that behavioral integration and other similar concepts of intra-TMT cooperation (such as cooperative goals within the team) are likely to subsequently result to higher firm level entrepreneurial behavior (Ling et al., 2008), CEO leadership effectiveness (Chen, et al., 2006) and firm performance (Colbert et al., 2008).

Overall, an increasing number of studies offer rich insights into the mediating processes through which CEOs and TMTs affect firm outcomes. While research in this area still remain relatively rare, empirical evidence show that in order to open the upper echelons black box, research should continue to focus on the mediating processes that translate CEOs' characteristics and TMT composition and dynamics into firm level behavior and performance.

2.2.5 CEO-TMT interface: Other theoretical and methodological issues

2.2.5.1 Multidisciplinary and multilevel theoretical approaches

As Hambrick & Mason commented: "it is doubtful that [the upper echelons] research stream can progress far without greater attention to relevant literature in related fields, especially psychology and social psychology" (1984: 203). In our review, 23 studies combined upper echelons theory with at least one other theoretical perspective (see Appendix 1). Interestingly, only 6 studies used socio-psychological theories, such as self-categorization theory, similarity attraction and faultlines theory together with upper echelons theory to examine the interdependent role of CEOs and TMTs and their firm level consequences. This implies that, despite Hambrick & Mason's (1984) suggestion, research has not yet integrated socio-psychological theories with the upper echelons perspective to explain the distinct yet interactive effects of CEOs and TMTs on organizations.

Moreover, no study included in our review has explicitly specified theoretical levels. Surprisingly, while 28 out of the 39 studies adopted multi-industry samples, only 6 of these studies developed hypotheses for the effects of external (industry) environment of the firm (e.g., Shen & Cannella, 2002a; Zhang & Rajagopalan, 2004). The low attention paid to multilevel factors shows that the suggestions of Cannella & Holcomb, (2005) for further investigation of the multilevel nature of the upper echelons model have not yet been taken up in the extant CEO-TMT research.

2.2.5.2 Methodological and analytical aspects

The review shows that the vast majority of studies adopted cross-sectional research designs (23 out of 39) and employed US samples to test their hypotheses (i.e., 22 out of 39). Remarkably, only 7 studies employed multi-country samples. The use of cross sectional research designs and single country samples is associated with at least two limitations. First, cross sectional research designs are not adequate for capturing reverse causality and endogeneity issues (Antonakis, Bendahan, Jacquart & Lalive, 2010; Hambrick, 2007). As mentioned before, reverse causality is apparent not only in the broader area of upper echelons (Carpenter et al., 2004; Hambrick, 2007), but also in the field of the CEO-TMT interface. Second, adopting single-country samples does not allow comparisons across different country settings. Research has shown that the effects of CEOs and TMTs vary across different countries (Crossland & Hambrick, 2007). Under some country level contexts, CEOs have more power to make strategic decisions compared to other TMT members (Crossland & Hambrick, 2011). Future studies that use multi-country samples could contribute significantly to the extant CEO-TMT literature by exploring how the impact of CEOs and TMTs differ across different country settings.

Further, only three studies included in our review adopted analytical approaches that control for endogeneity issues. These were the studies of Karaevli (2007), Buyl et al. (2011) and Ramdani & van Witteloostuijn, (2010). Endogeneity problems, such as unobserved heterogeneity, reverse causality, and self-selection bias, are often apparent in TMT research (Carpenter et al., 2004), and can significantly affect the validity of research findings (Heckman, 1979). Therefore, accounting for endogeneity issues is important for future CEO-TMT research.

In terms of analytical technique, most of CEO-TMT interface studies use conventional statistical approaches. Specifically, ordinary least squares (OLS), logistic, and generalized least squares (GLS) regression were the most widely applied techniques (i.e., 29 out of the 39 studies). To test multiple relations and intervening models, 7 studies applied a structural equation modeling (SEM) technique. Interestingly, no study in our review used a hierarchical linear modeling (HLM) technique. This is surprising, as most of studies used data with variations at the team, firm, and industry levels of analysis (i.e., 28 studies used multi-industry samples). Compared to other traditional methods, an HLM technique allows researchers to control for potential systematic variance among variables nested in different levels of analysis (Raudenbush & Bryk, 2002). It also helps to explain the extent to which variables at different levels collectively affect the dependent variable.

2.3 Conclusion and areas for further development

Our review reveals that the calls of upper echelon scholars for further exploration of the CEO-TMT interface have increasingly been taken up over the last few years. The various findings and relationships presented in Figure 2.1 and Appendix 1 suggest that TMT composition and firm level outcomes are reflections of the interaction between the CEO and the rest of the TMT. Overall, our review suggests that research on the CEO-TMT interface can help to advance our knowledge on the antecedents and consequences of TMT composition.

To advance upper echelons theory, however, further work is required to deal with a number of challenges and empirically investigate the unexplored opportunities that exist in the emerging field of the CEO-TMT interface. Specifically, Table 2.1 offers four areas for further development together with a number of research opportunities in each area and their respective anticipated contributions. In the following paragraphs, the study elaborates on these areas for further development and suggests how future CEO-TMT research should move forward in order to contribute to the upper echelons research stream.

Table 2.1
Areas and opportunities for further development

Areas for further development	Research opportunities	Anticipated contributions
Area 1: CEO-TMT interaction as antecedent of TMT composition and dynamics	• Expand research on how the CEO-TMT interaction affects TMT composition and diversity over time. • Further investigate the impact of the CEO-TMT interaction on TMT dynamics.	• Understand the emergence of TMT diversity and, eventually, its firm level consequences. • Reveal the factors that shape TMT dynamics and, in turn impact firm outcomes
Area 2: The impact of CEO-TMT interaction and intervening processes on firm outcomes	• Investigate how CEO-TMT demographic compatibility affects the relationship between CEO succession and firm performance. • Examine how CEO-TMT complementarity in human and social capital impacts firm level outcomes. • Expand research on how CEOs' characteristics affect the link between different forms of TMT diversity and firm performance. • Further explore the intervening processes through which CEOs and TMTs impact organizations.	• Disentangle inconsistent findings in the prior CEO succession – firm performance literature. • Provide implications on the factors that firms should consider at the time of the TMT composition process. • Understand the performance consequences of different forms of diversity and the role of the CEO. • Open the upper echelons black box of TMT processes.

Continued in the next page

Table 2.1 (continued)
Areas and opportunities for further development

Areas for further development	Research opportunities	Anticipated contributions
Area 3: Multilevel theoretical issues and the CEO-TMT interface	• Develop multilevel theoretical frameworks to assess how individual (CEO), team (TMT), organizational and environmental level factors affect organizations.	• Understand the multilevel nature of upper echelons research by emphasizing the cross level interactions among CEOs, TMTs, organizational and environmental conditions.
	• Go beyond traditional theoretical approaches to explain the interaction between the CEO and the TMT and its firm level consequences.	• Enhance a greater explanatory power of the upper echelons model.
Area 4: Methodological issues and the CEO-TMT interface	• Employ endogeneity tests and adopt longitudinal research designs to detect and account for the endogenous nature of the CEO-TMT research.	• Avoid misinterpretation of results owing to potential self-selection bias, unobserved heterogeneity and reverse causality.
	• Expand the analytical research agenda to use techniques that allow testing complex relationships.	• Disentangle complexity in the CEO-TMT research.
	• Employ multi-country and multi-industry samples to enhance generalizability of the effects of the CEO-TMT interface.	• Understand how CEOs and TMTs distinctively impact organizations across different industry and country level contexts.

Source: Author

2.3.1 Area for further development 1: CEO-TMT interaction as antecedent of TMT composition and dynamics

Based on the review, it has been shown that research on the CEO-TMT interface can help to address an important gap in the upper echelons literature: the antecedents of TMT composition and dynamics. Indeed, a small number of studies identified in this area imply that TMT composition and behavior is shaped by the interaction between the CEO and other TMT members. However, as research evidence in this area remains sparse, further work is required in order to appreciate how CEOs and other senior executives interactively determine the demographic composition and dynamics of the TMT.

This conclusion leads to two opportunities for future research. First, an important dimension of TMT composition is whether the executive team consists of

members who are interpersonally diverse in demographic characteristics and experiences (Hambrick & Mason, 1984). Studies on the performance outcomes of TMT diversity offer inconsistent results (Nielsen, 2010). This has led researchers to propose that, in order to overcome inconsistent findings and provide causal conclusions about the impact of TMT diversity on organizations, further work should investigate the drivers that induce firms to build diverse TMT membership (Carpenter et al., 2004).

Recent studies on the antecedents of TMT diversity argue that diverse TMT composition is an outcome of selective hiring and firing of demographically dissimilar executives over time (Boone et al., 2004; Nielsen, 2009). However, past research has not yet explored how the CEO-TMT interaction affects the emergence of TMT diversity through the selection of new TMT members. A key opportunity for further research is therefore to investigate how CEOs and other incumbent top managers interactively affect the diverse profile of the executive group by determining the characteristics of newly selected executives. This will eventually help not only to gain a nuanced picture of how diverse TMT composition emerges in firms, but also to enhance causality in our predictions about the subsequent impact of TMT diversity on firm outcomes (Hambrick, 2007). As Klimoski & Koles, (2001) mentioned, TMT composition does not occur randomly, but is likely to be a result of the interaction between the executive group's leader (i.e., the CEO) and other powerful senior top managers.

Second, a number of studies have investigated the interactive impact of the CEO and the TMT on team dynamics. Most of these studies have focused on the concept of behavioral integration to understand the factors that promote collective interaction and inter-personal cooperation in TMTs. These studies argue that behavioral integration is a result of the characteristics of the CEO. Building on these insights, future studies can go beyond behavioral integration and explore how other TMT dynamics, such as behavioral conflict (Jehn, 1995), locus of control (Boone & Hendriks, 2009), communication frequency (Johnson & Lederer, 2005), decision making consensus (Kellermanns, Walter, Shaw, Lechner & Floyd, 2005) and shared objectives (van Knippenberg et al., 2011) are influenced by the compatibility between the characteristics of the CEO and those of other TMT members. Further research that examines how CEO-TMT interaction affects TMT dynamics can help to subsequently overcome inconsistent findings on the impact of TMTs on firm outcomes.

2.3.2 Area for further development 2: The impact of CEO-TMT interaction and intervening processes on firm outcomes

One key conclusion drawn from the review is that, to enhance a better understanding of the effects of top managers on organizations, upper echelons researchers should move away from a focus on the entire TMT to a more in-depth consideration of the interaction between the CEO and other senior executives. As Jackson (1992) argued, the inconsistent results of upper echelon studies about the effects of top managers on firm outcomes may be due to the failure to consider the CEO-TMT interaction (see also, Klimoski & Koles). Indeed, our review shows that upper echelons research has generally overlooked the interaction and intervening processes through which CEOs and TMTs affect firm outcomes. At least four opportunities for further research can be identified in this area.

First, understanding the moderating impact of TMT characteristics on the relationship between CEO attributes and firm performance appears to be a promising research avenue. Most of extant research on this topic has focused on the moderating effect of post-succession TMT change on the relationship between CEO succession origin and firm performance (e.g., Karaevli, 2007; Virany et al., 1992). These studies, however, offer inconsistent results. Some of them show that TMT change has a positive moderating effect on the relationship between outside CEO succession and firm performance (Karaevli, 2007), while others support a negative moderating effect (Virany et al., 1992; Tushman & Rosenkopf, 1996). To overcome this inconsistency, researchers need to go beyond membership change and assess how demographic compatibility between the CEO successor and other TMT members impact firm outcomes.

For example, an interesting idea would be to examine how demographic compatibility in terms of similarity between the new CEO and the incumbent TMT members impacts the performance effects of CEO succession. Some of the reviewed studies show that outsider CEOs face difficulties in getting accepted by the incumbent TMT immediately after their appointment (Friedman & Saul, 1991). At the same time, drawing on relational demography theory, other studies suggest that interpersonal similarity between a new CEO and other executives is likely to promote interpersonal attraction and acceptance of the new CEO in the TMT (Zajac & Westphal, 1996). By extending this line of research, future studies should address how CEO-TMT demographic similarity moderates the relationship between outside CEO succession and post-succession firm performance. This will help to disentangle the inconclusive

results in the prior literature with regards to how CEO succession and post-succession TMT composition interactively affects firm performance.

Second, research has paid little attention to the notion of CEO-TMT complementarity (see e.g., Cao et al., 2010). The small number of empirical studies in this area consistently confirm that complementarity between the CEO and the TMT can result to the development of unique organizational capabilities and positive strategic outcomes (Jansen et al., 2008). Prior upper echelon studies have categorized CEO`s experiential background into general-diverse or narrow-specialized (Bunderson & Sutcliffe, 2002). Recently, scholars suggest that CEOs with a variety of experience can have a positive effect on strategic innovation and performance (e.g., Crossland, Zuyung & Hiller, *forthcoming*; Geletkanycz & Boyd, 2011). Building on the notion of CEO career experience background, future studies on CEO-TMT complementarity can advance our understanding on what types of TMT composition complement CEOs with different types of career experience.

Third, our review shows that very few studies have tried to address the moderating impact of the CEO on the relationship between TMT composition and firm outcomes. Most of these studies have focused on the performance effects of TMT diversity, and the moderating impact of CEO characteristics on this relationship (Buyl et al., 2011; Minichilli et al., 2010). Further studies can expand this line of research and examine how CEO experiential and socio-demographic attributes are likely to impact the link between different forms of TMT diversity and firm performance (e.g., diversity as variety, separation and disparity) (Harrison & Klein, 2007). As mentioned before, research evidence on the effects of TMT diversity are inconsistent. As the CEO is the integrator of the diverse experience and knowledge of TMT members (Buyl et al., 2011), examining the moderating impact of CEOs' characteristics can help to broaden our knowledge about the factors that determine whether TMT diversity is advantageous for organizations. It can also help to respond to Jackson's (1992: 371) call for gaining a better understanding of the CEO's "potential to neutralize both beneficial and debilitating composition effects".

Finally, another key research opportunity rests on investigating the intervening (mediating) processes through which CEO demographic and psychological characteristics affect TMT processes that, in turn, impact firm level decisions and outcomes. Interestingly, over the past five years a number of studies have developed mediating models to capture the intervening processes through which CEOs and TMTs impact organizations (e.g., Ling et al., 2008; Peterson et al., 2003; Simsek et al., 2005; Simsek, 2007). As mentioned before, however, only the study of Peterson et al.,

(2003) investigated how psychological attributes of CEOs affect TMT dynamics and firm outcomes. There are several CEO psychological attributes, such as narcissism (Chatterjee & Hambrick, 2011), exaggerated self-confidence (Hayward & Hambrick, 1997) or values towards social responsibility (Agle, Mitchell, & Sonnenfeld, 1999) that have not yet received attention in the extant CEO-TMT literature. To open the black box of upper echelon processes, further research should go beyond demographic characteristics and investigate how CEO psychological attributes impact TMT decision making processes and performance. As Cannella & Holcomb (2005: 224) mentioned, the CEO is "the guardian of TMT processes" who "exerts a powerful influence on TMT functioning by establishing the process through which decisions are made". A further focus on the intervening effects of CEOs and TMTs on firm outcomes can therefore significantly contribute to the development of the upper echelons perspective.

2.3.3 Area for further development 3: Multi-level theoretical issues and the CEO-TMT interface

Research on the CEO-TMT interface can help to understand the multi-level nature of the upper echelons model. According to Klein et al (1994: 195), there are three theoretical assumptions in multi-level specification: (a) the homogeneity, (b) the independence and (c) the heterogeneity assumption. The "homogeneity assumption" implies that the group should be considered as a whole without distinguishing between team and individual levels. The "independence assumption" suggests that individual members of a group have an individual influence on a dependent variable that is different from the entire group. Finally, the "heterogeneity assumption" supports the notion that individuals within groups interactively affect higher level outcomes.

Initially, Hambrick & Mason, (1984) defined upper echelon theory by suggesting that individual level attributes and effects should be aggregated at the team level. However, in the development of a new generation of the upper echelons model, Carpenter et al. (2004) underscored the heterogeneity assumption and the multilevel nature of upper echelons theory, commenting that past research has overlooked the interaction between individual and team level characteristics and its effects on organizational level outcomes. The review on the CEO-TMT interface shows that a number of studies provide evidence for the distinct yet interactive impact of individual CEOs and the rest of the TMT on organizations. Interestingly, no study included in our review defines levels in their theoretical frameworks. Further research on the CEO-TMT interface can therefore benefit from developing theoretical models that

distinguish between the individual (CEO), team (TMT) and firm levels of analysis and consider cross level interactions. Whereas the multilevel procedure would imply some costs in terms of complexity and difficulty in developing hypotheses at different levels, it would help researchers to gain a better understanding of the multilevel nature of the upper echelons research.

This will require the use of multiple theoretical perspectives at different analytical levels. For example, theories that focus on the individual level (e.g., social identity, and relational demography perspectives) can be combined with team level theories (e.g., upper echelons) to explain how cross level interactions between the CEO and the TMT impact organizations. Combining upper echelons theory with other theoretical perspectives at different levels of analysis can help to enhance a greater explanatory power of the upper echelons model (Hambrick & Mason, 1984).

2.3.4 Area for further development 4: Methodological issues and the CEO-TMT interface

There are several opportunities for analytical and methodological innovation in future CEO-TMT research. First, to robustly understand the interactive impact of CEOs and incumbent senior executives on organizations, future studies should adopt research designs that are suitable for dealing with endogeneity issues. For instance, a number of studies in our review found that CEOs play a key role in determining TMT composition and dynamics. At the same time, other studies showed that TMT composition and dynamics also affect the attributes of CEOs. Despite this reverse causality and endogeneity problem, only three studies included in our review adopt research approaches that are suitable for addressing endogeneity. In addition, the majority of CEO-TMT studies use cross-sectional research designs to test their hypotheses. Cross-sectional research designs are not adequate in dealing with reverse causality issues as they do not allow researchers to investigate time-lagged multidirectional relationships (Antonakis et al., 2010; Hambrick, 2007).

Recent strategic management studies (Brown, Beekes & Verhoeven, 2011; Karaevli & Zajac, 2013; Semadeni, Withers & Certo, *forthcoming*) suggest analytical techniques, such as the Heckman's (1979) two stage model, in order to account for endogeneity in strategy research. To effectively overcome endogeneity problems and increase the validity of empirical results, future CEO-TMT research should draw on recent insights concerning how to control for endogeneity issues (Bascle, 2008). Specifically, the use of longitudinal research designs together with the Heckman 2-stage procedure can allow future CEO-TMT studies to (a) use time-lagged variables

and test causal relationships, and (b) overcome unobserved heterogeneity and self-selection problems (see e.g., Karaevli & Zajac, 2013). Since "failure to statistically correct for endogeneity can lead to […] faulty conclusions about theoretical propositions" (Hamilton & Nickerson, 2003: 52), accounting for endogeneity should become a common practice in future CEO-TMT research.

Second, our review shows that most of CEO-TMT studies exhibit a preference for conventional research techniques. Most of studies used different forms of multiple regression analysis, such as OLS, GLS and logistic regression. According to McGrath (1984: 31), when several studies in a research area have used the same analytical technique, then the empirical insights provided in this area are "contingent on" the limitations of this technique. This is particularly true in areas where constructs and variables are based on complex sets of interdependencies. Given that CEO-TMT research is based on complex interrelationships among different levels of analysis (Blettner, Chaddad & Bettis, 2012), adopting more sophisticated research techniques could help this area of research not only to shed new light on new constructs and relationships, but also to reexamine established ones.

Third, despite the theoretical importance of contextual factors in upper echelons research (Carpenter et al., 2004) a very small number of CEO-TMT studies develop hypotheses about the effects of industry and country level characteristics on the CEO-TMT interaction. Using multi-industry and multi-country samples, comparative studies can explore how the CEO-TMT interaction effects vary across different industry and country level settings (Crossland & Hambrick, 2011). The inclusion of several countries and industries can help to develop generalizable conclusions about the environmental conditions under which CEOs and other executives matter for organizations, something that has been identified as key for the development of the upper echelons model (Carpenter et al., 2004; Imbach, 2012).

2.3.5 Summary and conclusion

This paper provides a first review and integration of the extant literature on the CEO-TMT interface. Despite the recently increasing number of studies in this area, prior research findings remained dispersed and their collective contribution to the various gaps of the upper echelons literature was unclear. The present review has outlined the main research gaps in the upper echelons literature in relation to the CEO-TMT interface, and has provided recommendations on how further CEO-TMT research should move forward to fill these gaps and contribute to the upper echelons research stream. Specifically, the study suggests that further research on the CEO-

TMT interface can significantly contribute to our understanding with regards to (a) the antecedents of TMT composition, and (b) the CEO-TMT interaction or intervening processes through which executive characteristics translate into firm level outcomes. It can also help to resolve theoretical and methodological issues facing upper echelon researchers, such as reverse causality, endogeneity and multilevel specifications.

In conclusion, this work can be seen as a response to the "need to organize, summarize, and critically examine the existing theory and research on the CEO-TMT interface" (Klimoski & Koles, 2001: 261). We believe that further development in this area can lead to the integration of the different roles of the CEO and the TMT in the upper echelons model. We hope that the suggestions and opportunities for further research identified in this paper will motivate upper echelon scholars to examine the CEO-TMT interface and contribute to the upper echelons research field.

3 Better the devil you know: Executive hiring modes and the emergence of top management team diversity

BETTER THE DEVIL YOU KNOW: EXECUTIVE HIRING MODES AND THE EMERGENCE OF TOP MANAGEMENT TEAM DIVERSITY

Abstract

Recent research shows that internally promoted executives are systematically different in demographic characteristics than their externally hired counterparts. We extend this notion by proposing that the hiring origin of new executives affects the emergence of top management team (TMT) diversity. Drawing on conflicting theoretical streams on the evolution of diversity in teams, we postulate that there is a substitution effect between external hiring and dissimilarity of newly appointed executives. Firms overcome their homogeneity inclinations by selecting dissimilar executives from the internal rather than external labor market, yet CEO characteristics, firm complexity and environmental uncertainty moderate this propensity. Data from 567 non-CEO executive appointments at 167 large European firms between 2005 and 2009 provides support for the hypothesized negative relationship between external hiring and dissimilarity of newly appointed executives. It also shows that the observed substitution effect is weaker under conditions of high CEO firm tenure and organizational complexity, and stronger if environmental uncertainty is high. Implications of these findings for the emergence and consequences of TMT diversity are discussed together with directions for further research.

Keywords: Top management teams; diversity; selection strategies; multilevel

3.1 Introduction

As the upper echelons literature has evolved over time, there has been a gradually increasing focus on understanding the origins of difference in the demographic composition of organizations' top management teams (TMT) (Finkelstein et al., 2009; Hambrick & Mason, 1984; Hambrick, 2007; Pennings & Wezel, 2010). Research on the antecedents of TMT configuration has paid particular attention to the countervailing forces that induce executive teams to become either homogeneous or heterogeneous (Boeker & Wiltbank, 2005; Boone et al., 2004). On the one hand, research on homosocial reproduction suggests that socio-psychological factors drive executive teams to reproduce homogeneity over time by selecting individuals who demographically resemble incumbent team members (Boone et al., 2004; Kanter, 1977; Schaubroeck, Ganster, & Jones, 1998). On the other hand, proponents of the information processing and requisite variety perspectives argue that organizational- and environmental-level drivers, such as complexity and uncertainty, induce firms to overcome their homogeneity inclinations and increase TMT diversity (Boeker & Wiltbank, 2005; Carpenter, 2002; Pennings & Wezel, 2010; Wiersema & Bantel, 1992).

Whereas these two conflicting streams of research have accumulated important findings, the prior literature has not yet addressed the selection strategies through which firms respond to the countervailing forces towards diversity and homogeneity. Two areas for further development are identified. First, researchers should address the hiring strategies that firms employ to select dissimilar executives and promote TMT diversity. Recent research on managerial labor markets shows that different executive selection routes (i.e., internal promotion versus external hiring) are associated with systematic variation in new executives' characteristics (Bidwell, 2011; Petersen & Saporta 2004). However, no known study has investigated the effect of different selection strategies on the emergence of TMT diversity. Second, past research has been inclined to assume that high CEO firm tenure, as well as organizational complexity and environmental uncertainty are associated with higher information-processing demands and greater need for TMT diversity (Boeker & Wiltbank, 2005; Nielsen, 2009). However, there is a lack of a nuanced understanding of how team, firm and environmental level factors differently affect the selection routes through which firms promote diverse TMT composition.

In this paper we adopt a multilevel approach to address these gaps. First, we bridge the two conflicting theoretical streams with regards to the antecedents of TMT diversity (i.e., the micro-level theory of homogeneity reproduction and the meso- and

macro-level theories that predict rising diversity levels), and outline how firms employ different selection strategies in response to the countervailing forces towards diversity and homogeneity. Second, we investigate how CEO firm tenure, as well as organizational complexity and environmental uncertainty distinctively interact with executive selection strategies to determine diverse TMT membership. Finally, we draw conclusions concerning the multilevel factors that simultaneously affect the emergence of TMT diversity and discuss how our findings contribute to a better understanding of the antecedents and outcomes of TMT composition.

The paper is structured as follows. Next, we provide an overview of the countervailing drivers that push firms towards either diversity or homogeneity, and develop a set of hypotheses with regards to the role of executive hiring modes in the emergence of diverse TMTs. Subsequently the methodological procedure and research results are presented, following by a discussion of the main findings and their implications for the upper echelons and TMT diversity literature.

3.2 Theory and hypotheses

3.2.1 Drivers of TMT diversity

There are at least three factors that induce companies to hire dissimilar executives and promote TMT diversity. First, the high degree of decision making complexity facing large firms today, impose high demands on TMTs' with regards to processing diverse information and dealing with multiple problems (Sanders & Carpenter, 1998; Tushman & Nadler, 1978). Proponents of the requisite variety (Milliken & Martins, 1996) and the information processing perspectives (Tushman & Nadler, 1978) suggest that diversity in demographic characteristics provides the team with a broader knowledge and information processing ability (Dezso & Ross, 2012; Jackson, Joshi, & Erhardt, 2003; Richard, 2000). To cope with diverse information flows, firms require top managers with diverse demographic and experiential attributes (Cohen & Bailey, 1997; Milliken & Martins, 1996). Hence, selecting executive candidates who are dissimilar to incumbent top managers serves as a remedy for the high information processing demands that large firms face (Boone et al., 2004).

Second, large firms need to develop and retain legitimacy in their internal and external environments (Suchman, 1995). A diverse TMT can be a powerful vehicle to signal managerial capacity and develop organizational legitimacy (Certo, 2003; Miller & Triana, 2009). Diversity in the upper tiers of management signals that the TMT possesses sufficiently diverse capacities and cognitive abilities to effectively handle complex strategic contingencies (Miller & Triana, 2009). The selection of dissimilar

executive candidates is therefore motivated by the companies' enduring need to establish and maintain legitimacy.

Third, past research suggests that firms make decisions that are embedded in the characteristics of their external environment (Keck & Tushman, 1993). Top managers serve an important role in linking the firm with its environment, and act as boundary spanners whose characteristics and backgrounds provide the organization with a variety of key resources (Cannella et al., 2008; Carpenter & Fredrickson, 2001). In particular, past research has underscored the need for executives with diverse knowledge, skills, and cognitive abilities in firms that operate in dynamic and uncertain environments (Finkelstein et al, 2009). High degrees of environmental dynamism put pressure on companies to increase the pool of available resources by hiring dissimilar TMT candidates.

3.2.2 Drivers of TMT homogeneity

Theories of homosocial reproduction imply that teams have an inherent micro-level tendency to reproduce their own characteristics over time (McDonald & Westphal, 2013; McPherson, Smith-Lovin, & Cook, 2001; Schneider, 1987; Turner, 1987). According to Kanter (1977), incoming candidates are perceived as socially uncertain if they are dissimilar to incumbent team members in terms of background and characteristics. This perceived social uncertainty reinforces TMT homogeneity over time for the following reasons.

First, demographic similarity increases the default level of trust and the likelihood of positive evaluations at the time of executive selection. To protect their self-esteem, recruiters are inclined to evaluate those who are similar to them more favorably than those who belong to other socio-demographic categories (Turner, 1987; Zajac & Westphal, 1996). According to Latham, Wexley, & Pursell, "the more closely an assessee resembles the rater in attitudes and background, the stronger the tendency of the rater to judge that individual higher" (1975: 551). The inclination to evaluate similar others more favorably implies that dissimilar candidates are perceived as more socially uncertain at the time of selection (Kanter, 1977). This prompts decision making teams to appoint new members who are similar to themselves, and thus to reproduce homogeneity over time (Schneider, 1987).

Second, at the time of executive selection, decision makers assess whether the attributes of executive candidates complement the characteristics of incumbent executives. Candidates who are dissimilar to incumbent top managers imply greater uncertainty with regards to their expected social integration in the existing team at the

post appointment stage (Jackson et al., 1993; Kanter, 1977; Zajac & Westphal, 1996). This social uncertainty concerning the post appointment integration of a dissimilar TMT candidate encourages incumbent executives to select new members who demographically resemble themselves and contribute to increasing TMT homogeneity. As Kanter pointed out, "one way to ensure acceptance and ease of communication was to limit managerial jobs to those who were socially homogeneous" (1977: 58).

3.2.3 Selection strategies and incomplete information

The importance of information availability in matching the characteristics of candidates to job demands is central in the literature of labor markets (Granovetter, 1981; Zajac, 1990). Past research has identified two main types of candidates' characteristics: (a) "*observable characteristics*", including directly and indirectly detectable profile features such as age, gender, nationality, and functional background, and (b) "*unobservable attributes*" such as information about candidates' competencies and performance in prior positions (Bidwell, 2011; Granovetter, 1981). As firms have privileged access to information about their own employees, they possess more detailed and high quality information about internal (as opposed to external) candidates' unobservable attributes (Bidwell, 2011; Bills, 1990; Granovetter, 1981; Miller & Rosenbaum, 1997; Spence, 1973; Zajac, 1990).

To evaluate the suitability of an internal candidate for appointment to an executive position, firms are more likely to focus on the information they have about the candidate's unobservable attributes and past performance inside the firm, rather than his or her dissimilarity in terms of observable demographic characteristics (Petersen & Saporta, 2004). This is because externally unobservable information about a candidate's past performance is a more accurate predictor of his or her fit to the requirements of an executive position than demographic characteristics (Granovetter, 1981). Therefore, the demographic dissimilarity of internal candidates will be less important at the time of selection, as firms will pay more attention to the information they have about the candidates' unobservable characteristics and performance inside the firm.

For external candidates, on the other hand, their demographic similarity to the incumbent TMT is likely to be a key consideration at the time of selection. As a substitute for the lack of accurate information concerning external candidates' unobservable attributes, demographic similarity between an external TMT candidate and incumbent TMT members is likely to be an important selection criterion (Jackson et al, 1993; Zajac & Westphal, 1996). Hence, a firm's selection of an external

candidate is highly influenced by the level of social uncertainty deriving from the demographic dissimilarity between the candidate and the existing TMT (Petersen & Saporta, 2003). External hiring is therefore likely to be associated with a preference for demographically similar candidates.

Based on the above, we assume a substitution effect between external hiring and demographic dissimilarity, as firms will be inclined to select either demographically dissimilar executives from inside the firm, or executives who demographically resemble incumbent top managers from the external labor market.

Hypothesis 1. *External hiring is negatively related with the demographic dissimilarity between a newly selected executive and incumbent executives.*

3.2.4 Team, firm and environmental effects

3.2.4.1 CEO's firm tenure

Studies show that CEOs play a key role in making TMT selection decisions (Cannella & Holcomb, 2005; Karaevli, 2007; Klimoski & Koles, 2001; Zajac & Westphal, 1996). One of the most widely assessed characteristics in the upper echelons literature is the tenure of the CEO inside the organization (Finkelstein et al., 2009). The general assumption is that long tenured CEOs are related to lack of external knowledge and lower ability to adapt to the external demands facing the firm (Weng & Lin, *forthcoming*). While short tenured CEOs are related with organizational renewal and innovation, CEOs with long firm tenure are associated with strategic inertia (Hambrick & Fukutomi, 1991).

Research on CEO-TMT complementarity suggests that CEOs are likely to select TMT members who complement themselves in experiential characteristics (Finkelstein et al., 2009). Based on the logic of complementarity, we suggest that long tenured CEOs will select executives who can promote organizational renewal through their experience from outside the firm and their diverse characteristics. In order to enable organizational adaptation, CEOs with long firm tenure will tend to hire external executives who are dissimilar to incumbent top managers in demographic attributes. External-dissimilar executives can act as boundary spanners who can broaden the current knowledge of the incumbent team through their different characteristics and experience from outside the organization (Finkelstein et al., 2009; Nielsen, 2009). The selection of external-dissimilar executives can compensate for a long tenured CEO's lack of external knowledge, and help the firm to enhance organizational renewal and environmental adaptation (Grossman, 2007). Hence, the inclination of firms to select

dissimilar candidates internally rather than externally will be less pronounced when the TMT is led by a CEO with long firm tenure.

Hypothesis 2. *The negative relationship between external hiring and demographic dissimilarity of newly selected executives is less pronounced when CEO's tenure in the firm is high.*

3.2.4.2 Organizational complexity

The relevance of organizational complexity for TMT composition has been widely discussed in the upper echelons literature (Boone et al., 2004; Carpenter et al., 2004; Finkelstein et al., 2009). Past research conceptualizes organizational complexity in terms of: (a) firm size, and (b) firm strategy (Bushman, Chen, Engel & Smith, 2004; Denis, Denis, & Yost, 2002; Mintzberg, 1979; Damanpour, 1996).

First, large firm size implies that top managers have to cope with larger degrees of organizational complexity and engage more frequently into dealing with complicated administrative issues (Miller, 1991; Thompson, 1967). Second, firms with complex international strategies must be able to effectively process diverse information and cope with the complexity of international markets (Sanders & Carpenter, 1998). In line with the requisite variety perspective (Ashby, 1956), a TMT consisting of executives with diverse characteristics and external knowledge are better able to handle large firms' complex strategic demands (Carpenter, 2002; Nielsen & Nielsen, 2013). As complexity levels increase, firms need to hire executives who are different to incumbent top managers in terms of human (e.g., experiences and cognitive abilities) and relational capital (e.g., network contacts outside the organization) (Athanassiou & Nigh, 1999; Hillman & Dalziel, 2003). Dissimilar executives hired from outside the firm significantly alter the current knowledge of the team and allow the firm to successfully manage organizational complexity (Haleblian & Finkelstein, 1993; Hambrick & Fukutomi, 1991).

The anticipated benefits of externally hired and dissimilar executives are likely to influence the hiring preferences of large international firms at the time of executive selection (Menon & Pfeffer, 2003). External-dissimilar new executives provide to the firm fundamentally new knowledge and perspectives that are essential to manage organizational complexity (Hambrick & Fukutomi, 1991). Thus, under conditions of high organizational complexity, firms are inclined to suppress the substitution effect between external hiring and dissimilarity of new executives in favor of selecting external-dissimilar new TMT members.

Hypothesis 3. *The negative relationship between external hiring and demographic dissimilarity of newly selected executives is less pronounced under conditions of high organizational complexity.*

3.2.4.3 Environmental uncertainty

Environmental uncertainty refers to the extent to which an organization's external (industry) environment is characterized by volatility and unpredictability (Dess & Beard, 1984). Similar to conditions of organizational complexity, environmental uncertainty requires diverse characteristics at the TMT level (Cannella et. al., 2008; Nielsen, 2009). However, a key difference between environmental uncertainty and organizational complexity is that the former depends on factors that are beyond management's control, whereas the latter is largely shaped and controlled by the firm's management (Finkelstein et al., 2009; Milliken 1987).

Under conditions of lack of managerial control due to high environmental uncertainty, firms tend to reduce the unpredictability that characterizes team level decisions (Johnson, 1988). Indeed, the behavioral decision literature suggests that, under uncertain environmental conditions, firms adopt conservative approaches to decision making (Das & Teng, 1999; Weick, 1979). The exogenous nature of environmental uncertainty restricts the firm's readiness to accept micro-level social uncertainty in the selection of new TMT members. In order to deal with non-controllable environmental uncertainty, management teams strive to minimize uncertainty in micro-level decisions. By minimizing micro-level uncertainty, top managers have the impression of manageability. They "are likely to believe that even if some unexpected outcomes [of a decision] were to materialize, they would be able to manage or control the situation." (Das & Teng, 1999: 768). As the decision to select a dissimilar top executive implies high uncertainty at the micro-level (Petersen & Saporta, 2004), firms that operate in uncertain environments are particularly inclined either to select external candidates who resemble incumbent executives, or to promote dissimilar candidates from inside the organization.

Hypothesis 4. *The negative relationship between external hiring and demographic dissimilarity of newly selected executives is more pronounced under conditions of high environmental uncertainty.*

3.3 Methods

3.3.1 Sample and data collection

The initial sample consisted of 1243 non-CEO executive appointments that occurred at 310 large listed firms headquartered in four European countries (i.e., Germany, the Netherlands, Switzerland and the UK) over a period of five consecutive years, from 2005 to 2009. All publicly listed firms in each of these four countries were ranked by market capitalization at the end of 2005 (December 31st) and the largest 100 firms per country were included in the initial sample, provided that they met the following conditions: (1) they were not classified as SMEs at year-end 2005 according to the definition of the European Union (they had more than 250 employees and higher than €50 million annual revenues) (EU Commission, 2012); (2) they did not become part of other firms through merger and acquisition (M&A) activities or ceased to exist between 2005 and 2009; (3) they were not subsidiaries of another larger company.

From the initial sample of 1243 non-CEO executive appointments, 676 observations were dropped due to data unavailability, leaving a final sample of 567 appointments at 167 firms. The firms included in our final sample represent 38 industries based on their primary two-digit standard industry classification (SIC). As a test for differences between our sample observations and the initial population, we ran two-sample Kolmogorov-Smirnov tests. These tests show no significant differences between our sample and the initial population in terms of firm size (number of employees) and firm performance (return on assets), with p-values of 0.97 and 0.40 for firm size and firm performance respectively.

The reason we decided to focus on the four European countries is threefold. First, organizations in these four countries have adopted transparent practices in reporting information about board of directors' and TMTs' characteristics (Ruigrok, et al., *forthcoming*). This enabled us to gather information about executives' characteristics from the public domain at the time of data collection. Second, European firms recently experience a trend towards promoting increasing levels of demographic diversity in their upper tiers of management by selecting executives from minority demographic groups. This allows us to examine how selection routes affect the emergence of diverse TMT composition. Third, the four countries are preferred homes for many large corporations. Firms like Nestlé, HSBC, Siemens, and Philips are examples of large diversified companies headquartered in the chosen countries. These large firms attract executive candidates with various demographic attributes and backgrounds, offering a suitable context for assessing the antecedents of TMT diversity.

Individual executives' demographic and background data was collected from firms' annual reports and corporate websites. Firm and industry level data was gathered from the Thomson ONE Banker database. Consistent with prior TMT studies conducted with European samples, we defined the TMT as the highest level of corporate management by relying on firms' definitions provided in their annual reports (Boone et al., 2004; Greve, Nielsen & Ruigrok, 2009; Nielsen & Nielsen, 2013; Ruigrok, Georgakakis, & Greve, 2013).

As the appointment of a CEO is a substantively different decision than the appointment of other TMT members, and as we use CEO firm tenure as a moderator, we exclude CEO appointments from the main analysis. Furthermore, a substantial proportion of CEOs are appointed from within the firms' own TMT ranks. The decision to exclude CEOs implies that we avoid double-counting such internally appointed CEOs in the sample (i.e., first the TMT appointment and subsequently the appointment to the CEO position).

3.3.2 Dependent variable

The dependent variable is the *overall degree of dissimilarity* of each newly selected non-CEO executive relative to incumbent TMT members. The overall dissimilarity measure was a composite of dissimilarity in four attributes: age, gender, nationality, and functional background. These four attributes have been widely employed in past studies on the antecedents of TMT diversity and capture both experiential and social characteristics of executive candidates (Bell, Villado, Lukasik, Belau, & Briggs, 2011). Importantly for this study, these four attributes are objectively measurable, observable, and central to an assessment of new executives' compatibility with incumbent team members (Nielsen, 2009; Westphal & Zajac, 1995; Zajac & Westphal, 1996).

We decided to employ a composite measure of dissimilarity in observable demographic attributes for the following reason. According to Boone et al., (2004: 640) "the distance of a manager from other team members can best be assessed by cumulating distances along several dimensions". At the time of selection, firms are likely to evaluate an executive candidate based on an overall compatibility assessment, in which they consider multiple characteristics simultaneously rather than individual characteristics separately (Pelled, Eisenhardt & Xin, 1999). A composite measure of dissimilarity in observable demographic attributes can therefore better represent the demographic dissimilarity construct.

In line with prior studies (Boone et al., 2004; Zajac & Westphal, 1996), we calculated age dissimilarity between a newly appointed executive and incumbent TMT members using the demographic distance formula expressed as: $\sqrt{\Sigma(Xi - Xj)^2/(n-1)}$, where X_i represents the age of a newly appointed executive i, X_j represents the age of each incumbent executive j, and n is the total number of team members.

Nationality was defined as the primary nationality of an executive team member. Gender was a dichotomous variable taking the value of 1 for female executives and 0 for male executives. Executives' functional background was conceptualized as dominant function in which an executive had mainly worked in the past (Bunderson & Sutcliffe, 2002). Similar to Cannella et al., (2008), we coded the dominant function of each executive team member in one of the following functional areas: engineering; production; finance; research and development (R&D); marketing and sales; business administration; legal issues; human resources; strategic development; other. Next, we calculated dissimilarity of newly appointed executives in terms of nationality, gender, and functional background using a slightly modified version of Blau's (1977) index formula expressed as: $1-(Pi)^2$. In this formula, P represents the proportion of existing team members who share the same demographic category i with a newly appointed executive (Boone et al., 2004; Nielsen, 2009). To obtain a composite measure of dissimilarity for each newly appointed executive, we standardized age dissimilarity to take values between 0 and 1 and summed age, nationality, gender, and functional background dissimilarity into an overall dissimilarity measure (Schaubroeck & Lam, 2002; Zajac & Westphal, 1996).

3.3.3 Independent and moderator variables

Executive origin. We measured executive origin as a dichotomous variable taking the value of 1 if a newly selected executive is hired from outside the firm and 0 otherwise. In line with other studies, we defined externally appointed executives as those who did not possess any prior intra-firm working experience before their initial appointment to the TMT (Bidwell, 2011; Petersen & Saporta, 2004).

CEO firm tenure (log). This variable was measured as the exact number of years that the CEO had worked inside the organization. To capture the diminishing effects of CEO firm tenure over time (Hambrick & Fukutomi, 1991), we transformed this variable to a logarithmic scale.

Organizational complexity. Organizational complexity was conceptualized as an aggregate of firm size and degree of internationalization (DOI). Firm size was

measured as the number of full-time employees in the year of an executive appointment (Tihanyi, Daily, Dalton & Ellstrand, 2000). We measured DOI as the ratio of foreign sales to total sales (FS/TS) in the appointment year (Collins, 1990; Tallman & Li, 1996). To generate a single composite variable of organizational complexity, we standardized firm size to take values between 0 and 1 and aggregated the two components in a single organizational complexity measure. By employing the number of employees and DOI as components, we capture both firm size and strategy dimensions of the organizational complexity construct[1].

Environmental uncertainty. With this variable we measured the extent to which a firm's environment is volatile and unpredictable at the time of executive selection. We measured environmental uncertainty using a variation of environmental volatility suggested by Dess & Beard (1984). Specifically, to calculate this variable we first computed the regression coefficient of time on the annual average sales in a firm's primary four-digit industry during the three years prior to each executive appointment. Subsequently, we divided the standard error obtained from the regression slope coefficient of each industry by the average sales (Zhang & Rajagopalan, 2004). This calculation gave us the degree of industry dynamism in each industry. A three-year average measure of pre-appointment environmental uncertainty allowed us to capture whether an executive selection decision was made under uncertain environmental conditions.

3.3.4 Control variables

Incumbent TMT diversity. We controlled for the ex-ante heterogeneity of the incumbent TMT prior to a new executive appointment. The initial level of TMT diversity is likely to vary widely across firms and influence the inclination to appoint a dissimilar new TMT member (Boone et al., 2004). As age is a continuous variable, age diversity of incumbent TMT members was calculated as the standard deviation of the incumbent TMT's age divided by the mean (Murray, 1989). For the three categorical variables (gender, nationality, and functional background), diversity was measured using Blau's (1977) index, calculated as $1-\Sigma(Pi^2)$, where Pi is the relative percentage of executive members in a given category i. To calculate the overall degree of incumbent TMT diversity, we standardized age diversity to take values between 0 and 1 and

[1] To ensure that the aggregation of the two variables was the right choice, we ran a factor analysis using Stata 11. The results show that the two component variables are loading on the same factor with a loading of 76 percent and an eigenvalue of above 1 (i.e., eigenvalue = 1.14). This indicates that the aggregation of the two components into one single measure is an appropriate decision.

aggregated the four components into a composite measure of incumbent TMT diversity (Westphal & Zajac, 1995).

Educational qualification level. High educational qualification signals managerial reputation, which reduces the perceived risk of making an adverse executive selection decision (Bidwell, 2011; Spence, 1973). Firms may compensate for the lack of information concerning executive candidates' unobservable attributes by emphasizing educational qualification levels (Bidwell, 2011). This variable was coded as 1 if the person had no academic degree, 2 for a Bachelor of Science (B.Sc.) degree, 3 for a Master of Science (M.Sc.) degree, 4 for a Master in Business Administration (MBA) degree, and 5 for a doctoral degree (Pegels, Song & Yang, 2000).

TMT size (log). Large TMTs replace TMT members more frequently and are therefore more likely to consist of dissimilar executives than their smaller counterparts (Harrison & Klein, 2007; Tihanyi et al., 2000). TMT size was coded as the number of TMT members in the year of appointment. As we detected high levels of skewness in this variable (skewness: 1.25, $p<0.001$), we transformed it to a natural logarithmic scale. This technique is commonly employed to overcome skewness problems in this variable (Boeker, 1997).

Past firm performance. Research has shown that poorly performing firms are more likely to alter TMT composition and increase TMT diversity (Boone et al., 2004; Pennings & Wezel, 2010; Wiersema & Bantel, 1992). Thus, we controlled for pre-appointment firm performance by computing the three-year average return on assets (ROA) prior to each executive appointment.

3.4 Results

3.4.1 Main analysis

As our data is based on three different levels of analysis (i.e., individual, firm, and industry levels), we employed a three-level hierarchical linear modeling (HLM) technique (Raudenbush & Bryk, 2002). Individual level variables are at the first level of analysis, firm and team level variables are at the second level, and industry level variables, as well as other control variables are nested at the third level of analysis (Raudenbush & Bryk, 2002). At the first level of analysis, the study investigates differences between individual appointees nested within firms/teams. At the second level the study considers differences between firms/teams nested in industries, whereas differences between industries are observed at the third level of analysis. An advantage of the HLM technique is that it controls for any systematic variance among observations (Raudenbush & Bryk, 2002). For instance, executives who are nested in

the same firm are more likely to share common characteristics than executives nested in different firms. The HLM technique allows us to control for any such systematic variance among observations.

In multilevel models particular attention should be given to centering decisions. There are two centering options available. The first option is to center all variables to the grand mean. The second option is to center lower-level variables (excluding dummies) to their group mean (Enders & Tofighi, 2007). While both options give correct results (Kreft, 1995), they produce parameter estimates that differ in meaning and interpretation (Enders & Tofighi, 2007). If HLM analysis includes cross-level interactions (slopes-as-outcome models), centering to the grand mean is the preferred option (Bliese, 2000). Since our models and hypotheses include cross-level interactions, we centered all variables to the grand mean (Raudenbush & Bryk, 2002).

Table 3.1 displays descriptive statistics and correlations. Table 3.2 presents the results of the null HLM model in which no independent and control variables are included. Variance decomposition analysis indicates the variance in the dependent variable explained by each level of analysis. The first and second hierarchical levels explained the highest proportion of variance in the dependent variable with 46 percent each. The third level represented 8 percent of variance, which means that the industry level also matters, albeit to a lesser extent. The results in Table 3.2 are significant at $p<0.001$, indicating that a three level HLM is an appropriate technique to analyze the data (Raudenbush & Bryk, 2002).

Table 3.3 presents the main effects and cross level interactions of our HLM analysis with overall dissimilarity of new executives from the rest of the TMT as dependent variable. Model 1 displays results of only control variables, while Models 2 to 6 present results including the main predictor and cross level interactions. In support of hypothesis 1, Model 2 shows a negative relationship between external hiring and dissimilarity of newly appointed executives ($p<0.05$). Further, in partial support of hypothesis 2, Model 3 shows that the negative relationship between external hiring and new appointees' dissimilarity becomes less pronounced when CEO firm tenure is high ($p < 0.10$). However, this partially significant relationship does not receive support in the full model (Model 6). This means that we should be careful in interpreting this finding.

Table 3.1
Descriptive statistics and correlations

Variables	Mean	S.D.	1	2	3	4	5	6	7	8	9
1. Demographic dissimilarity	2.01	0.50	~								
Level 1											
2. External appointment (yes=1)	0.39	0.49	-0.05	~							
3. Educational level	3.32	1.18	0.00	-0.04	~						
Level 2											
4. CEO firm tenure (*log*)	2.18	1.00	0.03	-0.19*	0.00	~					
5. Organizational complexity	0.37	0.18	0.27*	-0.15*	0.07	0.21*	~				
6. Incumbent TMT diversity	1.32	0.39	0.46*	0.07	0.06	0.06	0.26*	~			
7. Team size *(log)*	1.94	0.36	0.22*	-0.06	-0.06	0.04	0.29*	0.42*	~		
8. Past performance (ROA)	0.05	0.05	0.13*	-0.01	-0.02	0.13*	0.12*	0.16*	0.01	~	
Level 3											
9. Environmental uncertainty	0.01	0.02	0.01	-0.00	-0.06	-0.11*	-0.07	-0.02	0.04	0. 05	~

* p< 0.05

Table 3.2
Variance decomposition

Null model	Variance decomposition (percentage)
Level 1 (individual)	0.46
Level 2 (firm)	0.46
Level 3 (industry)	0.08
Deviance	1013.61
Significance	p <0.001

Table 3.3
Results of HLM Analysis with new executive's dissimilarity as dependent variable

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
	coef.	*coef.*	*coef.*	*coef.*	*coef.*	*coef.*
Intercept	2.06*** (0.09)	2.09*** (0.09)	2.10*** (0.09)	2.10*** (0.09)	2.09*** (0.09)	2.09*** (0.09)
Level 3						
Year 2005	0.09 (0.06)	0.09 (0.06)	0.09 (0.06)	0.09 (0.06)	0.09 (0.06)	0.09 (0.06)
Year 2006	-0.08 (0.05)	-0.08 (0.05)	-0.07 (0.05)	-0.08 (0.05)	-0.08 (0.05)	-0.07 (0.05)
Year 2007	*omitted*	*omitted*	*Omitted*	*omitted*	*omitted*	*omitted*
Year 2008	-0.01 (0.05)	-0.01 (0.05)	-0.01 (0.05)	-0.02 (0.05)	-0.01 (0.05)	-0.01 (0.05)
Year 2009	0.02 (0.05)	0.03 (0.05)	0.03 (0.05)	0.03 (0.05)	0.04 (0.05)	0.05 (0.05)
CHE	-0.05 (0.10)	-0.05 (0.10)	-0.05 (0.10)	-0.05 (0.10)	-0.05 (0.10)	-0.05 (0.09)
NLD	*omitted*	*omitted*	*omitted*	*omitted*	*omitted*	*omitted*
GBR	0.07 (0.10)	0.07 (0.10)	0.07 (0.10)	0.07 (0.10)	0.08 (0.10)	0.07 (0.10)
DEU	-0.24** (0.09)	-0.25** (0.09)	-0.25** (0.09)	-0.25** (0.09)	-0.24** (0.09)	0.25** (0.09)
Environmental uncertainty	1.18 (0.95)	1.10 (0.95)	1.06 (0.94)	1.04 (0.94)	2.90** (1.12)	2.75* (1.12)

Continued in the next page

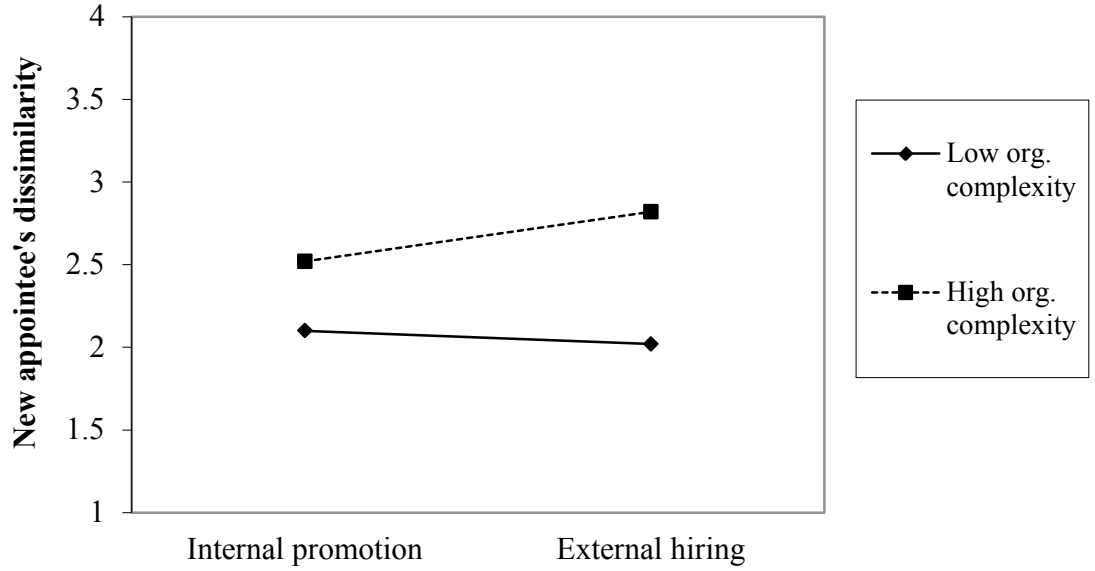
Table 3.3
Results of HLM Analysis with new executive's dissimilarity as dependent variable (continued)[a, b]

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	coef.	*coef.*	*coef.*	*coef.*	*coef.*	*coef.*
Level 2						
Team size (*log*)	0.03	0.01	0.02	0.01	0.01	0.01
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Incumbent TMT diversity	0.33***	0.35***	0.35***	0.35***	0.35***	0.34***
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Past performance (ROA)	0.58	0.59	0.55	0.59	0.60	0.57
	(0.41)	(0.41)	(0.41)	(0.41)	(0.41)	(0.41)
Organizational complexity	0.62***	0.59***	0.61***	0.42**	0.61***	0.47**
	(0.15)	(0.15)	(0.15)	(0.17)	(0.15)	(0.17)
CEO firm tenure (*log*)	-0.01	-0.02	-0.05†	-0.02	-0.02	-0.04
	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)	(0.03)
Level 1						
Educational level	0.01	0.01	0.01	0.01	0.01	0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
External appointment		-0.08*	-0.07*	-0.08*	-0.08*	-0.08*
		(0.04)	(0.04)	(0.04)	(0.03)	(0.03)
Cross-level interactions						
CEO firm tenure (log) X external appointment			0.06†			0.05
			(0.03)			(0.04)
Org. complexity X external appointment				0.38*		0.34†
				(0.19)		(0.19)
Env. uncertainty X external appointment					-4.98**	-4.82**
					(1.70)	(1.69)
Deviance	566.03***	561.44***	558.20***	557.49***	552.89***	547.03***

[a]Individual level: N= 567, firm/team level: N=167, industry level: N=38
[b] Standard errors are indicated in parentheses
† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Moreover, in support of hypotheses 3 and 4 ($p<0.05$ to $p<0.10$; and $p<0.01$ respectively), the negative relationship between external hiring and new appointees' dissimilarity becomes less pronounced in firms facing high degrees of organizational complexity and more pronounced under conditions of environmental uncertainty. As Figure 3.1 illustrates, complexity significantly affect the substitution effect between external hiring and new executives' dissimilarity. Firms facing complexity are more likely to select dissimilar executives from the external labor market. On the contrary, however, the negative relationship between external hiring and dissimilarity of new executives becomes steeper under conditions of high environmental uncertainty (Figure 3.2). The effects illustrated in Figures 3.1 and 3.2 are based on minus/plus one standard deviation.

Figure 3.1: Effects of the interaction between external hiring and organizational complexity



Source: Author

Figure 3.2: Effects of the interaction between external hiring and environmental uncertainty

Source: Author

3.4.2 Endogeneity analysis

It is important to address endogeneity issues in this study for two reasons. First, a firm's inclination to appoint new executives is not random. Some firms in our sample may be more inclined to make changes in the TMT than others. Such differences in TMT change propensity across different firms may be related to the tendency to appoint demographically dissimilar new executives. Second, there may be unobserved factors associated with external hiring that simultaneously influence the degree of dissimilarity between new and incumbent executives. To ensure that these two types of endogeneity do not affect the validity of our findings, we employed a Heckman's (1979) two stage model procedure. This approach has been used by several recent studies facing similar endogeneity issues (Karaevli & Zajac, 2013; Quigley & Hambrick, 2012), and allows us to make a well informed judgment on whether our findings are outcomes of endogeneity (Brown et al., 2011).

The most crucial issue for the effective operationalization of the Heckman's (1979) model is to identify suitable instruments. Appropriate instrumental variables are those that are significantly correlated with the independent variable (i.e., external hiring) and uncorrelated with the dependent variable (i.e., new appointees' dissimilarity) (Brown et al., 2011). In line with recent executive selection literature (Karaevli & Zajac, 2013), we employed the *rate of external hiring in the industry* as an instrument in our study. Correlation results indicate that the chosen instrumental variable is suitable for our study as it is highly correlated with external hiring ($r = 0.22$, $p<0.001$), and not correlated with the dependent variable ($r = 0.00$, $p>0.10$).

At the first stage of Heckman's (1979) model, we conducted a probit analysis that predicted the likelihood that an individual new executive was appointed from the external labor market. At this stage we used the full sample of all individual executives including those in firms that experienced TMT transition and those in firms that did not (Karaevli & Zajac, 2013). The results of the probit analysis are presented in Appendix 2.1a. In the second stage, we employed the predicted values of the probit models to calculate the inverse Mill's ratio, and included this ratio as an additional control variable in the main HLM analysis. This variable served as a control for the 'external hiring propensity' in our second-stage model, allowing us to control for potential self-selection bias and unobserved heterogeneity in the main analysis. Appendix 2.1b displays the results of the second-stage HLM analysis. These results show that the addition of the inverse Mill's ratio has no substantive impact on the main outcomes, indicating that our results remain stable when endogeneity issues are accounted for in the analysis.

3.5 Discussion

The results of this study demonstrate that TMTs overcome their homogeneity inclinations by appointing dissimilar executives from the internal ranks of the firm, rather than from the external labor market. While this substitution effect between external hiring and the dissimilarity of newly appointed executives is less pronounced under conditions of high organizational complexity, it is more pronounced under conditions of high environmental uncertainty. The study offers several contributions to the TMT composition literature.

First, our results shed light on a central contradiction in past TMT diversity literature. While some studies have found that TMTs reproduce homogeneity over time by selecting new members who are similar to incumbent executives (e.g., Boone et al., 2004), other studies argue that countervailing drivers induce firms to increasingly select executive candidates who are dissimilar to incumbent top managers and increase interpersonal TMT diversity (Nielsen, 2009). The present study suggests that firms pursue diversity and homogeneity objectives simultaneously through a substitution mechanism between external hiring and the demographic dissimilarity of new executives. This mechanism mitigates the uncertainties associated with information deficits in the selection of new TMT members. Our findings support this suggestion, as internal promotion is associated with a higher readiness to select new TMT members who are demographically different from existing ones, whereas external hiring reinforces demographic homogeneity inclinations by reproducing dominant characteristics within the TMT. Thus, the study can be seen as a response to the recent calls to investigate the processes and selection practices through which organizations overcome their homogeneity inclinations and build diverse TMT composition.

Second, the study adds to our understanding of the important role of the CEO in determining the characteristics of executives who enter TMT positions through different selection routes. We hypothesized that CEO's firm tenure plays an important role in affecting the proposed substitution effect between external hiring and demographic dissimilarity. Our results provide partial support of this hypothesis by showing that CEOs with long firm tenure are more likely to select dissimilar executives from outside the organization. A recent body of upper echelons research has stressed that TMT composition is a result of the CEO-TMT interaction (see e.g., Klimoski & Koles, 2001). Our study partially confirms this assumption by providing preliminary evidence concerning the impact of CEO tenure on how firms compose

TMT diversity. However, since this relationship varies from partially supported to not supported, we should be cautious in the interpretation this result. The predominant explanation for the fact that the observed relationship receives only partial support is that our study focuses on European firms, where CEOs have lower levels of managerial discretion compared to US firms (Crossland & Hambrick, 2011). However, it is plausible to assume and further research should test whether this partially significant moderating effect is fully supported under other contextual settings where CEO managerial discretion is higher. Overall, the preliminary evidence provided in this study show that CEOs and TMTs may indeed interactively determine the composition of the executive group through the selection of new executives. Further research on this topic can help to extend our understanding of the CEO-TMT interaction as a key antecedent of TMT composition.

Third, we find that a firm's internal and external environment plays an important role in shaping TMT diversity. Past studies have typically assumed that organizational complexity and environmental uncertainty increase the need for top managers with diverse backgrounds and characteristics (e.g., Finkelstein et al., 2009; Nielsen, 2009). Our study expands this line of research by showing that these two contextual characteristics rather have different effects on how (i.e., through which selection strategies) firms build diverse TMT composition. While organizational complexity weakens the substitution effect and increases the likelihood that firms appoint dissimilar TMT members from the external labor market, environmental uncertainty strengthens the substitution mechanism. Indeed, as Figure 3.1 shows, the negative relationship between external hiring and dissimilarity becomes positive under conditions of organizational complexity. Under these conditions, firms are more likely to hire dissimilar-externals in order to respond to high information processing demands and pressures for requisite variety. On the contrary, however, the hypothesized substitution effect becomes stronger under conditions of environmental uncertainty (see Figure 3.2).

The opposite moderating effects of organizational complexity and environmental uncertainty can be attributed to the different extent of managerial controllability associated with each of the two concepts. Organizational complexity is arguably shaped and controlled directly by the executive team. Under conditions of high organizational complexity, firms recognize that the selection of external-dissimilar TMT members increases their ability to use diverse information and allows them to effectively handle complex decision-making situations. Under such circumstances, the substitution mechanism between external hiring and demographic

dissimilarity would provide to firms insufficient levels of information-processing and problem-solving capacity, and is therefore suppressed. Meanwhile, environmental uncertainty is primarily shaped by industry-related factors that are largely beyond managerial control. As predicted by the behavioral decision literature, non-controllable environmental uncertainty elicits a response that emphasizes incremental changes to preceding structures and paradigms (Das & Teng, 1999; Weick, 1979). Thus, under conditions of high environmental uncertainty, firms emphasize the information availability prior to appointing dissimilar TMT candidates, and thereby strengthen the substitution effect between external hiring and the dissimilarity of new TMT members.

Overall, our findings suggest that homogeneity inclinations in TMTs are fundamentally difficult to overcome. Diverse TMT membership is primarily achieved by appointing dissimilar internal candidates who have already been socialized within the firm. In the best case, this may enable firms to make efficient use of TMT members' diverse characteristics and backgrounds, as shared organizational experiences create a common platform upon which diverse viewpoints and resources can be leveraged (Grossman, 2007). On the other hand, an unintended consequence of internally promoted diversity could be the emergence of dysfunctional team dynamics deriving from shared socialization characteristics, such as groupthink and inertia in decision-making processes (Jackson et al., 1993).

The outcomes of our study may help to understand the seemingly contradictory findings in previous studies on the effects of TMT diversity. In particular, this study demonstrates the multilevel nature of TMT research by showing that the emergence of TMT diversity depends on individual, firm and environmental level characteristics. Studies conducted in firms operating under conditions of high organizational complexity and low environmental uncertainty are likely to observe different diversity effects than studies conducted in firms with low organizational complexity and high environmental uncertainty. This is because the strength of the substitution effect between external hiring and dissimilarity varies under these different conditions and is likely to elicit different team dynamics at the post-selection stage. This reinforces the need for future studies to employ multindustry and multicountry samples in order to control for the factors that drive firms towards TMT diversity and homogeneity.

3.5.1 Implications for practice and future research

Apart from its theoretical relevance, this paper has important practical implications. Prior research has argued that since externally appointed executives are hired to act as information processing and change agents, they are expected to be

dissimilar to incumbent executives in other demographic characteristics and backgrounds (Hambrick & Fukutomi, 1991). Our study challenges this point of view by showing that external executives are more similar to incumbent top managers in other characteristics. Specifically, the study shows that large firms exhibit a preference for grooming TMT diversity internally. TMT diversity generated through external hiring may overstretch both the adaptive capacity of the candidate and the integrative capacity of the incumbent TMT (Grossman, 2007; Jackson et al., 1993). Further research should test whether external knowledge can more easily be absorbed by the incumbent team when externally hired executives share common demographic characteristics and backgrounds with incumbent team members.

In addition, the study suggests that individuals with dissimilar demographic characteristics are more likely to reach an upper tier managerial position by following an internal labor market career trajectory. Given the absence of data on both external and internal applicant pools we are unable to provide concrete evidence of this conjecture, but within the scope of our data this interpretation appears to be valid. However, further research should help to further advance our understanding of what career trajectories are particularly beneficial for demographic minorities in overcoming imperfections in the internal and external managerial labor markets.

The study is subject to some limitations. First, the paper focuses only on the emergence of diversity in TMTs, and thus it does not address the performance implications of TMT diversity generated from within the firm versus diversity from outside. Past work shows that interpersonal dissimilarity among executives is associated with both costs and benefits. To utilize TMT diversity effectively, firms need to understand how and under what team, firm, and environmental level conditions the benefits of interpersonal diversity are likely to outweigh its costs. It may be expected that internal promotion will diminish the post appointment costs of dissimilarity and enhance diversity benefits. A valuable extension of this study, for example, could be to assess whether upward shifts of diversity through internal promotion (as opposed to external hiring) are more likely to contribute to positive subsequent performance outcomes. Further exploration of the different effects of TMT diversity from inside versus outside the firm could help to understand how firms should develop diverse TMT membership in order to realize high performance outcomes.

Finally, we were unable to observe the actual pool of internal and external candidates from which an appointee was chosen for a TMT position. It is worth noting, however, that this is a common problem in past studies on executive labor (Fulmer,

2009). Whilst some labor market studies use samples from a single company and consider the actual pool of executives appointed to higher level managerial positions in the company (Bidwell, 2011; Petersen & Saporta, 2004), they cannot enhance generalizability of these results to a large sample population. Future research, however, could seek new ways to investigate how firms select dissimilar TMT members by observing the actual pools of internal and external executive candidates.

4 New CEO origin and firm performance: Moderating effects of CEO relational and informational attributes

NEW CEO ORIGIN AND FIRM PERFORMANCE: MODERATING EFFECTS OF CEO RELATIONAL AND INFORMATIONAL ATTRIBUTES

Abstract

This paper seeks to develop a better understanding of the performance implications of CEO succession origin. Drawing on relational demography and information processing theories, we postulate that the performance benefits of outside CEO succession are more likely to materialize when the outsider CEO: (a) is socio-demographically similar to other top management team (TMT) members, (b) has acquired diverse career experience from various countries, and (c) does not change the incumbent TMT at the post-succession stage. Data from 104 CEO succession events at large international firms from 2005 to 2009 shows that both CEO's socio-demographic similarity with other executives and international experience diversity act as optimizing factors that reduce the costs and increase the performance benefits of outside CEO succession. Meanwhile, changes in TMT membership after the appointment of the new CEO do not have a significant moderating effect. Overall, the study demonstrates that the effects of new CEO origin should not be considered in isolation, but in interaction with other individual-level characteristics of the newly appointed CEO, as well as his or her demographic compatibility with other TMT members.

Keywords: CEO succession; Firm performance; CEO characteristics; Upper echelons

4.1 Introduction

Appointing a new CEO from outside the firm has become a frequent phenomenon in recent years, yet empirical studies on the performance effects of outside CEO succession provide mixed results (Haveman & Khaire, 2004; Karaevli, 2007). While some studies suggest that selecting an outsider CEO has positive effects on firm performance (Huson, Malatesta, & Parino, 2004), other studies argue that outside CEO succession is disadvantageous for organizations (Zhang & Rajagopalan, 2010). The inconsistent findings of prior studies suggest a need to go beyond CEO origin and investigate how other individual level attributes of newly appointed CEOs and TMT characteristics affect the link between outside succession and firm performance (Fondas & Wiersema, 1997; Giambatista, Rowe, & Riaz, 2005).

Extant executive succession literature suggests that CEOs appointed through different selection routes (i.e., external hiring versus internal promotion) are hired to perform different roles in the organization (Hambrick et al., 2005; Helmich & Brown, 1972). While internally promoted CEOs are typically appointed to ensure leadership continuity and maintenance of the firm's status quo (Carlson, 1961; Lauterbach, Vu, & Weisberg, 1999), outside successors are hired to act as information processing agents who can promote organizational renewal and strategic innovation (Haleblian & Finkelstein, 1993; Hambrick & Fukutomi, 1991). To effectively perform their different roles and positively affect firm level outcomes, different types of CEO successors need to be equipped with different characteristics and experiential backgrounds (Helmich & Brown, 1972; Fondas & Wiersema, 1997; Zajac & Westphal, 1996). Prior research, however, has not yet empirically assessed how different types of individual level attributes of newly appointed CEOs interact with CEO succession origin to affect post-succession firm performance.

Drawing on relational demography and information processing theories, this study focuses on two individual-level diversity attributes that are likely to act as optimizing factors in the relationship between outside CEO succession and firm performance: (a) CEOs' demographic similarity with other top management team (TMT) members, and (b) CEOs' international experience diversity. In line with relational demography and information processing theories, we argue that these two characteristics reduce the costs and increase the benefits of outside CEO succession, resulting in higher firm performance. In addition, based on prior literature, we assess how changes in the TMT at the post-succession stage moderate the CEO succession and firm performance relationship. In contrast with traditional wisdom (Karaevli, 2007), we find that TMT change at the post-succession stage does not have a

significant moderating effect on the relationship between CEO succession origin and firm performance.

The study provides several contributions. First, it offers a middle-ground conceptualization that combines the two conflicting arguments on the performance implications of new CEO origin; the one which highlights the disadvantages of outside CEO succession and the other which focuses on the advantages. Integrating insights of relational demography and information processing perspectives, the study shows that the performance effects of CEO succession origin should be considered in interaction with the relational and informational characteristics of the new CEO. Second, the study contributes to the upper echelons perspective by showing that the extent to which outside CEO succession is beneficial depends on the new CEO's demographic compatibility (i.e., demographic similarity) with other TMT members. This provides support to recent studies suggesting that upper echelon researchers should not consider the effects of the CEO in isolation, but in relation with his or her 'fit' with other top managers (Buyl et al, 2011; Cao et al., 2010). Third, the study highlights a number of parameters that firms should take into account in order to avoid the negative effects of outside CEO succession and realize performance gains.

The paper continues as follows. Next, the theoretical framework of the study is presented together with the development of hypotheses. Subsequently, the methodological aspects of the study are described, followed by a presentation of the main findings. Finally, a discussion of these findings is provided together with the implications of the study and suggestions for further research.

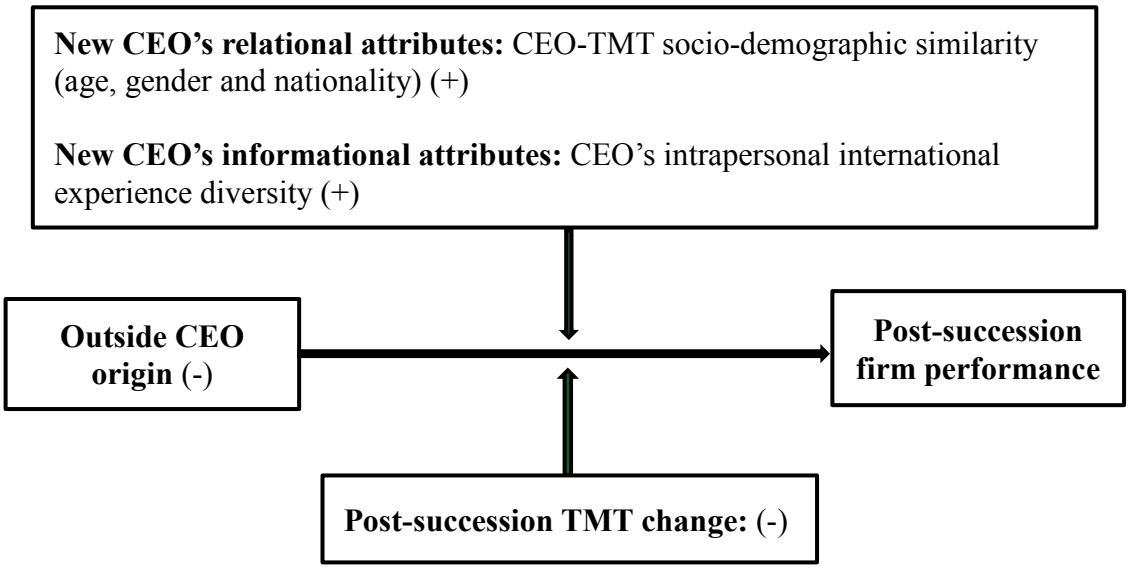
4.2 Theory and hypotheses

As research on the performance effects of CEO succession origin accumulates, there is a growing recognition for understanding the conditions under which the benefits of outside CEO succession outweigh the costs (Finkelstein et al., 2009; Huson et al., 2004; Karaevli, 2007). In particular, mixed findings on the effects of CEO succession on firm performance have led researchers to move forward and investigate the various contextual factors under which organizations are likely to benefit from outside CEO succession (see e.g., Karaevli, 2007; Finkelstein et al., 2009). Whereas past research has shed important light on the meso (organizational) and macro (environmental) level factors under which the benefits of CEO succession are likely to materialize (Karaevli, 2007; Shen & Cannella, 2002b), little attention has been given to the role of the micro (individual) level attributes of newly appointed CEOs. In

addition, insufficient attention has been paid to the fit between a new CEO and other incumbent TMT members (Karaevli, 2007; Tushman & Rosenkopf, 1996).

To capture these gaps, our research framework builds on the premise that the performance effects outside succession should be considered in interaction with other CEO and TMT characteristics (see Figure 4.1). Specifically, we develop hypotheses about the moderating impact of two types of individual level CEO attributes: a) the CEO's similarity with other TMT members in socio-demographic attributes and b) the CEO's international experience diversity. We also examine how changes in TMT membership after succession have a moderating impact on the relationship between CEO succession origin and firm performance. In what follows, the paper reviews prior literature on the benefits and costs of outside CEO succession and presents a set of hypotheses.

Figure 4.1: Research Framework



4.2.1 The performance effects of outside CEO succession

According to the information processing perspective and the resource dependence view of organizational adaptation, outside CEO succession is advantageous for organizations (Helmich & Brown, 1972). It helps firms to improve information processing, and thus to effectively respond to their altering environmental demands (Boeker & Goodstein, 1993; Datta & Guthrie, 1994). Relative to internally promoted CEOs, outsider successors are not attached to the firm's preceding processes and strategy, and thus, are more likely to take substantive action and promote organizational renewal and adaptation (Karaevli, 2007). As outsider CEOs typically

possess greater amounts of external knowledge and information compared to their internally promoted counterparts (Hambrick, Geletkanycz, & Fredrickson, 1993), they are better able to broaden the information base of the incumbent TMT through the lens of an outsider (Hambrick & Fukutomi, 1991). Drawing on their past experience from outside the organization, outside successors can therefore increase the information processing capacity of the TMT and contribute to innovation and learning (Tushman & Rosenkopf, 1996; Virany et al., 1992).

While appointing an outsider CEO relates to some advantages, it is also associated with important costs that prevent firms to benefit from outside CEO succession. First, outside successors typically do not possess prior firm-specific knowledge and skills (Castanias & Helfat, 1991), and thus need time to understand, integrate and adapt to the new to them organizational environment (Fondas & Wiersema, 1997; Jackson et al., 1993). This lack of firm specific knowledge often leads outside successors to make premature strategic decisions at the post-succession stage that do not align with the organization's internal routines and competencies, and thus negatively affect post-succession firm performance (Gabarro, 1987; Karaevli, 2007; Zhang & Rajagopalan, 2004).

Second, recent studies have argued that successful CEO successors are often those who can obtain acceptance and support from other executive team members (Karaevli, 2007; Shen & Cannella, 2002b). Compared to internally promoted CEOs, outsider successors are less likely to find a supportive executive team after their appointment. The reason is that incumbent executives are likely to be attached to their pre-succession team-specific structure and processes, and thus, they perceive an outsider successor as a person who steps in to initiate changes in their existing structures and practices (Friedman & Saul, 1991). When an outsider CEO takes charge, "tension within the top management team is likely to be high, because senior executives may feel inferior, fearful, or even hostile toward the outside successor who may in turn question the competencies of these senior executives" (Shen & Cannella, 2002b: 722). This high tension in the team is likely to promote insufficient cooperation between the new CEO and the rest of the TMT at the post-succession stage, resulting in lower firm performance (Karaevli, 2007; Shen & Cannella, 2002b).

In summary, despite the advantages that outsider CEOs can offer to the organization, there are several factors that impede firms to benefit from outside CEO succession. These factors are related to a lack of essential firm specific knowledge on the part of outside successors and their lower likelihood of post-succession integration

in the TMT. Hence, we hypothesize that - *ceteris paribus* - outside CEO succession is related to negative performance effects at the post-succession stage.

Hypothesis 1. *Outside CEO succession has a negative impact on post-succession firm performance.*

4.2.2 The moderating impact of new CEOs' characteristics

While on a ceteris paribus basis outside CEO succession has negative effects on firm performance, we argue that these effects largely vary based on the characteristics of the new CEO. Specifically, based on the assumptions of relational demography and information processing perspectives, we focus on the following two CEO characteristics that act as optimizing factors on the outside CEO succession and firm performance relationship.

4.2.2.1 CEO-TMT socio-demographic similarity

Research has underscored the impact of socio-demographic characteristics (e.g., age, gender and nationality) on team dynamics and performance (Tröster & van Knippenberg, 2012; Zajac & Westphal, 1996). Externally observable socio-demographic differences among individuals are important as they represent a salient basis for interpersonal differentiation and self-categorization in teams and working groups (Turner, 1987). Scholars subscribing to the relational demography perspective suggest that individuals tend to differentiate themselves from others based on observable demographic traits (Guillaume et al., 2012; Tsui, Egan & O`Reilly, 1992). Whereas socio-demographic differences among members of a team are related to a lack of interpersonal trust, stereotyping and infrequent cooperation (Gibson & Gibbs, 2006; Kanter, 1977; Tröster & van Knipenberg, 2012), interpersonal similarity in socio-demographic characteristics results in frequency of communication and team cohesion (Chattopadhyay, Tluchowska & George, 2004; Michel & Hambrick, 1992; Tsui et al., 1992).

Based on the implications of the relational demography perspective, we propose that the performance benefits of outside CEO succession are more likely to materialize when the new CEO is socio-demographically similar to other executives. This suggestion pertains to the following two reasons. First, in order to quickly acquire firm specific skills and understand the organization and its functions, an outsider CEO needs to be accepted by and receive the support of other executives (Friedman & Saul, 1991; Shen & Cannella, 2002b). Demographic similarity increases the likelihood that

incumbent team members will help a newcomer to integrate in the team and understand the firm and its internal environment (Jackson et al., 1993). Indeed, recent studies show that socio-psychological inclinations towards similarity-attraction drive individuals to provide more direct mentoring and support to newly appointed team members who demographically resemble themselves (McDonald & Westphal, 2013; Simon, Sturmer, & Steffens, 2000). This means that outsider successors who are similar to the existing TMT are more likely to quickly integrate within the incumbent TMT, overcome their lack of firm specific knowledge, and thereby positively affect post-succession firm performance.

Second, the information processing benefits of outside CEO succession are likely to be optimized when the outsider CEO socio-demographically resembles incumbent top managers. As demographic resemblance promotes frequent communication and interaction within the team (Chattopadhyay et al., 2004; Kanter, 1977), CEO-TMT socio-demographic similarity is likely to encourage information exchange between the outsider CEO and other top managers. This increased information exchange help incumbent executives to absorb the external knowledge that the outsider successor brings to team (Jackson et al., 1993). As information exchange between an outsider CEO and other top managers is vital at the post-succession stage (Grossman, 2007), and as socio-demographic similarity is likely to facilitate information exchange in the TMT (Gibson & Gibbs, 2006; Tröster & van Knippenberg, 2012), it can be hypothesized that CEO-TMT similarity acts as an optimizing factor that helps to realize the performance advantages of outside CEO succession.

Hypothesis 2. *The negative relationship between outside CEO succession and post-succession firm performance becomes positive when the new CEO is socio-demographically similar to other TMT members.*

4.2.2.2 CEOs' international experience diversity

According to the information processing perspective, new members with diverse experience can effectively promote information processing and increase the ability of the team to generate quality of strategic decisions (Milliken & Martins, 1996; Rulke & Galaskiewicz, 2000). Bunderson & Sutcliffe (2002: 876) developed the concept of "intrapersonal experience diversity" that refers to the degree to which individual team members have acquired '*broad-general'* instead of '*narrow-specialized'* experience during their professional careers. Individuals who have

acquired a breadth of diverse experience (i.e., those with high intrapersonal experience diversity) are characterized as '*broad generalists*', whereas those with depth of experience in a single area (i.e., those with low intrapersonal experience diversity) are categorized as '*narrow specialists*' (Bunderson & Sutcliffe, 2002; Buyl et al., 2011; Rulke & Galaskiewicz, 2000).

Whereas prior studies have recognized the important role of CEOs' international experience in affecting organizational innovation and performance at the post-succession stage (Carpenter et al., 2001; Daily, Certo & Dalton, 2000; Herrmann & Datta, 2002), past research has not so far addressed how different international experience backgrounds best fit to different types of CEO successors. In this paper we suggest that, in the context of large international firms, outsider CEOs need to possess diverse international experience in order to effectively perform their information processing role and increase post-succession firm performance. This suggestion is motivated by the following two reasons.

First, outside CEOs are hired to question the firm's strategic status quo and promote organizational change and innovation (Haleblian & Finkelstein 1993; Hambrick & Fukutomi, 1991). To perform this role effectively, outside successors need to possess diverse knowledge and experience from different countries (Carpenter et al., 2001). By drawing on their various experience and networks from different countries, outsider CEOs will be better able to effectively deal with the information processing demands facing the TMT and increase post-succession firm performance (Daily, et al., 2000). Especially in the context of large international firms, diverse international experience is a significant source of information processing and innovation (Athanassiou & Nigh, 1999). Thus, the information processing benefits of outside CEO succession are more likely to materialize when the outsider CEO possesses diverse experience from various countries.

Second, prior studies have found that large international firms are likely to offset an outsider CEO's lack of firm specific skills by emphasizing his or her international background (Daily et al., 2000). Insider successors have previously worked within the firm and have therefore been exposed to the organization's international environment. In the context of large international firms, however, diverse international experience is of particular importance for outsider successors as they counterbalance the lack of internal familiarity of an outsider CEO, and help him or her to quickly gain an understanding about the firm's international environment. On this basis, we suggest that diverse international experience reduce the costs of outside CEO

succession, increase the information processing benefits, and thus, result to positive post-succession firm performance.

Hypothesis 3. *The negative relationship between outside CEO succession and post-succession firm performance becomes less pronounced when the new CEO has diverse international experience.*

4.2.3 The moderating role of post-succession TMT change

Upper echelons studies suggest that in order to understand the relationship between CEO succession origin and firm performance, researchers should pay careful attention to the interaction between the new CEO and the degree of change in the incumbent TMT (Cannella & Holcomb, 2005; Shen & Cannella, 2002b). In a recent study, Shen & Cannella, (2002b: 728) stressed that "focusing on the CEO successor alone without considering other personnel changes within the top management cannot fully and accurately capture the performance consequences of CEO succession."

Scholars have argued that high levels of post-succession TMT change enable the outsider CEOs to gain the support of other executives (Karaevli, 2007; Helmich & Brown, 1972). In contrast with that, however, other studies show that high levels of TMT change after the succession of an outsider CEO are likely to result in low post-succession firm performance (Finkelstein et al., 2009; Shen & Cannella, 2002b). This is because high levels of TMT turnover and change following an outside succession are likely to increase intra-team disruption and result in negative team dynamics. These negative intra-team dynamics will be particularly disadvantageous for firm performance in a transition period when the outsider CEO needs to learn about the firm and its internal environment (Hambrick & Fukutomi, 1991).

Further, an outsider successor also knows very little about the incumbent executives from the previous regime and their roles in the organization. Under conditions of high TMT change and turnover, outsider successors may replace members of the TMT with individuals who do not fit well with the demands of the executive position and do not meet the requirements of the internal and external environment of the firm. This higher likelihood of misfit between the characteristics of newly selected executives and the firm can result to declining post-succession firm performance (Shen & Cannella, 2002b). On this basis, we postulate that high levels of TMT change are likely to strengthen the negative relationship between outside CEO succession and post-succession firm performance.

Hypothesis 4. *The negative relationship between outside CEO succession and post-succession firm performance becomes more pronounced when post-succession TMT change is high.*

4.3 Methods

4.3.1 Sample and data collection

The sample of this study is based on 310 large listed corporations headquartered in four European countries (i.e., Germany, the Netherlands, Switzerland, and the United Kingdom) over the period of 2005 to 2009. To select our sample, we initially ranked all publicly listed firms in the four European countries based on their market capitalization as of December 31st 2005, and then we selected the 100 largest firms in each country given that they fulfilled the following criteria: (1) they were categorized as large corporations based on the European Union's classification (i.e., they had more than 250 full time employees and higher than €50 million annual revenues at the end of 2005) (EU Commission, 2012), (2) their internationalization ratio of foreign sales to total sales (FSTS) was above 0, (3) they were active and did not become part of another firm through merger and acquisition (M&A) activity during the period 2005 to 2009, (4) were not subsidiaries of other larger companies. By applying these criteria, we ensured that the firms included in our sample were comparable in terms of firm size and degree of internationalization, were operating during the period examined, and were autonomous to make strategic decisions.

The above filtering resulted in a sample of 279 large international companies. From these companies, 199 CEO succession events were identified during the period 2005 to 2009. Due to lack of data availability, 95 of 199 CEO successions were dropped, leaving 104 CEO succession events in the final sample (i.e., 52 percent data completion). Note that the relatively low completion rate is due to the difficulty of obtaining information on CEOs' entire international career experience and is comparable to other studies that use variables relating to CEOs' and top managers' entire career history (e.g., Crossland et al., *forthcoming*; Greve, 2009; Rodenbach & Brettel, 2012). To test whether our final sample represents the target population, we ran several Kolmogorov-Smirnov tests using Stata 11. Specifically, we compared firms that were included in our final sample with those with missing values in terms of firm size (i.e., number of employees) and return on assets (ROA) at the year of succession. Results show no significant differences between our final sample and the target population (i.e., p-values for firm size and ROA were 0.166 and 0.142

respectively). This means that firms included in our final analysis effectively represent the target population in these two characteristics.

The four countries were chosen for the following reasons. First, firms in the four countries have adopted transparent corporate reporting practices (Ruigrok et al., *forthcoming*), which allowed us to gather the highest possible amount of information at the time of data collection. Second, the four countries are preferred homes for many large international corporations operating in various industries. These large international firms attract CEO candidates from both internal and external labor markets and with diverse demographic characteristics and international experiences.

Demographic data on CEOs and other executives was collected from companies' annual reports, corporate websites and biographical databases (e.g., Lexis Nexis). Firm and industry level data was gathered from the Thomson ONE Banker database. To identify the CEO and other TMT members we relied on the definitions provided in firms' annual reports and corporate websites (Boone et al., 2004; Greve et al., 2009; Nielsen & Nielsen, 2013; Ruigrok et al., 2013).

4.3.2 Dependent variable

Post-succession firm performance. This variable was measured as the average return on assets (ROA) two years after each CEO succession event (Cannella et al., 2008; Chung & Luo, 2013). We chose ROA rather than other accounting measures of firm performance (e.g., return on sales, or market valuation measures) as it has been regarded as the most "well-understood and widely used accounting measure of operational performance in CEO succession research" (Shen & Cannella, 2002b: 723). In addition, as we attempt to measure the impact of CEO succession on post-succession firm performance, we did not use a measure that accounts for market performance valuation as "it is often subject to forces beyond management control" (Chung & Luo, 2013: 345).

4.3.3 Independent and moderator variables

Outside CEO succession origin. This was a dichotomous variable coded as 1 if the new CEO had less than two years of firm tenure at the time of succession and 0 otherwise (e.g., Hambrick & Fukutomi, 1991; Zhang & Rajagopalan, 2004).

CEO socio-demographic similarity. The overall socio-demographic similarity measure was a composite of a new CEO's similarity to other TMT members in terms of three socio-demographic characteristics: (a) age, (b) gender and (c) nationality. Extant relational demography and TMT diversity research emphasizes the impact of

these three socio-demographic characteristics on team dynamics (Bezrukova et al., 2009; Tröster & van Knippenberg, 2012). *Age* was measured as the exact age of each executive team member at the end of each year examined. *Nationality* was defined as the primary nationality of each executive, and *gender* was a dichotomous variable taking the value of 1 for female executives and 0 for male executives.

As age is a continuous variable, a CEO's age similarity to other executives was measured using the demographic distance formula expressed as: $\sqrt{\Sigma(Xi - Xj)^2/(n-1)}$, where X_i represents the age of a newly appointed CEO i, X_j represents the age of each incumbent non-CEO executive j, and n is the total number of TMT members (Westphal & Zajac, 1995). To turn this into a similarity measure we reversed this variable so that high scores indicate high age similarity. As both gender and nationality are categorical variables, we measured a CEO's nationality and gender similarity using a slightly modified version of Blau's (1977) index formula expressed as Pi^2, where P represents the squared proportion of TMT members who share the same demographic attribute i with the new CEO (Boone et al., 2004; Nielsen, 2009).

To develop a measure of the overall CEO-TMT socio-demographic similarity, we first standardized age similarity to take values between 0 and 1 and then we calculated the average of demographic similarity by calculating the sum of all three components and dividing it by three. Aggregation of the three variables was not a problem as, after the standardization of age similarity, all three components had the same metric (Westphal & Zajac, 1995). The decision to aggregate all variables in a single similarity measure is consistent with prior upper echelons studies that suggest that similarity of an individual executive compared to the rest of the TMT is better conceptualized along several demographic dimensions simultaneously (Boone et al., 2004; Pelled et al., 1999; Zajac & Westphal, 1996).

CEO international experience diversity. This variable represents the extent to which a new CEO has acquired career experience from different countries. CEO international experience diversity was measured using the Blau's (1977) index formula expressed as: $1\text{-}\sum p_i^2$, where p_i is the relative proportion of a CEO's career spent in a country i (Bunderson & Suttcliffe, 2002; Engeler, 2013). Low scores indicate a concentration of experience in a single country and high scores indicate breadth of international experience from different countries. This measure has been widely applied by prior studies in calculating the intrapersonal experience diversity of individual TMT members (Cannella et al., 2008; Dahlin, Weingart, & Hinds, 2005).

Post-succession TMT change. In line with the studies of Tushman & Rosenkopf, (1996) and Karaevli, (2007), *post-succession TMT change* was measured

as follows. First, the proportion of TMT exits was calculated as the number of executives who stopped being TMT members in the year of CEO succession divided by TMT size. Second, the proportion of new entrants was measured as the number of executive members who entered the TMT at the year of CEO succession divided by TMT size (Tushman & Rosenkopf, 1996). Then, the two proportions were averaged to obtain the overall TMT change following CEO succession (Karaevli, 2007).

4.3.4 Control variables

Prior studies have identified the impact of *firm size* and *TMT size* on firm performance and TMT composition (Haleblian & Finkelstein 1993; Tushman & Rosenkopf, 1996). Therefore, firm size measured as the exact number of full-time employees and team size measured as the exact number of TMT members were added as control variables in our model (Karaevli, 2007). Further, past upper echelon studies have stressed the importance of controlling for post-succession strategic change (Karaevli & Zajac, 2013). As we focus on large international firms, we controlled for *change in the degree of internationalization* between the year of CEO succession and two years later (Daily et al., 2000). This allowed us to account for the changes that the new CEO initiated in the degree of internationalization of the firm at the post-succession period. In line with prior international management studies, we first measured the degree of internationalization (DOI) by calculating the ratio of foreign sales to total sales (FS/TS) (Collins, 1990; Tallman & Li, 1996) for both the succession year and two years later. Subsequently, DOI change was calculated by subtracting the DOI ratio of the year of succession from the DOI ratio of two years after succession (t_2-t).

Moreover, past research has found that externally selected executives are likely to have higher education than internally promoted ones (Bidwell, 2011). We controlled for the *CEO's educational level* using a similar categorization as the one provided by Pegels et al., (2000). Specifically, we coded the educational level of individual CEOs who hold a doctoral degree as 5, a Master in Business Administration (MBA) degree as 4, a Master of Science (M.Sc.) degree as 3, a Bachelor of Science degree (B.Sc.) as 2, and those who had acquired no academic degree as 1. Similar to prior studies, *pre-succession firm performance* was measured as the three years average ROA before and including the year of succession (Karaevli, 2007; Shen & Cannella, 2002b; Zhang & Rajagopalan, 2004).

Further, *industry munificence* was calculated as the regression coefficient of time on the annual mean of sales in the main two-digit SIC industry of a firm for a

five-year period (i.e., from two years before to two years after each CEO succession event) divided by the mean value of sales for those years (Dess & Beard, 1984; Nielsen, 2009). Finally, to control for differences in CEO managerial discretion across the four European countries, we adopted the *country managerial discretion* rates provided in the study of Crossland & Hambrick, (2011: 806). In this study, the UK had a score of 6.0 in CEO managerial discretion, the Netherlands had a score of 5.2, Switzerland had a score of 5.0 and Germany had the lowest score of 4.1.

4.4 Results

4.4.1 Main analysis

Table 4.1 displays descriptive statistics and correlations. Table 4.2 presents the results of our main analysis. To test our theoretical model and hypotheses, we employed an ordinary least squares (OLS) regression technique with interaction effects. Model 1 comprises control variables, whereas independent and moderator variables are entered in Models 2 to 6. To check for any potential multicollinearity problems, we ran several variance inflation factor (VIF) checks using Stata 11. VIF scores were below the rule of thumb score of 10 with an average of 1.57, implying no multicollinearity problems (Cohen, Cohen, West, & Aiken, 2003).

Hypothesis 1 predicts a negative relationship between outside CEO origin and firm performance. OLS regression results provide support of this hypothesis ($p<0.05$) (see Table 4.2 - Model 2). However, our results show that this negative effect of outside CEO succession becomes reversed (i.e., positive) when the outsider CEO is socio-demographically similar to other TMT members and possesses diverse international experience (see Figures 4.2 and 4.3)[2]. As shown in Model 3 - Table 4.2, our results partially support hypotheses 2 by showing that CEO socio-demographic similarity with other executives has a positive moderating impact on the relationship between outside CEO succession and post-succession firm performance. The partially supported relationship receives high statistical significance in the full model in Table 4.2 (Model 6) where all interaction effects are included. As Figure 4.2 further shows, the negative effects of outside CEO succession become positive when the outsider CEO shares common demographic characteristics with other top managers. At the same time, when the CEO is dissimilar to other executive members the negative impact of outside succession becomes more pronounced.

Further, in support of hypothesis 3, our analysis shows that CEOs' international experience diversity positively moderates the negative relationship between outside

[2] Moderating effects presented in Figures 4.2 and 4.3 are based on plus/minus one standard deviation.

CEO succession and post-succession firm performance (see Table 4.2). As Figure 4.3 shows, the negative effect of outside CEO succession becomes positive when the outsider CEO possesses diverse experience from various countries. Finally, hypothesis 4 suggests that high levels of post-succession TMT change are likely to strengthen the negative effect of outside CEO succession on firm performance. Our results do not provide empirical support for this hypothesis, showing that TMT change does not significantly affect the outside CEO succession and firm performance relationship.

4.4.2 Supplementary analyses

Scholars have underscored the importance of addressing endogeneity issues in upper echelons and strategic management research (Quigley & Hambrick, 2012). In the area of CEO succession, studies have stressed that the relationship between outside CEO origin and firm performance involves complex causal processes that raise important endogeneity issues. The most frequently discussed endogeneity problem is that pre-succession firm performance acts as a determinant of both outside CEO succession and post-succession firm performance (Chung & Luo, 2013).

To control for potential endogeneity, we used a two-stage Heckman (1979) procedure (Karaevli & Zajac, 2013; Quigley & Hambrick, 2012). For the effective operationalization of the Heckman model (1979), it is important to identify instrumental variables that are correlated with our independent variable (outside CEO succession) and exhibit no significant correlation with our dependent variable. Consistent with the study of Karaevli & Zajac, (2013), we used the industry rate of outside CEO succession as an instrument in our analysis. Correlation analysis indicates the suitability of the chosen instrument by showing that this variable is significantly associated with outside CEO succession ($r= 0.39$; $p<0.001$), and does not exhibit significant correlation with post-succession firm performance ($r= -0.01$; $p>0.10$).

In the first stage of the Heckman model (1979), we ran a probit regression analysis with outside CEO succession as our dependent variable (see Appendix 3.1a). This analysis was based on the overall sample, including firms that experienced CEO succession and firms that did not (see also: Karaevli & Zajac, 2013). After we ran the first stage probit regression, we calculated and included the inverse Mills ratio as an additional control variable in the second stage of the Heckman (1979) model. As shown in Appendix 3.1b, results are similar to those presented in Table 4.2, indicating that our findings remain unaffected when we account for endogeneity issues in our analysis.

Table 4.1
Descriptive statistics and correlations

Variables	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12
1. Post-succession performance	0.04	0.07	~											
2. Outside CEO succession	0.36	0.48	-0.09	~										
3. CEO social similarity	0.71	0.16	-0.02	0.17	~									
4. CEO international experience diversity	0.37	0.32	0.23*	0.05	-0.34*	~								
5. CEO higher educational qualification	3.44	1.22	-0.04	0.04	0.08	-0.02	~							
6. Team size	5.94	2.45	0.03	0.02	-0.40*	0.30*	0.07	~						
7. Post-succession TMT change	0.24	0.21	0.12	-0.02	-0.04	0.11	-0.32*	-0.12	~					
8. Firm size (employees)	58477	98168	-0.08	-0.17	-0.11	0.13	0.23*	0.33*	-0.02	~				
9. Pre-succession performance	0.05	0.05	0.53*	0.12	-0.22*	0.35*	-0.13	0.02	0.18	-0.11	~			
10. Post-succession change in DOI	0.01	0.07	0.02	-0.10	0.06	-0.09	-0.04	0.15	-0.06	-0.05	0.05	~		
11. Industry munificence	0.09	0.05	0.10	-0.00	-0.05	0.01	0.01	-0.01	0.05	-0.00	0.12	-0.10	~	
12. Country level CEO discretion	4.96	0.67	-0.08	0.08	-0.31*	0.20*	-0.33*	0.07	0.02	-0.20*	0.14	0.01	0.09	~

* $p<0.05$

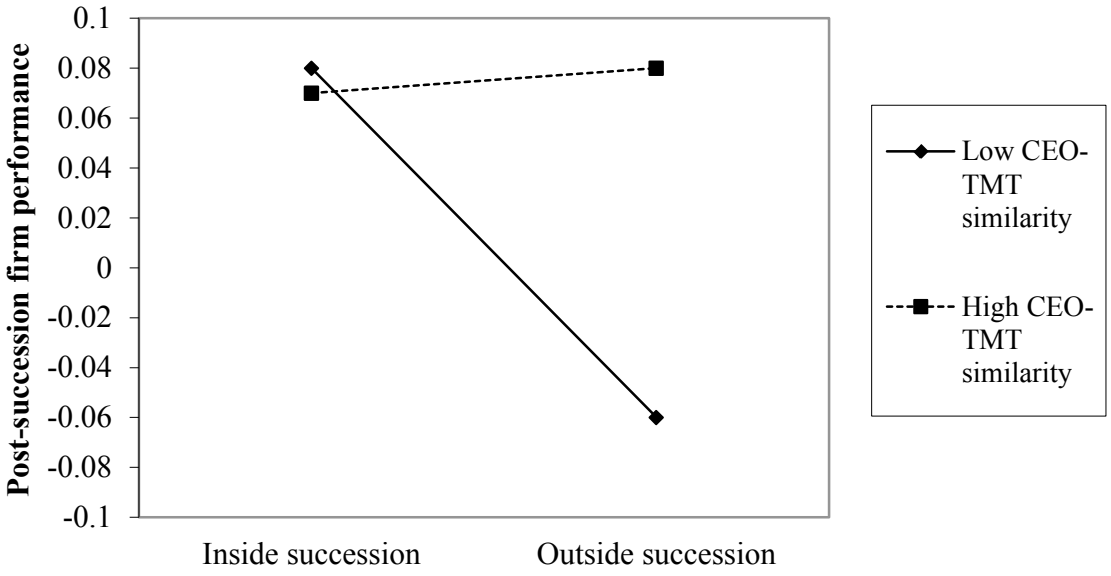
Table 4.2
OLS regression with post-succession with firm performance as dependent variable[a]

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	0.09 (0.08)	0.06 (0.08)	0.08 (0.08)	0.09 (0.08)	0.06 (0.08)	0.14† (0.08)
Pre-succession firm performance	0.66*** (0.12)	0.71*** (0.12)	0.70*** (0.12)	0.72*** (0.12)	0.71*** (0.12)	0.73*** (0.11)
Post-succession change in DOI	0.03 (0.08)	-0.00 (0.08)	-0.02 (0.08)	-0.01 (0.08)	-0.00 (0.08)	-0.03 (0.08)
Firm size (employees)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00	-0.00 (0.00)
Team size	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Post-succession TMT change	-0.00 (0.03)	-0.00 (0.03)	0.00 (0.03)	-0.01 (0.03)	0.00 (0.04)	0.01 (0.03)
Industry munificence	0.09 (0.12)	0.07 (0.12)	0.11 (0.12)	0.04 (0.12)	0.08 (0.12)	0.08 (0.11)
Country level CEO discretion	-0.02* (0.01)	-0.02† (0.01)	-0.02† (0.01)	-0.02* (0.01)	-0.02† (0.01)	-0.02* (0.01)
Year 2005	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)
Year 2006	-0.01 (0.02)	-0.02 (0.02)	-0.01 (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.00 (0.02)
Year 2007	-0.03 (0.02)	-0.03 (0.02)	-0.02 (0.02)	-0.03 (0.02)	-0.03 (0.02)	-0.02 (0.02)
Year 2008	-0.02 (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.01 (0.02)	-0.02 (0.02)	-0.01 (0.02)
Year 2009	*Omitted*	*Omitted*	*Omitted*	*Omitted*	*Omitted*	*Omitted*
CEO educational qualification	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)
CEO-TMT similarity	0.02 (0.05)	0.05 (0.05)	-0.00 (0.05)	0.05 (0.05)	0.05 (0.05)	-0.04 (0.05)
CEO international experience diversity	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	-0.01 (0.03)	0.02 (0.02)	-0.02 (0.03)
Outside CEO succession		-0.03* (0.01)	-0.14* (0.06)	-0.06** (0.02)	-0.03 (0.02)	-0.24** (0.07)
CEO-TMT similarity X Outside CEO origin			0.15† (0.08)			0.24** (0.08)
CEO international diversity X Outside CEO origin				0.08* (0.04)		0.13** (0.04)
Post-succession TMT change X Outside CEO origin					-0.02 (0.06)	-0.05 (0.06)
R-Squared	0.37	0.41	0.43	0.44	0.41	0.50
F	3.78***	4.06***	4.15***	4.26***	3.77***	4.63***

N= 104; † p<0.10; * p<0.05; ** p<0.01; *** p<0.001

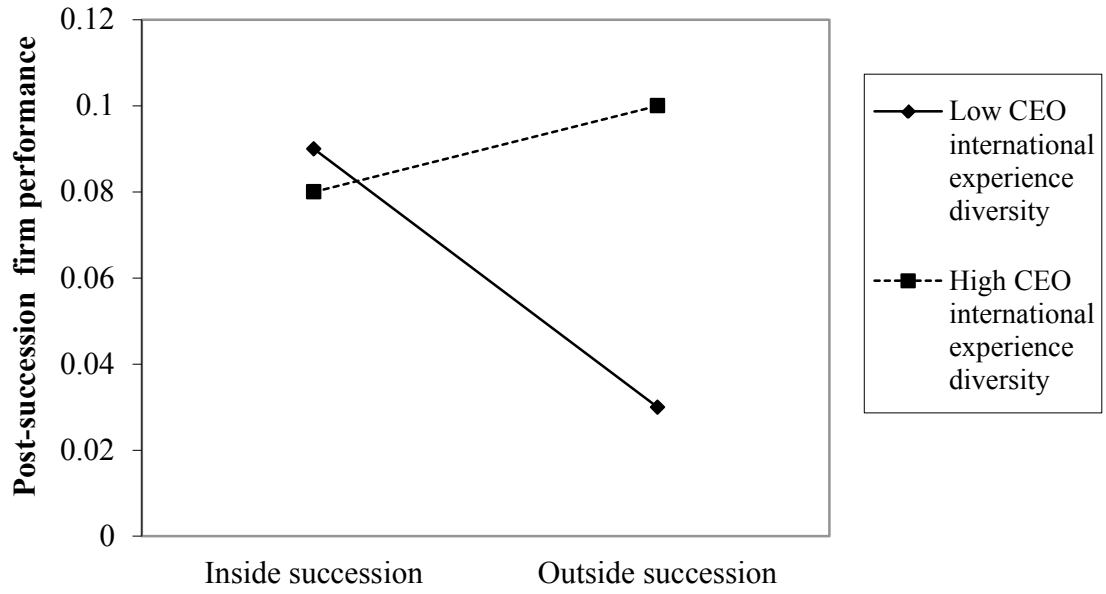
[a] Unstandardized coefficients are reported. Standard errors are indicated in brackets.

Figure 4.2: Moderating effects of CEO-TMT similarity



Source Author

Figure 4.3: Moderating effects of CEO's international experience diversity



Source: Author

Further, to check the robustness of our results we also ran several supplementary analysis tests. First, past studies argue that outside CEO succession is more frequent in some industries than in others. In addition, the performance effects of outside succession vary across industries. Therefore, CEO succession research should adjust firm performance (ROA) to the industry average (see e.g., Karaevli, 2007). We

re-ran our analyses with post- and pre-succession ROA adjusted to the average of each firm's industry (see Appendix 3.2). In addition, as our sample is based on the years before and after the global financial crisis which begun in 2008, our results may be affected by the lower performance of large firms in the post-crisis period. Therefore, we re-ran our analyses with post- and pre-succession firm performance adjusted at the year average (see Appendix 3.3). The results of the supplementary analyses indicate that there are not substantial differences in our results when firm performance measured as ROA is adjusted at the industry and year averages.

4.5 Discussion

The main motivation of this study was to examine how different individual level attributes of newly appointed CEOs affect the relationship between outside CEO succession and firm performance. Our findings demonstrate that while outside CEO succession generally has a negative effect on firm performance, this negative effect becomes positive when the new CEO is similar to incumbent executives in demographic characteristics and has acquired diverse career experience from various countries. The study offers several contributions to the upper echelons, TMT diversity and CEO succession literatures.

First, it reconciles the two conflicting theoretical streams surrounding the performance implications of new CEO origin; the stream of organizational adaptation that poses outside CEO succession as a beneficial aspect for organizations (Boeker & Goodstein, 1993; Datta & Guthrie, 1994), and the stream that focuses on the performance disadvantages of outside CEO succession (Bailey & Helfat, 2003; Zhang, 2008). Our study shows that, in isolation, neither conceptualization can fully capture the complex nature of this relationship. Instead, it is argued the effects of CEO origin should be considered in interaction with other relational and informational attributes of newly appointed CEOs. Demonstrating that the positive or negative effects of CEO origin depend on other individual level CEO characteristics, the study replies to the calls for understanding what factors at the individual level are likely to determine the performance effects of CEO succession origin (Finkelstein et al., 2009; Karaevli, 2007; Karaevli & Zajac, 2013).

Second, the study contributes to upper echelons theory by highlighting the impact of the CEO-TMT interface on the performance effects of CEO succession. Research on relational demography has shown that the performance of newcomers is higher when they share common characteristics with incumbent team members (Jackson et al., 1993). Building on this perspective, the study argues that the

demographic compatibility between the new CEO and the incumbent TMT plays a crucial role in determining the performance implications of outside CEO succession. As Figure 4.2 illustrates, the negative performance impact of outside CEO succession becomes positive when the outsider CEO demographically resembles other senior executives. Demographic similarity acts as a common ground between the outsider successor and the incumbent TMT, and help the former to make a positive contribution to firm performance at the post-succession stage. In essence, this finding shows that the relational interface between the new CEO and the rest of the TMT, captured in terms of CEO-TMT demographic resemblance, plays a particularly crucial role in affecting post-succession financial outcomes. To this end, the study can be seen as a response to the calls for examining how the fit between the CEO successor and the TMT impacts post-succession organizational outcomes (Karaevli, 2007; Tushman & Rosenkopf, 1996).

Third, past research has recognized that international experience is of fundamental importance in the selection of new CEOs (Carpenter et al., 2001; Daily et al., 2000; Herrmann & Datta, 2002). Yet, prior studies have not examined what types of international career backgrounds best-fit different types of CEO successors. In line with the information processing perspective, our study shows that international firms that select outside successors with diverse international backgrounds are more likely to realize performance gains. As illustrated in Figure 4.3, outsider successors with diverse international experience from different countries make a more positive contribution to firm performance at the post-succession stage than their internally hired counterparts. In the context of large multinational companies, diverse international experiences offset the outsider successors' lack of firm specific skills and help the CEO to effectively play an information processing role and enhance higher firm performance. Arguing that variety in international experience has a key role on the performance effects on CEO succession, the study complements recent work that explains the performance implications of CEO career variety on firm level outcomes (Crossland et al., *forthcoming*; de Vries, Walter, van der Vegt, Essens, *forthcoming*).

Fourth, in contrast with traditional wisdom, our research shows that the performance effects of CEO succession origin are not influenced by post-succession TMT change. As mentioned before, research in this area provides mixed results. Some studies support a positive moderating effect of TMT change (Karaevli, 2007), while others argue in favor of a negative moderating effect (Virany et al., 1992). Our study argues that to understand the relationship between CEO succession and firm performance, research should focus on the compatibility between the CEO and the

TMT, rather than on the degree of change in TMT membership. This is in agreement with the argument of Tushman & Rosenkopf (1996) that, in order to adequately understand the performance implications of CEO succession, research should place emphasis on the demographic composition of the TMT, rather than simply on the degree of inbound and outbound mobility of executives at the post-succession stage.

The results of the study also help to understand the importance of individual level diversity in upper echelons and TMT composition research. In particular, most of diversity studies have focused on the team level to explain how teams consisting of members with interpersonally diverse experiences and characteristics are better able to handle information processing and task complexity (Dahlin et al., 2005; Milliken & Martins, 1996). Our research shows that diversity should also be considered as an individual level construct. In particular, it demonstrates that individual level diversity of CEOs in terms of international experience acts as a key moderator on the performance effects of CEO succession origin. Future research could draw on our findings to examine the intersection between individual and team level diversity on team and firm outcomes. For example, research can examine how team level diversity in TMTs impact firm performance and how this is moderated by the individual level diversity attributes of the CEO or other senior executives. This will help to broaden our knowledge on how both individual and TMT levels of diversity interactively impact organizations.

4.5.1 Practical implications, limitations and future research directions

The study provides practitioners with a set of parameters that are useful at the time of the CEO selection process. Studies have shown that the selection of CEOs and other executives from the external labor market has rapidly increased over the few last decades (Greve, 2009; Murphy & Zabojnik, 2004). This highlights the need to learn how firms can benefit from the selection of outsider CEOs and executives. Our research supports the notion that CEOs hired through different selection routes (i.e., internal promotion vs. external hiring) should be equipped with different socio-demographic attributes and experiential backgrounds in order to effectively perform their different roles at the post-succession period (Haleblian & Finkelstein, 1993; Hambrick & Fukutomi, 1991). Those responsible for making CEO selection decisions (i.e., boards of directors, nomination committees and recruitment agencies) should therefore consider whether different relational and informational CEO characteristics best-fit different types of successors. As organizations become aware of the factors that are likely to reduce the costs of outside executive selection, it can be expected that

the performance advantages of the increasing inter-firm mobility of CEOs and other executives will be enhanced in the years to come.

The study is subject to some limitations that highlight promising avenues for further research. One key limitation is that post-succession firm performance was measured as a two-year average ROA after CEO succession. It may be that outside successors perform differently in the long term. Recent studies have reported that CEO tenure has dramatically declined over the last two decades (Favaro, Karlsson, & Neilson, 2012; Lucier, Spiegel, & Schuyt, 2002). Indeed, the average CEO tenure in our sample was six years after succession. This relatively low average indicates that newly appointed CEOs are likely to have a relatively "short term" effect on firm performance (see also: Zhang, 2008). However, further research could consider whether outside CEO successors have a different impact on long term firm performance outcomes.

Another limitation of the study is that it focuses only on two individual level characteristics of CEO successors, CEO-TMT socio-demographic similarity and international experience background. Based on the implications of relational demography and information processing theories, these two characteristics are important as they represent (a) the relational ability of the new CEO to integrate in the TMT and (b) his or her information processing capacity. Further research, however, could consider how other individual level CEO characteristics affect the relationship between outside CEO succession and firm performance. An interesting extension of our model would be, for example, to examine how CEOs' psychological attributes such as narcissism (Gerstner, Koenig, Enders & Hambrick, 2013) or locus of control (Boone & Hendriks, 2009) are likely to play a role in determining the relationship between new CEO succession origin and firm-level outcomes.

Finally, the study focuses only on the individual-level characteristics of newly appointed CEOs, and therefore it does not consider other organizational and environmental characteristics that are likely to affect the CEO succession and firm performance relationship. Individual-level factors are not the only aspects that matter at the time of CEO succession. Studies have shown that the characteristics of the internal and external environment of the firm can indeed significantly impact the performance effects of outside CEO succession (Karaevli, 2007). Future research can develop multilevel research frameworks and examine how individual, organizational, and environmental characteristics interactively determine the relationship between outside CEO succession and firm performance.

5 Top management team faultlines and firm performance: Moderating effects of CEO background characteristics

TOP MANAGEMENT TEAM FAULTLINES AND FIRM PERFORMANCE: MODERATING EFFECTS OF CEO BACKGROUND CHARACTERISTICS

Abstract

Research implies that the relationship between top management team (TMT) faultlines and firm performance is equivocal. We address this topic by emphasizing the moderating impact of the CEO. Drawing on the categorization-elaboration model (CEM) and the upper echelons perspective, we propose that CEOs with diverse career experience and shared team tenure with other executives are better equipped to reduce the self-categorization costs of TMT faultlines and enhance performance benefits. Longitudinal data from an unbalanced panel data set of 109 large European firms from 2005 to 2009 (386 firm-year observations) shows that experience-based TMT faultlines have more detrimental effects on firm performance than socio-demographic TMT faultlines. Our results also demonstrate that CEOs' background characteristics play a key role in minimizing the severe performance consequences of experience-based TMT subgroups. The theoretical and practical implications of these findings are discussed together with future research directions.

Keywords: TMT diversity; CEO characteristics; Firm performance

5.1 Introduction

In an era of increasing pressure to make productive use of diversity at all organizational levels, understanding how to reduce the costs and optimize the benefits of top management team (TMT) faultlines becomes vital for organizations. Faultlines are defined as perceived dividing lines that split a team into distinct homogeneous subgroups based on team members' alignment along multiple characteristics (Lau & Murnighan, 1998). Past upper echelons research suggests that the presence of TMT faultlines typically has detrimental effects on firm performance, as it promotes separation of the executive team into subgroups and insufficient cooperation among team members (Li & Hambrick, 2005; Minichilli, et al., 2010). Other studies, however, show that faultlines can also serve as "healthy divides" (Gibson & Vermeulen, 2003: 202), that promote team learning behavior and result in positive firm performance outcomes (van Knippenberg et al., 2011).

The mixed findings in the prior literature suggest a need to investigate how and under which conditions the performance benefits of TMT faultlines outweigh the costs (Carton & Cummings, 2012; Thatcher & Patel, 2012). In particular, two dominant suggestions for further development have emerged: (a) researchers should decompose the construct of faultlines and investigate which type of TMT subgroup formation is likely to impact firm performance (van Knippenberg et al., 2011); (b) further work is required to investigate the team-level moderators that act as optimizing factors on the performance effects of different forms of TMT faultlines (Cooper, Patel & Thatcher, *forthcoming*; Thatcher & Patel, 2011).

The present study takes up these challenges in the following ways. First, in line with prior literature we classify TMT faultlines in two broad categories: (a) socio-demographic and (b) experience-based faultlines, and examine their impact on firm performance (Bezrukova et al., 2009; Hutzschenreuter & Horstkotte, 2013). Second, drawing on the categorization-elaboration model (CEM) (van Knippenberg, de Dreu & Homan, 2004) and the upper echelons perspective (Hambrick & Mason, 1984), we investigate the moderating impact of two CEOs' background characteristics (i.e., CEO's career experience background and shared team experience with other TMT members) on the TMT faultlines and firm performance relationship. Based on the CEM framework, we argue that these two attributes of CEOs reduce the self-categorization costs of TMT faultlines, increase the information processing benefits, and thus, result to higher firm performance.

The study contributes to the research streams of upper echelons and TMT diversity in several ways. First, it supports the notion that CEOs play a key role in

determining both beneficial and detrimental effects of TMT composition (Jackson, 1992). Scholars have argued that in order to advance upper echelons theory, researchers should move away from an undue focus on the entire TMT to a more appropriate consideration of the CEO-TMT interaction (Buyl, et al., 2011; Hambrick, 1994; Klimoski & Koles, 2001). Demonstrating that firm performance is a reflection of the compatibility between the characteristics of the CEO and those of other TMT members, the study provides relevant implications to the upper echelons research stream.

Second, the study supports the central assumption of the CEM framework that the positive and negative effects of team diversity coexist (van Knippenberg et al., 2004), and that researchers need to explore the team level factors that reduce the costs and optimize the performance benefits of TMT diversity faultlines (van Knippenberg et al., 2011). Extending the CEM, we argue that an important team-level factor that impacts the performance effects of TMT faultlines is the background of the team's leader (i.e., the CEO). To that end, the study contributes to the extant body of literature for understanding the conditions under which TMT faultlines are advantageous for organizations (Cooper et al., *forthcoming*). Finally, the study offers practical implications regarding the factors that firms need to consider at the time of the TMT composition process in order to make a productive use of TMT diversity and realize performance gains.

The paper continues as follows. In the next section the theoretical framework together with the hypotheses of the study are presented. Then, the sample selection together with the variables and measurements of the study are described, followed by a presentation of the main findings. In the last section, the contributions of the study are discussed together with a number of suggestions for further research.

5.2 The link between TMT faultlines and firm performance

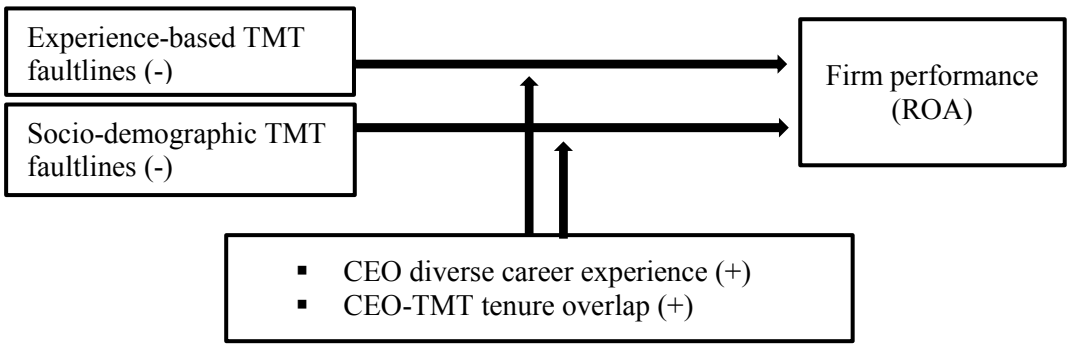
Self-categorization theory (Turner, 1987) offers the theoretical underpinnings to understand how diversity faultlines are formed. This perspective suggests that individuals identify themselves as members of groups with regards to their backgrounds and characteristics. They tend to interact with others who are similar to them and, at the same time, avoid interaction with dissimilar others. Such self-categorization predispositions result in the development of an individual's self-identity (Tajfel, 1978), and promote separation of the team into in-group and out-group members. Based on the self-categorization perspective, Lau & Murnighan, (1998) defined team faultlines as the alignment that splits a team into subgroups along several

characteristics simultaneously. The authors suggested that subgroup formation can result in high levels of conflict, low inter-subgroup cooperation, and low performance.

While the general assumption is that team faultlines have detrimental performance effects, studies have shown that under certain conditions the presence of team subgroups is beneficial (Gibson & Vermeulen, 2003). To reconcile the inconsistent results in the diversity literature, van Knippenberg et al., (2004) developed the CEM perspective, proposing that the positive and negative aspects of different forms of diversity (e.g., faultlines) should be considered simultaneously. While diverse team composition is associated with social-categorization tendencies that hinder team performance, it is concurrently related with better information processing and wider access to diverse resources. To understand when the presence of team subgroups is advantageous for organizations, scholars need to investigate the conditions under which the information processing benefits of faultlines are likely to outweigh the self-categorization costs (van Knippenberg et al., 2011).

Based on the assumption of the upper echelons perspective that organizations are reflections of TMT composition, studies have used the CEM framework to explain how separation of the TMT into subgroups impacts firm performance (see e.g., Cooper et al., *forthcoming*; van Knippenberg et al., 2011). These studies show that under certain conditions, TMT faultlines can result in positive firm performance. The present study extends this line of research and suggests that an important yet unaddressed team-level factor that influences the relationship between TMT faultlines and firm performance is the background of the CEO. Drawing on the CEM and the upper echelons perspective, our research framework postulates that CEO's diverse career experience and shared team tenure with other executives reduce the self-categorization costs of TMT faultlines, and enhance performance advantages (see Figure 5.1).

Figure 5.1: Research framework



Source: Author

5.2.1 Experience-based faultlines and firm performance

Informational characteristics are experiential attributes that are job-related in nature and directly linked to the accomplishment of a task (Pelled et al, 1999). Experience-based faultlines emerge when team members' informational characteristics, such as functional background and international experience come into alignment and split the team into experience-based subgroups (Bezrukova et al., 2009). Research has shown that experiential differences can lead individuals to differentiate themselves from those who belong to other experience-based categories (Bezrukova, Jehn, Thatcher & Spell, 2012). This self-categorization tendency can result in the development of experiential schisms in the TMT that, in turn, promote high levels of task-related conflict in the team and low decision making quality (Lau & Murnighan, 1998). Especially in teams with high levels of task interdependence, such as top management teams, subgroup formation in terms of experiential attributes is likely to result to disagreements in decision making that significantly hamper team performance (Bezrukova et al., 2012; Thatcher & Patel, 2011). As TMTs are groups of individuals with interdependent tasks and objectives that directly affect strategic decisions and outcomes (Hambrick & Mason, 1984; Simons, Pelled & Smith, 1999), experience-based faultlines at the TMT level can have detrimental firm performance effects (Li & Hambrick, 2005; Minichilli et al., 2010).

For instance, past upper echelon studies have shown that executive team members tend to make strategic decisions based on their prior experience (Buyl et al., 2011; Hambrick, 2007). Executives with a functional background in engineering, for example, are likely to focus on engineering issues at the time of decision making, whereas executives with a background in finance are likely to place greater emphasis on the financial aspects of a strategic decision. The different perceptions among executive team members are likely to increase task-related disagreements between experience-based subgroups, promote low quality strategic decisions (Li & Hambrick, 2005), and thus, result in low firm performance (Cooper et al., *forthcoming*).

In a similar vein, the country-specific context in which an individual has mainly worked in the past, determines how this individual interprets information at the time of decision making (Bhagat, Kedia, Harveston, & Trianidis, 2002). As peoples' values and beliefs are shaped by the context in which they have mainly worked and socialized (Carpenter et al., 2001), TMT faultlines in terms of dominant country experience are likely to reduce ease of communication between executive subgroups and result in negative organizational outcomes. The negative effects of functional and country

experience TMT faultlines are stronger when team members are aligned into distinct homogeneous subgroups along both experiential characteristics simultaneously (Lau & Murnighan, 1998). Based on the central assumption of upper echelons theory that organization outcomes are reflections of TMT composition (Hambrick & Mason, 1984), we suggest that experience-based TMT faultlines have a disadvantageous impact on firm performance.

Hypothesis 1a. *Experience-based TMT faultlines have a negative impact on firm performance.*

5.2.2 Socio-demographic faultlines and firm performance

Socio-demographic characteristics such as gender, age and nationality are highly visible, easily accessible, and hardly alterable attributes that represent an individual's values and beliefs (Bell et al., 2011; Pelled et al., 1999). Socio-demographic differences among team members are likely to activate social stereotypes within the team that promote interpersonal differentiation and low team cohesion (Michel & Hambrick, 1992; Turner, 1987). Stereotypical behavior is likely to promote an "us versus them" attitude within the team and "cause process loss and mismanagement" (Bezrukova et al., 2009: 39).

The negative effects of the "us versus them" attitude will strengthen when the team is split into strong socio-demographic subgroups along multiple characteristics (Bezrukova et al., 2009; Lau & Murnighan, 1998). Under such conditions, the formation of distinct socio-demographic subgroups is likely to increase hostility and mistrust in the team (Jehn, 1995), and promote lack of information exchange and low cooperation among team members (Sawyer, Houlette, & Yeagley, 2006). At the TMT level, low interpersonal cooperation and insufficient information exchange owing to socio-demographic differences among executive subgroups can result in low firm performance (van Knippenberg et al., 2011).

Hypothesis 1b. *Socio-demographic TMT faultlines have a negative impact on firm performance.*

5.2.3 The moderating role of CEO's characteristics

Upper echelons research traditionally focuses on the entire team of top managers, and therefore assumes a relatively equal distribution of power among executive team members (Hambrick & Mason, 1984). However, there are studies that

emphasize the distinct role of the CEO as the most powerful TMT member who affects both the advantageous and disadvantageous effects of TMT composition (Hambrick, 1994; Jackson, 1992; Ling et al., 2008; Minichilli et al., 2010). Indeed, recent studies show that the performance effects TMT diversity depend on the CEO's ability to integrate and synthesize the diverse information residing among members of the executive team (Buyl et al., 2011). Building on recent insights in the upper echelons literature and the CEM, we postulate that the following two CEO characteristics help the TMT to reduce the self-categorization costs of TMT faultlines and reap information processing and performance advantages.

5.2.3.1 CEOs' diverse career experience

The importance of CEOs' career experience has been widely discussed in the upper echelons literature (Buyl et al., 2011; Carpenter & Fredrickson, 2001). Bunderson & Sutcliffe (2002: 876) established the concept of "intrapersonal experience diversity" which refers to the degree that an individual possesses breadth of experience from various areas of expertise. Individuals' career backgrounds vary from broad-general to narrow-specialized. '*Broad generalists*' are individuals with high intra-personal experience diversity, while *'narrow-specialists'* are those with homogeneous-specialized career experience in a specific area (Bunderson & Sutcliffe, 2002). In this study, we suggest that CEOs' diverse career experience in terms of functional and international background help to reduce the costs and increase the information processing benefits of TMT faultlines, resulting in positive firm performance outcomes. This suggestion is supported by the following reasons.

First, proponents of the self-categorization perspective argue that stereotypical biases are reduced when individuals identify themselves along multiple categories (Chattopadhyay, Glick, Miller, & Huber, 1999; Homan, van Knippenberg, van Kleef & de Dreu, 2007). In their suggestions for further research, Cooper et al., (*forthcoming*: 15) mentioned that individuals with diverse career experience "may act as bridges between subgroups" as they "demonstrate weaker subgroup identification." To the extent that similarity promotes interpersonal attraction (Byrne, 1971), narrow-specialist CEOs are inclined to empower and favor the opinion of the subgroup that is similar to their own specialization. On the contrary, CEOs who possess diverse career experiences will be less susceptible to experience-based stereotypes, as they identify themselves along several experience-based areas of expertise. This multiple categorization will allow broad-generalist CEOs to develop ways of promoting collaboration among executives from different experience-based fractures in the TMT,

reduce the self-categorization disadvantages of experience-based TMT faultlines, and thereby help the executive team to enhance higher firm performance.

Second, the information processing perspective suggests that individuals who have acquired diverse experience will be more capable in processing and integrating diverse information (Bunderson & Sutcliffe, 2002; Buyl et al., 2011). Broad-generalist CEOs possess diverse knowledge, and are thus better able to evaluate and utilize the diverse information residing in the executive team (Buyl et al., 2011). Drawing on their various experiences, broad-generalist CEOs can effectively bridge the different knowledge and information domains of experience-based subgroups, increase overall information processing capacity at the TMT level, and enhance higher firm performance.

Hypothesis 2a. *The negative relationship between experience-based TMT faultlines and firm performance is less pronounced when the CEO has diverse career experience.*

Apart from their ability to effectively manage experience-based TMT subgroups, we also suggest that CEOs with diverse career experience will be better equipped to enhance performance benefits derived from the presence of socio-demographic TMT faultlines. Indeed, recent research shows that individuals with a variety of experience are likely to develop a positive perception of diversity within the team and to be less biased towards socio-demographic stereotyping (Bunderson & Sutcliffe, 2002; Hentschel, Shemla, Wegge, & Kearney, 2013). CEOs with broad-general experience backgrounds are better able to act as "integrators" (Buyl et al. 2011: 155) who promote information exchange among members of different socio-demographic subgroups, and thus, enhance higher firm performance.

Hypothesis 2b. *The negative relationship between socio-demographic TMT faultlines and firm performance is less pronounced when the CEO has diverse career experience.*

5.2.3.2 CEO-TMT shared team experience

The notion of team tenure overlap (TLAP) refers to the extent to which team members have worked together in the same group (Buyl et al., 2011; Carroll & Harrison, 1998). Past research has emphasized the impact of shared team experience on team integration and performance (Carroll & Harrison, 1998; Harrison, Price,

Gavin & Florey, 2002). The general assumption is that high team tenure overlap helps team members to enhance team cooperation and cohesion (Carroll & Harrison, 1998). Based on the notion that the CEO is the integrator of the TMT (Buyl et al., 2011), this study focuses on the tenure overlap between the CEO and other TMT members. There are two reasons for which CEO-TMT tenure overlap helps the executive team to enhance performance benefits from the presence of experience-based and socio-demographic TMT subgroups.

First, research on information processing and transactive memory shows that common team experience allows team members to "develop a shared conceptualization of who knows what" in the team (Brandon & Hollingshead, 2004: 633), and to allocate responsibilities to those who possess the required characteristics and expertise to successfully perform a given task (Austin, 2003; Hollingshead, 2000). A CEO who shares common experience with other senior executives in the same team has a better understanding of the knowledge and information residing in different TMT subgroups. This allows the CEO to reap the information processing advantages of TMT faultlines, by allocating tasks and responsibilities to subgroups that possess the required attributes and backgrounds to effectively accomplish these tasks. Therefore, common CEO-TMT tenure increases the information processing benefits of TMT faultlines and helps the TMT to enhance higher firm performance.

Second, past research implies that self-categorization costs are reduced when team members have worked together in the same team (Balkundi & Harrison, 2006; Harrison et al., 2002). Studies have shown that shared team tenure among individuals allow subgroups to resolve conflicts and enhance higher team cooperation and performance (Mäs, Flache, Takàcs & Jehn, *forthcoming*). Common team tenure between the CEO and other executives allows the former to "bridge semantic gaps within the TMT", resolve self-categorization behaviors, and enhance interpersonal communication and integration among team members (Buyl et al., 2011: 157). Thus, CEOs who share common tenure with other TMT members in the same group are better equipped to reduce the self-categorization disadvantages of TMT faultlines, and thus to diminish the severe performance consequences of TMT subgroups.

Hypothesis 3a. *The negative relationship between experience-based TMT faultlines and firm performance is less pronounced when the CEO shares common team experience with other TMT members.*

Hypothesis 3b. *The negative relationship between socio-demographic TMT faultlines and firm performance is less pronounced when the CEO shares common team experience with other TMT members.*

5.3 Methods

5.3.1 Sample and data collection

The initial sample of this study is based on 274 large listed firms headquartered in Germany, the Netherlands, Switzerland, and the UK over the period 2005 to 2009. To select our sample, we first ranked all listed firms in each country based on their market capitalization at the end of the year 2005 (December 31st). Subsequently, we included the largest 100 firms of each of the four countries given that they fulfilled the following conditions: (a) they were categorized as large firms based on the European Union's classification at the end of the year 2005 (i.e., they had above 250 employees and more than €50 million annual revenues) (EU Commission, 2012), (b) they were active during the period from 2005 to 2009 and did not become part of another company through merger and acquisition (M&A) activity, (c) they were not subsidiaries of other large companies and (d) they had a TMT size of at least four members. These criteria were applied in order to ensure that companies included in our sample were comparable in terms of firm size, were active during the period examined, were able to make independent strategic decisions, and had the minimum TMT size that allows subgroup formation (Bezrukova et al., 2009). This filtering resulted in an unbalanced panel data set of 274 firms and 1196 firm-year observations.

Consistent with prior upper echelon studies using European samples, we defined the TMT as the highest level of corporate management by relying on companies' self-reported definitions provided in their annual reports and corporate websites (Boone et al., 2004; Greve, et al., 2009; Nielsen & Nielsen, 2013; Ruigrok, et al., 2013). Data for CEOs' and TMT members' demographics and experiential characteristics was collected from annual reports, corporate websites and online archival sources (e.g., LexisNexis and Munziger online). Company and industry level data was obtained from the Thomson ONE Banker database.

In our final analysis, all companies with missing data were excluded, leaving a final unbalanced panel data set of 109 firms and 386 firm-year observations. Note that the relatively low data completion is due to the difficulty of finding complete information about TMTs' international and functional experience. Indeed, this rate of data completion is similar to other studies that collect information about the entire career experience of CEOs and TMTs (see e.g., Greve, 2009; Crossland et al.,

forthcoming; Rodenbach & Brettel, 2012). To detect potential differences between our final sample and the target population in terms of past and subsequent firm performance, as well as firm size, we ran three Kolmogorov-Smirnov tests using Stata 11. The results of these analyses show that firms included in our final sample exhibit significantly different distribution than those with missing values in terms of all three firm-level characteristics. Specifically, p-values for firm size, past and subsequent firm performance were 0.009, 0.000 and 0.007 respectively. Therefore, to ensure that our results are not sensitive to the relatively small sample size, we ran supplementary sensitivity analyses including all firms with above ninety percent of data completeness in the experiential faultlines variable (i.e., the variable with most of missing values). Results are presented in the supplementary analysis section (i.e., section 5.4.2) of this chapter.

We decided to focus on firms in the four European countries for two reasons. First, all four countries have established transparent practices with regards to reporting information about the characteristics of their top executives (Ruigrok et al., *forthcoming*). This allowed us to obtain information about CEOs' and TMTs' demographic and experiential characteristics through archival sources. Second, several large organizations are headquartered and listed in the four countries. Firm like Philips, Siemens, British Petroleum and Novartis are examples of large organizations in the four countries. These large firms often employ executives with diverse experience and with variety of career backgrounds compared to smaller firms. This provides an appropriate context for investigating the impact of TMT faultlines on firm level outcomes and the moderating impact of the CEOs' characteristics.

5.3.2 Dependent variable

Subsequent firm performance. This variable was measured as the two-year average return on assets (ROA) after each respective year of assessment (Cannella et al., 2008). The time-lagged structure adopted for measuring firm performance allows us to reduce potential biases of single year outliers in terms of ROA (Johnson & Greening, 1999), and to enhance causality in the studied relationship (Hambrick, 2007).

We selected ROA instead of other firm performance measures (e.g., return on sales (ROS) or market valuation) for the following reasons. First, our sample includes financial companies and banks. Past research suggests that ROA can better represent firm performance of such companies compared to ROS (Laeven & Levine, 2009). Second, market valuation performance measures depend on factors that are beyond the

control of management (Chung & Luo, 2013), and thus, can provide performance effects that are far beyond the composition of the TMT and its interaction with the CEO.

5.3.3 Independent variables

Experience-based and socio-demographic faultlines. The variable of experience-based faultlines was calculated based on two experiential attributes: functional background and dominant country experience. Past research suggests that both functional and country level experiences are important in determining how individuals interpret information at the time of decision making (Bunderson & Sutcliffe, 2002; Nielsen & Nielsen, 2013). These attributes can therefore serve as two key characteristics based on which experience-based TMT faultlines are formed. First, functional background was calculated as the dominant function in which an executive member had mainly acquired experience (Bunderson & Sutcliffe, 2002). Similar to Cannella et al., (2008), we coded the dominant function of each executive team member in one of the following functional areas: engineering; production; finance; research and development (R&D); marketing and sales; business administration; legal issues; human resources; strategic development; other. Second, dominant country experience was measured as the country in which an individual had mainly worked in the past (Engeler, 2013).

Further, the variable of socio-demographic faultlines was measured based on three social characteristics: age, gender and nationality (Bezrukova et al., 2009; Hutzschenreuter & Horstkotte, 2013). Age is calculated as a continuous variable taking the value of the exact age of each executive at the end of each respective year. Nationality is a categorical variable of the primary nationality of each top manager. Gender is a dichotomous variable taking the value of 1 for female executives and 0 for male executives.

Past research has provided a number of suggestions concerning the appropriate measurement of faultlines. Trezzini, (2008), for example, found that different measurements of faultlines provide different faultline scores, implying that researchers should pay careful attention when choosing between different faultline measurements (see also, Meyer & Glenz, 2013). To calculate the faultline strength of both experience and socio-demographic faultline variables we adopted the Fau_g index proposed by Thatcher, Jehn & Zannutto, (2003). This index calculates faultline strength as the ratio of the sum of squares among subgroups divided by the overall sum of squares. Specifically, the Fau_g formula is expressed as:

$$Fau_g = \left(\frac{\sum_{j=1}^{p} \sum_{k=1}^{2} n_k^g \left(\bar{x}_{\bullet jk} - \bar{x}_{\bullet j\bullet} \right)^2}{\sum_{j=1}^{p} \sum_{k=1}^{2} \sum_{i=1}^{n_k^g} \left(x_{ijk} - \bar{x}_{\bullet j\bullet} \right)^2} \right) \qquad g = 1, 2, \ldots S,$$

where x_{ijk} represents the value of the *j* characteristics of each individual *i* in the subgroup *k*, $\bar{x}_{\bullet j\bullet}$ characterizes the team's mean in the characteristic *j*, $\bar{x}_{\bullet jk}$ represents the mean of the attribute *j* in the *k* subgroup, and n_k^g is the total number of members in the k^{th} subgroup as of split g. The strength of faultlines is subsequently measured as the highest value of Fau_g based on all potential splits g= 1, 2, … S, where $S=2^n-1$ (see also: Mayr, 2011). Prior studies suggest that Thatcher et al.'s, (2003) faultlines measurement is the most frequently applied in the diversity literature (Lau & Murnighan, 2005; Thatcher & Patel, 2012) and represents a reliable measure of faultline strength (Meyer & Glenz, 2013).

5.3.4 Moderator variables

CEO's career experience diversity. This variable represents the extent to which a CEO has acquired broad-general instead of narrow-specialized career experience from various functional areas and countries. To measure this variable, we employed the Blau`s (1977) index expressed as $1-\Sigma(Pi)^2$, where p represents the relative proportion of a CEO's career spent in one function or country *i* (see also, Cannella et al., 2008; Engeler, 2013). To adequately examine the moderating impact of the overall CEO experience background, we summed the two components in one single variable. The decision to sum the two components in one variable is in line with the faultlines perspective which suggests that the aggregation of several attributes simultaneously can better represent the construct of diversity (Lau & Murnighan, 1998).

CEO-TMT tenure overlap (TLAP). Consistent with Carroll & Harrison (1998) and Buyl et al. (2011), this variable was measured using a formula that averages pairwise overlap in terms of team tenure for all possible pairs in the team. The TLAP formula is expressed as: $1/N \sum_{i \neq j} \min(u_i, u_j)$, where u represents the TMT tenure (i.e., years) of each individual *i* compared to an individual *j* (Carroll & Harrison, 1998). Since we are interested in the tenure overlap of the CEO with other TMT members, we

measured the pairwise tenure overlap between the CEO and other executives. Higher values represent higher CEO-TMT tenure overlap.

5.3.5 Control variables

Past firm performance. Research demonstrates that subsequent firm performance is related to the preceding performance of the organization (Brown, 1982). Therefore, past firm performance measured as the three years average ROA at the time and before each respective year was controlled (Cannella et al., 2008; Shen & Cannella, 2002b). Including past performance as a control variable allows us to avoid the potential "threat of the regression to the mean" (Shen & Cannella, 2002b: 724; see also: Brown, 1982), and to enhance causality on the effects of TMT composition on subsequent firm outcomes (Hambrick, 2007).

Team size. Past research has also identified the impact of TMT size on TMT composition and outcomes (Haleblian & Finkelstein, 1993). Therefore, team size measured as the logarithm of the number of TMT members was included as a control variable in our analysis.

Firm size. Scholars suggest that firm size is related to the performance of the firm. This variable was measured as the logarithm of the total number of employees (Tihanyi et al., 2000; Westphal & Zajac, 1995).

CEO tenure. As CEO-TMT tenure overlap is likely to be augmented when the absolute team tenure of the CEO is higher (Buyl et al., 2011), we controlled for CEO's tenure. This variable was measured as the exact years that the CEO was a member of the TMT. The inclusion of this variable allowed us to ensure that the effects of the CEO-TMT tenure overlap are independent from those of the CEO's tenure.

CEO career length. As CEOs with longer careers are more likely to have acquired diverse experience (Hamori, 2006), we controlled for CEO career length. This variable was measured as the total length of CEOs' professional career in years. In cases in which information about the exact career length of an individual was not available, we calculated career length starting from the year of graduation from school or university until the end of each respective year of the five-year period examined.

Industry munificence. Prior upper echelon research has shown that industry munificence has a significant impact on TMT composition and firm outcomes (Cannella et al., 2008; Nielsen, 2009). By controlling for this variable, we account for potential effects of the external industry environment of the firm on TMT composition and firm performance (Cooper et al., *forthcoming*). To measure this variable we first calculated the regression coefficient of time on the annual average sales in the main

two-digit SIC industry of a firm as of a five years period (i.e., from two years before to two years after each year of assessment), and then divided this value from the average sales of those years (Dess & Beard, 1984). High scores indicate high industry munificence.

Country level CEO managerial discretion. Finally, to control for country level discretion of CEOs, we used the discretion rates provided by the study of Crossland & Hambrick, (2011). According to this study, the UK has the highest score of CEO managerial discretion (6.0), the Netherlands and Switzerland had the scores of 5.2 and 5.0 respectively and Germany had the lowest CEO managerial discretion score of 4.1.

5.4 Results

5.4.1 Main analysis

Our analysis is based on a pooled time series panel data set. Panel data analysis allows researchers to control for potential unobserved heterogeneity and account for both within (average) and between (dynamic) unit effects (Kmenta, 1996). Scholars suggest that a generalized least squares (GLS) regression technique is more appropriate for the analysis of panel data compared to an ordinary least squares (OLS) regression as it corrects for autocorrelated error terms and cross-sectional heteroskedasticity (Kmenta, 1996; Sayrs, 1989). Thus, we employed a GLS regression for the analysis.

In panel data analysis particular attention should be paid to the choice between fixed- and random-effects approaches. In cases in which variables that are invariant over time are included in the analysis, a random-effects approach is recommended (Greene, 2003). As our analysis includes invariant variables, such as CEO country level managerial discretion, we used a GLS regression approach with random effects. To test whether a random effects GLS regression is more appropriate compared to an OLS regression, we ran Breusch & Pagan's (1980) Lagrange-multiplier in Stata 11. The results were statistically significant ($chi2=33.51$, $p<0.001$), suggesting that a random effects GLS approach is the appropriate technique for this study.

Table 5.1 presents means, standard deviations and correlations among variables, and Table 5.2 provides the results of the main analysis. To observe incremental changes in variance explained across different stages of the analysis, we first entered control variables in a baseline model (see Model 1) and then we added our independent variables (see Model 2) and interaction effects separately (see Models 3 to 7). To detect potential multicollinearity, we operated variance inflation factor (VIF) analyses. The highest VIF score was 1.85 (i.e., socio-demographic faultlines variable)

and the overall average VIF was 1.52. This shows that multicollinearity is not an issue, as both scores are lower than the generally accepted limit of 10 (Cohen et al., 2003).

Hypotheses 1a and 1b suggest that the presence of strong experience-based and socio-demographic faultlines have negative effects on firm performance. Our results support hypothesis 1a by showing that experience-based TMT faultlines have a significantly negative effect on firm performance. On the contrary, however, hypothesis 1b is not statistically supported, implying that socio-demographic TMT faultlines do not have a statistically significant effect. Furthermore, hypotheses 2a and 2b postulate that the negative performance effects of experience-based and socio-demographic faultlines attenuate when the TMT is led by a CEO who has acquired experience from various functions and countries. Our analysis supports hypothesis 2a ($p<0.05$ in Model 7 and $p<0.10$ in Model 3), while hypothesis 2b is not statistically supported (see Table 5.2). This means that CEOs' diverse career experiences act as optimizing factors, reducing the costs and increasing the performance benefits of experience-based TMT faultlines (see Figure 5.2)[3]. However, this optimizing performance effect does not hold for TMT faultlines in socio-demographic attributes.

Finally, hypotheses 3a and 3b propose that CEO-TMT shared team experience positively moderate the negative relationship between experience based and socio-demographic TMT faultlines and firm performance. As can be seen from Table 5.2, our results support hypothesis 3a ($p<0.05$). The negative effect of experience-based TMT faultlines on firm performance becomes less pronounced when the CEO shares common team-specific experience with other TMT members (see Figure 5.3). At the same time, hypothesis 3b is also supported in Model 6 where both the main effect and the interaction become significant at $p<0.05$. This means that the effect of socio-demographic faultlines on firm performance conditionally depends on the length of time that the CEO has worked with other members of the team. However, as this relationship is not supported in the full model (see Model 7, Table 5.2), we should be cautious in interpreting this finding.

5.4.2 Supplementary analyses

As mentioned before, lack of availability of information concerning executives' career experience resulted to a low rate of data completion. In addition to that, results of the Kolmogorov-Smirnov tests show that our final sample is significantly different from the target population in terms of firm performance and firm size. Therefore, it is important to ensure that the results remain stable with a larger sample size.

[3] Moderating effects presented in Figures 5.2 and 5.3 are based on plus/minus one standard deviation.

Table 5.1
Descriptive statistics and correlations

Variables	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12
1. Subsequent firm performance (ROA)	0.05	0.06	~											
2. Industry munificence	0.09	0.05	-0.00	~										
3. CEO country level managerial discretion	4.71	0.59	0.22*	-0.05	~									
4. Past firm performance (ROA)	0.05	0.05	0.62*	0.03	0.24*	~								
5. Employees (log)	9.77	1.74	-0.04	-0.01	-0.24*	-0.03	~							
6. Team size (log)	1.73	0.31	0.00	-0.11*	0.06	0.02	0.18*	~						
7. CEO tenure	5.03	3.61	0.08	0.00	-0.02	0.17*	-0.06	0.03	~					
8. Career length	28.12	7.02	-0.13*	-0.04	-0.01	-0.08	0.31*	0.06	0.28*	~				
9. CEO TLAP	4.29	2.20	0.13*	0.14*	-0.05	0.21*	-0.04	-0.03	0.60*	0.12*	~			
10. CEO experience diversity	1.01	0.36	0.07	-0.07	-0.01	0.09	0.24*	0.19*	0.01	0.27*	-0.13*	~		
11. Experience faultlines	0.47	0.15	-0.10	0.07	0.05	-0.03	-0.13*	-0.35*	-0.04	-0.12*	0.10*	-0.24*	~	
12. Social faultlines	0.65	0.17	-0.05	0.17*	-0.20*	-0.05	-0.19*	-0.61*	-0.05	-0.09	0.11*	-0.28*	0.20*	~

* $p<0.05$

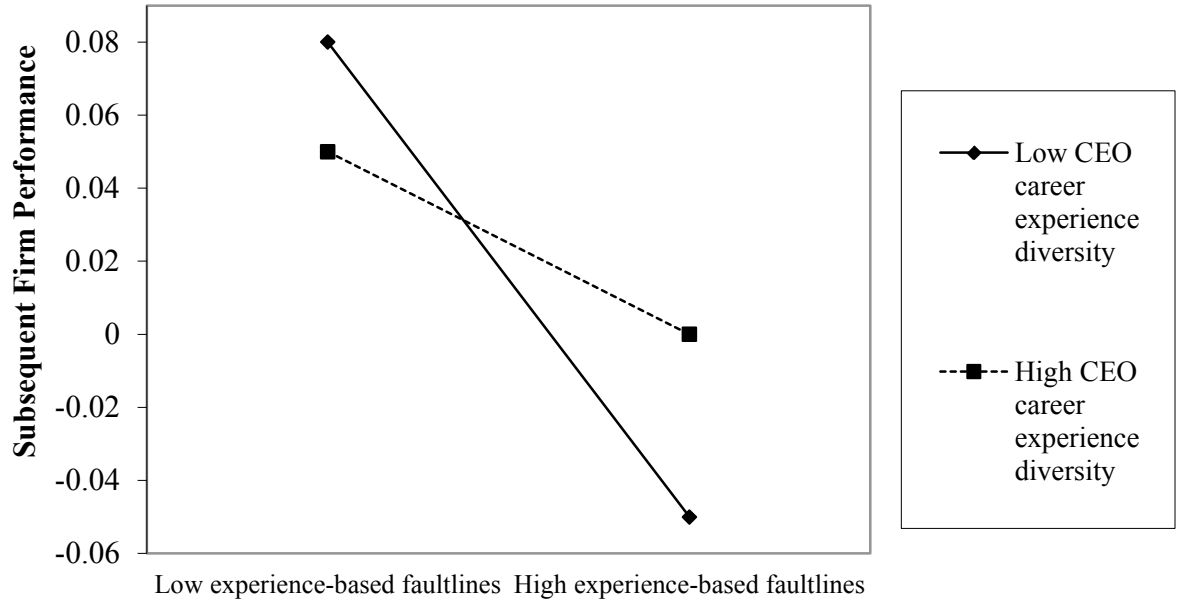
Table 5.2
Random effects GLS regression analysis with firm performance as dependent variable [a]

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Intercept	-0.01 (0.03)	0.05 (0.05)	0.08 (0.05)	0.02 (0.05)	0.09† (0.05)	0.10† (0.05)	0.15* (0.07)
Industry munificence	-0.02 (0.05)	-0.02 (0.05)	-0.01 (0.05)	-0.01 (0.05)	-0.02 (0.05)	-0.02 (0.05)	-0.02 (0.05)
CEO country level managerial discretion	0.01* (0.01)	0.01* (0.01)	0.01* (0.01)	0.01* (0.01)	0.01* (0.01)	0.01† (0.01)	0.01† (0.01)
Year 2005	0.01 (0.01)	0.01† (0.01)	0.01† (0.00)	0.01† (0.00)	0.01† (0.01)	0.01† (0.00)	0.01† (0.00)
Year 2006	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)
Year 2007	-0.02** (0.01)	-0.02** (0.01)	-0.02** (0.01)	-0.02** (0.01)	-0.02** (0.01)	-0.02** (0.01)	-0.02** (0.01)
Year 2008	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.00)	-0.01 (0.01)
Year 2009	*Omitted*	*Omitted*	*Omitted*	*Omitted*	*Omitted*	*Omitted*	*Omitted*
Past performance (ROA)	0.59*** (0.05)	0.58*** (0.05)	0.58*** (0.05)	0.57*** (0.05)	0.60*** (0.05)	0.56*** (0.05)	0.58*** (0.05)
Firm size (log)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
TMT size (log)	-0.01 (0.01)	-0.02 (0.01)	-0.02 (0.01)	-0.02† (0.01)	-0.02 (0.01)	-0.02 (0.01)	-0.02 (0.01)
CEO tenure	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
CEO career length	-0.00* (0.00)	-0.00** (0.00)	-0.00** (0.00)	-0.00*** (0.00)	-0.00** (0.00)	-0.00* (0.00)	-0.00* (0.00)
CEO TLAP	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.01* (0.00)	-0.01 (0.01)	-0.02* (0.01)
CEO exp. diveristy	0.01 (0.01)	0.00 (0.01)	-0.03 (0.02)	0.03 (0.03)	0.00 (0.01)	0.00 (0.01)	-0.03 (0.04)
Experience faultlines		-0.05** (0.02)	-0.13** (0.05)	-0.05** (0.02)	-0.14** (0.04)	-0.05** (0.02)	-0.25*** (0.07)
Social faultlines		-0.01 (0.02)	-0.01 (0.02)	0.04 (0.05)	-0.01 (0.02)	-0.07* (0.04)	-0.02 (0.06)
Experience Fau X CEO exp.diversity			0.08† (0.05)				0.11* (0.05)
Social Fau X CEO exp. diveristy				-0.05 (0.04)			-0.04 (0.04)
Experience Fau X CEO TLAP					0.02* (0.01)		0.02* (0.01)
Social Fau X CEO TLAP						0.01* (0.01)	0.01 (0.01)
R^2	0.43	0.44	0.44	0.44	0.45	0.44	0.46
Wald X^2	202.15***	209.8***	212.6***	213.5***	222.8***	213.7***	228.0***

N= 386 † p<0.10, * p<0.05, ** p<0.01, *** p<0.001

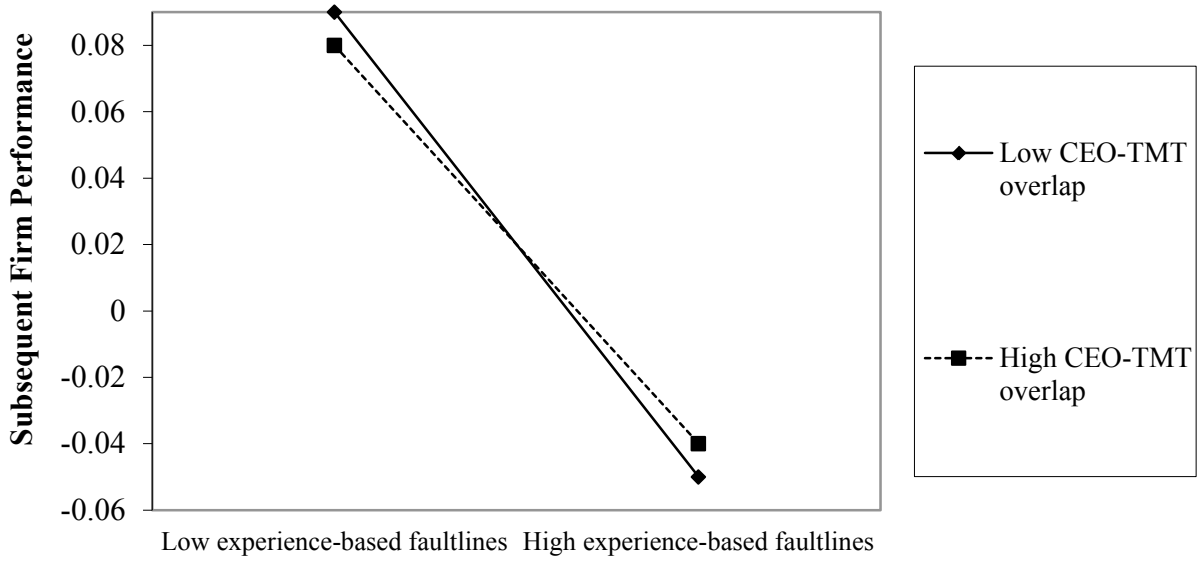
[a] Unstandardized coefficients are reported. Standard errors are indicated in brackets

Figure 5.2: Moderating effects of CEO's career experience diversity



Source: Author

Figure 5.3: Moderating effects of CEO-TMT tenure overlap



Source: Author

For this reason, we ran supplementary analyses including all firms with data completion of above 90 percent in the TMT experience-based faultlines variable (i.e., the variable with most of missing values). As can be seen in Appendix 4.1, the results of this analysis are identical, and – for some variables – even more significant than those presented in Table 5.2. This provides an indication that the results may receive statistical support with a larger sample. It is important to note that we decided to focus on firms with a completion rate not lower than 90 percent due to the sensitivity of the faultline measurement with regards to low team size (Meyer & Glenz, 2013). As the average team size in our sample is relatively small (i.e., 5.6), the inclusion of TMTs with less than 90 percent complete data would result in unreliable faultline scores and misrepresented statistical results. For example, in a TMT of four members, the inclusion of 75 percent complete information would result to the calculation of faultlines based on a total number of three members. As the minimum team size that allows subgroup formation is four members (Bezrukova et al., 2009), the inclusion of teams with 75 percent complete information would lead to spurious faultline effects. At the same time, the inclusion of firms with at least 80 percent complete information would require to measure teams of five members (i.e., our team size average) based on four members. This would result to an inappropriate measurement of faultlines for many observations. By focusing on firms with 90 percent complete information in the experience-based TMT faultines variable, we only include additional TMTs in the analysis with team size of above five members.

Furthermore, Table 5.2 shows that the year 2005 exhibits a positive and partially significant relationship with firm performance compared to the year 2009 (i.e., omitted category), while the year 2007 exhibits a negative performance relationship. These year-level differences may be due to the financial crisis that begun in 2008 and affected the performance of large European companies. To ensure that our results are not driven by year effects, we re-calculated our analyses by adjusting subsequent and past ROA to the average of each respective year. The results of the supplementary analysis are similar to those presented in this study and are available in Appendix 4.2.

5.5 Discussion

This study combines upper echelons theory with the CEM framework to explore the impact of TMT faultlines on firm performance. It demonstrates that experience-based TMT faultlines have more detrimental performance effects than

socio-demographic TMT faultlines, and that CEO characteristics play a key role in reducing the costs of experience-based subgroups and in realizing performance advantages. The study contributes to upper echelons and diversity research in four distinct ways.

First, it supports the notion that the positive and negative effects of TMT diversity faultlines coexist (van Knippenberg et al., 2004; van Knippenberg et al., 2011), and that researchers should attempt to understand the conditions under which the performance benefits of TMT subgroups are likely to outweigh the costs (Bezrukova et al., 2012; Cooper et al., *forthcoming*; Thatcher & Patel, 2012; Thatcher & Patel, 2011). One key team level condition highlighted in this study is the background of the CEO. Recent upper echelons studies underscore the importance of understanding the performance implications of the CEO-TMT interface (Cannella & Holcomb, 2005). This stream of research stresses that the CEO plays an important role in determining both advantageous and disadvantageous effects of TMT configuration (Buyl et al., 2011; Jackson, 1992; Ling et al., 2008). Our theory and results complement this line of argumentation by demonstrating that CEOs' diverse career experience and shared TMT tenure with other executives have a key influence on the link between TMT faultlines and firm performance. To this end, the study contributes to the broader fields of upper echelons and TMT diversity by shedding light on the role of the CEO's background characteristics in reducing the negative effects of TMT subgroup formation and in realizing performance advantages.

Second, the study contributes to the faultlines theory by providing support to the notion that the effects of faultlines depend on the nature of the alignment that splits a team into subgroups (Bezrukova et al., 2009; Bezrukova et al., 2012; Cooper et al., *forthcoming*). Recent studies argue that to understand the impact of TMT faultlines on firm performance, researchers need to decompose the construct of faultlines (van Knippenberg et al., 2011) and examine how subgroup formations in terms of experiential and social characteristics impact organizational outcomes (Bezrukova et al., 2009; Carton & Cummings, 2012). Consistent with Lau & Murnighan's (1998) faultlines model, we find that the presence of strong experience-based faultlines at the TMT level has a negative impact on subsequent firm performance. However, our results demonstrate that socio-demographic TMT faultlines have no main firm performance effects. This finding contradicts prior research that show that socio-demographic faultlines can cause process loss and low performance in other working groups (Bezrukova et al., 2009).

The different effects of experience-based versus socio-demographic faultlines can be attributed to the team context and the nature of TMTs. Relative to other working groups, TMTs are characterized by higher information processing demands and decision making complexity (Hambrick & Mason, 1984). Experiential characteristics are more job-related in nature than surface level socio-demographic attributes (Pelled et al., 1999). Differences in these characteristics are more likely to have negative effects on task-related performance and the quality of strategic decisions (Bell et al., 2011). As TMTs are task-related teams, subgroup splits in terms of experiential attributes at the TMT level have more detrimental firm performance consequences than splits based on surface socio-demographic characteristics. As such, the present study contributes to the faultlines literature by stressing the importance of the team level context in understanding the impact of different forms of subgroups.

Third, the study contributes to our knowledge concerning the importance of CEOs' career experience diversity. Upper echelons research has recently paid increasing attention to the role of CEO career variety in affecting firm level outcomes (see e.g., Buyl et al., 2011; Crossland et al., *forthcoming*). This study complements this line of research by showing that CEOs with diverse career experience are better equipped to realize performance advantages derived from the presence of experience-based TMT faultlines. To optimize the benefits of TMT subgroups and enhance high firm performance, firms need to select CEOs with diverse career experience backgrounds. At the same time, however, our findings show that broad-generalist CEOs are less suitable in highly diverse or highly homogeneous TMTs in which TMT faultine strength varies from moderate to low (see Figure 5.2). Indeed, recent research argues that broad-generalist CEOs "suffer from a jack of all trades but master to none syndrome" which does not allow them to make a positive contribution in highly homogeneous or highly diverse TMTs (Buyl et al., 2011: 170). Our results support this argument by showing that, while broad-generalist CEOs fit better in TMTs with strong experience faultlines, they generally have detrimental performance effects in TMTs that do not experience subgroup formation. Showing what types of CEO background best-fit different types of TMT composition, the study complements prior upper echelons work concerning the impact of CEOs' career experience on TMT diversity and firm performance.

Finally, our results suggest that the performance benefits of TMT experience and social faultlines are more likely to materialize when the CEO shares common team tenure with other TMT members. This implies that the benefits of TMT faultlines are not likely to become realized overnight, but can only be enhanced when the CEO and

other executives have the chance to work in the same group for a certain period of time and acquire common experience. Shared experience between the CEO and other senior executives in the same team acts as a common-ground that allows the former to become familiar with the diverse information and knowledge residing in experience-based TMT subgroups, and eventually to use this diverse knowledge in a way that results in performance gains. At the same time, common tenure between the CEO and the TMT is also likely to mitigate the self-categorization costs and reduce the negative performance effects of socio-demographic faultlines. As mentioned before, however, this finding does not receive statistical support in the full model – therefore, we should be cautious in interpreting this result. The lack of statistical support may be due to the relatively small sample size of the study. Indeed, this effect is statistically supported in both Models 6 and 7 in the sensitivity analysis provided in Appendix 4.1 ($p<0.05$ and $p<0.10$ respectively).

However, this cannot entirely confirm that this relationship would receive statistical support with a more complete sample. For this reason, we re-ran the analysis with social faultlines and CEO-TMT overlap as a moderator variable, by excluding experiential faultlines and CEO experience diversity variables from the analysis (see Appendix 4.3). The exclusion of experience-based faultlines and CEO career experience substantially increased the final sample from 386 to 892 observations. The results of the main and moderation effects are highly significant at $p<0.001$ (see Appendix 4.3). This provides additional evidence that this partially significant relationship would receive high support with a more complete sample. Thus, we can safely conclude that the extent to which socio-demographic faultlines have disadvantageous effects on the performance of the organization depends on the shared team experience between the CEO and other TMT members.

5.5.1 Practical implications, limitations and future research directions

Apart from its academic relevance, the study provides implications for business practitioners on how to manage TMT faultlines in a way to realize performance advantages. Recent studies show that TMTs of large firms become increasingly diverse over time (Heijltjes et al., 2003) and that organizations and task teams are increasingly relying on subgroups to accomplish complex objectives (Carton & Cummings, 2012). In addition, other studies show that firms tend to frequently replace their CEOs in recent years, and that the incoming CEO generation is not highly diverse in terms of career experiences (Favaro, Karlsson & Neilson, 2013). Our results suggest that firms should be aware that frequent CEO replacements and the selection of CEOs

with narrow career experience backgrounds are likely to limit the CEO's ability to effectively manage TMT faultlines, resulting in lower firm performance. To this end, the study sheds light on the career background characteristics and experiences that CEOs should possess in order to reduce the costs and reap the performance benefits of the presence of experience-based TMT subgroups.

The study is subject to some limitations that open up promising avenues for further research. One limitation is that we do not consider the mediating processes - such as behavioral integration and information exchange - through which CEOs with certain characteristics impact the performance effects of TMT faultlines. In addition, we focus only on TMT faultlines in terms of socio-demographic and experiential attributes, and thus, we do not consider other deep-level psychological characteristics that may cause subgroup formation in TMTs. As this is a common criticism in the prior upper echelons research (Hambrick, 2007; Lawrence, 1997), we encourage future studies to go beyond our faultlines categorization and consider the intervening processes through which TMT characteristics impact firm performance.

Another limitation is related to the shortcomings of the Thatcher et al.'s, (2003) faultlines measure. One main weakness of Thatcher et al.'s, (2003) measurement is that it allows a maximum split of the team into two subgroups. Recent research has highlighted this weakness and provides ways for calculating faultlines based on multiple subgroups (Meyer & Glenz, 2013; Trezzini, 2008). However, the measurement of multiple subgroups requires a minimum team size of six members in order to allow the formation of three subgroups within the team. Unfortunately, the average team size in our sample was below six members. As an additional check, we ran our GLS analyses with the methods of multiple subgroups suggested by Meyer & Glenz, (2013) including only TMTs with a team size of above five members. Results followed the same direction but were substantially weaker than those presented in this study (see Appendix 4.4a). The observed weaker effects may be due to the smaller sample size that resulted from the additional analysis. Specifically, only 190 firm-year observations remained in the additional analyses when we excluded teams of below six members. Indeed, as shown Appendix 4.4b, the results of multiple subgroups also receive statistical support if we do not limit the analysis to teams of above five members. Another explanation of the weaker effect is that a split of the team in two subgroups has a stronger negative impact on performance compared to a split of the team into multiple subgroups (Thatcher et al, 2003). However, future research can use larger samples with teams of above five members to test the impact of CEO characteristics on the linkage between multiple TMT subgroups and firm outcomes.

Further, drawing on the CEM perspective, the study focuses on two CEO background attributes that help the TMT to reduce the self-categorization costs and enhance the information processing benefits of TMT faultlines. However, other CEO attributes may also play an important role in determining the impact of TMT faultlines. Recent studies, for example, provide preliminary evidence on how CEO leadership style impacts the performance effects of TMT subgroups (see e.g., Gratton, Voigt & Erickson 2007). An interesting extension of our study would therefore be to investigate how CEOs with different leadership styles are better able to realize benefits from the presence of different forms of TMT faultlines.

Finally, apart from the CEO career background characteristics there are other organizational and environmental level factors that are likely to affect the performance impact of TMT faultlines. Scholars have argued that upper echelons research is multilevel in nature (Cannella & Holcomb, 2005; Nielsen, 2009). Whereas in this study we focus on the specific effects of CEO characteristics, future research could extend our research framework by including the firm and industry level conditions under which TMT faultlines are likely to have an advantageous impact on organizational outcomes. This will help us to gain a deeper understanding on the multilevel nature of upper echelons research.

6 Conclusion

6.1 Summary of key findings

This doctoral dissertation provides a nuanced picture of the antecedents and consequences of TMT diversity. A conceptual review and three empirical chapters delved into the areas of upper echelons, team diversity, and executive selection to uncover both the drivers and effects of diverse TMT composition. Four main findings are provided. First, the conceptual review identifies areas for further development on the CEO-TMT interface, some of which are captured by the empirical chapters of the dissertation. It is argued that in order to understand the antecedents and consequences of TMT composition and advance upper echelons theory, researchers should pay attention to the interface between the CEO and the TMT. The review study provides a platform upon which the three empirical chapters subsequently explore how CEOs and TMTs interactively impact the emergence and consequences of TMT diversity.

Second, the dissertation sheds light on the role of different selection strategies (i.e., external hiring versus internal promotion) as key determinants of TMT composition. It empirically demonstrates that large firms are inclined to promote TMT diversity by hiring dissimilar members from their internal ranks, rather than from the external labor market. This inclination conditionally depends on the characteristics of the internal and external environment of the firm and, albeit to a lesser extent, is also affected by the attributes of the CEO. By delving further into this topic, the dissertation also shows that the choice of selecting a dissimilar CEO from the external labor market eventually has negative firm performance consequences. This means that there is a substitution effect between external hiring and dissimilarity of new executive appointees not only at the time of executive selection (i.e., when firms hire dissimilar-internal candidates), but also at the post-selection stage (i.e., selecting dissimilar-external executives has negative firm performance outcomes).

Third, the dissertation demonstrates that the presence of TMT diversity faultlines has negative performance effects. At the same time, individual level diversity of CEOs in terms of career experience has an important moderating effect on the relationship between TMT faultlines and firm outcomes. These two findings together imply that upper echelon researchers should conceptualize diversity not only at the team but also at the individual level. Both individual and team level diversity in the executive suite have interactive effects on organizational outcomes.

Finally, the results in all three empirical studies of the dissertation highlight the key role of the CEO as the individual who exerts a strong influence on the composition of the executive group, and who can activate both positive and negative performance

effects of TMT configuration. This suggests that a key factor that firms should consider at the time of the TMT composition process is to attain a fit between CEO attributes and TMT characteristics. In the following sections, the theoretical and practical contributions of the dissertation are discussed.

6.2 Theoretical contribution

6.2.1 Contributions to the upper echelons literature

The dissertation contributes to upper echelons theory by deriving profound insights with regards to the causes and effects of TMT composition. First, one of the most central contributions of the dissertation is that it sheds light on the CEO-TMT interface and its importance for upper echelons research. The interactive effects of the CEO and the TMT appear in all empirical chapters of the thesis, and validate Jackson's (1992) and Hambrick's (1994) suggestions that a further investigation of the CEO-TMT interface can help to enhance a greater explanatory power of the upper echelons model. Indeed, the doctoral thesis confirms that CEOs have a distinct impact on the selection of new TMT members over time, as well as on the effects TMT diversity on firm outcomes. To this end, the dissertation offers a first systematic attempt to theoretically integrate the interactive role of the CEO and the TMT in the upper echelons literature. It concludes that, enhancing a better understanding of the antecedents and consequences of TMT diversity involves a close look at the interface between the CEO and the rest of the TMT.

Second, approaches that are rooted in the upper echelons theory typically include endogenous conceptions about causes and effects of TMT composition. Upper echelons research often experiences reverse causality problems in investigating whether TMT composition is a cause or an effect of organizational outcomes (Hambrick, 2007). To make causal conclusions with regards to the impact of top managers on organizations, extensive reviews encourage upper echelon researchers to adopt dynamic theoretical and methodological approaches and examine both the antecedents and consequences of TMT composition simultaneously (Carpenter et al., 2004). A key theoretical contribution of this doctoral thesis is that it effectively considers both the drivers and effects of TMT composition by emphasizing the interrelation between executive selection strategies and TMT diversity. Studies have shown that the number of executives hired from the external labor market has significantly increased the last decade (Murphy & Zabojnik, 2004), and that executive teams become increasingly diverse in demographic characteristics and experiences (Rhode & Packel, 2010). The doctoral thesis considers these two trends of TMT

composition simultaneously and shows that external hiring and diversity in TMTs substitute each other. It also shows that when these two trends occur simultaneously, are likely to produce negative firm performance outcomes. Hence, by adopting a dynamic methodological and theoretical approach, the present dissertation responds to the need for gaining a nuanced picture of the antecedents and consequences of TMT composition (Hambrick, 2007).

Third, the dissertation expands the upper echelons research agenda by mixing upper echelons theory with other perspectives from different disciplines and levels of theory and analysis. Hambrick & Mason's (1984) initial model offered propositions at the team and organizational levels, by assuming that top managers have a collective effect on organizations. An extension of this model integrated environmental factors in the upper echelons literature and stressed that the impact of TMT composition is shaped by the external environment of the firm (Carpenter et al., 2004). Our empirical findings show that apart from organizational and environmental conditions, there are individual level factors (e.g., CEO characteristics or executive hiring modes) that determine TMT composition and its effects. Thus, drawing on different research streams, the dissertation stresses the multi-disciplinary and multilevel nature of the upper echelons model. It argues that in order to explain TMT composition and its effects, researchers should adopt multi-theoretical approaches that are based on the individual, organizational and environmental levels of theory and analysis.

6.2.2 Contributions to TMT diversity research

Mixed results on whether team diversity generates positive or negative consequences for organizations have led scholars to suggest that diversity costs and benefits should be considered simultaneously (van Knippenberg et al., 2004), and that researchers need to identify the conditions under which firms can benefit from diverse team composition (Cooper et al., *forthcoming*). By focusing on TMTs, the dissertation explains in what circumstances the benefits of team diversity are likely to materialize. In essence, our findings suggest that to enhance advantages from diverse TMT composition, executive team members should share common attributes that act as bridging factors that reduce self-categorization costs. For example, common tenure between the CEO and the TMT is likely to act as a bridging factor that reduces self-categorization tendencies within the team and results to diversity benefits. At the same time, common experience from inside the firm is likely to help team members to overcome interpersonal differences and enhance higher firm performance. As stressed in Chapter 3, it may be plausible to assume that team diversity promoted from inside

the organization produces different performance outcomes compared to diversity brought in from the external labor market. In fact, Chapter 4 confirms this assumption by showing that externally appointed CEOs who are demographically dissimilar to incumbent executives produce negative firm performance outcomes at the post-selection stage. This means that in order to build and benefit from diverse TMT membership, firms should rather select dissimilar members who have previously worked and socialized inside the organization.

Further, the empirical results of the dissertation imply that diversity effects should be considered in line with the nature of different types of characteristics. Diversity faultlines in experiential characteristics have more detrimental performance effects than socio-demographic faultlines. The dissertation therefore shows that research should consider not only the form of diversity (e.g., diversity as separation or variety), but also the multiple dimensions of the diversity construct (e.g., experience vs. socio-demographic diversity). At the TMT level, where the doctoral thesis focuses on, diversity faultlines in experiential attributes has different impact on performance than diversity faultlines in socio-demographic characteristics. Further studies should use samples from other teams and working groups in order to examine which dimension of diversity is more important in certain types of teams and under certain organizational and environmental conditions.

Apart from the multi-dimensionality of the diversity construct, the doctoral thesis argues that diversity should be considered at both team and individual levels. Whereas the majority of diversity research has focused on the effects of inter-personal differences at the team level, the findings of this dissertation imply that individual level intra-personal diversity also impacts firm outcomes. In essence, the dissertation shows that intra-personal diversity of individual CEOs plays a key role in affecting the impact of diverse TMT composition on firm performance. Due to the broader set of knowledge and experience of intra-personally diverse individuals, and their lower self-categorization predispositions, it can be expected that the benefits of team diversity are more likely to materialize when the team consists of intra-personally diverse individuals. Based on the findings of the dissertation, it can be suggested that there is an intersection between the individual level diversity of the team's leader and the extent to which other team members are interpersonally different in demographic and experiential characteristics. Future studies could help to further clarify the intersection between individual and team level diversity by focusing on the role of the team's leader in other working teams below the TMT level.

6.3 Managerial and policy implications

The dissertation provides insights that are valuable for policy makers and business practitioners. First, individuals who belong to minority groups are more likely to reach top managerial positions when they follow an internal labor market career strategy. Due to imperfections in the market of executive labor, external hiring favors majority groups and individuals who share common characteristics with those of the incumbent executive team. On the other hand, minority-group individuals have a higher probability of assuming top managerial positions when the focal firm possesses information about their past performance inside the organization. Thus, for those individuals who belong to minority groups and who aspire to assume top managerial positions, we suggest that following an internal labor market career trajectory is more effective. Meanwhile, minority group individuals who want to pursue an external labor market career strategy should target large firms that face high degrees of organizational complexity. As our results showed, large firms facing complexity are more likely to select dissimilar executives from the external labor market.

Further, the findings of the dissertation are relevant to the recent trend in Europe towards encouraging large firms to promote increasing levels of diversity in their upper echelons. Policymakers should be aware that the benefits of TMT diversity are unlikely to be activated automatically. Together with the development of quota for promoting increasing levels of TMT diversity, they should also set supporting systems and guidelines that enable firms to benefit from diverse TMT membership. Meanwhile, companies should develop mechanisms that allow them to enhance diversity advantages. To compose diversity in such a way that desirable outcomes are realized, organizations need to groom executives with dissimilar characteristics from the internal ranks of the firm. This should be done by considering the particularities in the internal and external environment of the firm, as well as the compatibility between the CEO and the demographic profile of other executive team members.

Finally, in optimizing the benefits of diverse TMT composition, firms should pay careful attention to the sub-team level and consider whether the composition of the team encourages the development of subgroups. The empirical findings of the study show that subgroup formation in TMTs with regards to experiential characteristics is likely to have detrimental performance effects. However, these negative effects depend on team level conditions and composition factors, such as the characteristics of the CEO. Organizations should therefore be aware that diversity can indeed act as a "double-edged sword" (Milliken & Martins, 1996: 403) which, under a certain set of conditions, can have beneficial effects on organizations.

6.4 Limitations

The dissertation is subject to a number of limitations that should be considered in conjunction with its merits. First, the empirical analysis is based on large firms in a small number of countries during the period from 2005 to 2009. Therefore, empirical results may be non-generalizable to smaller firms and to firms that are located in other countries. They may also be contingent on the period examined. Future research is required to assess whether the observed patterns and relationships provided by the dissertation also hold in SMEs that operate under different country level settings and by employing a period longer than five years. This will help to enhance higher degrees of generalizability.

Furthermore, the incompleteness of data for some variables (such as international and functional career experience of executives) is another important limitation of the dissertation. While several sensitivity analyses and robustness tests were employed to check whether our results would remain stable with larger samples, it cannot be entirely confirmed that higher levels of data completeness would not result to different statistical outcomes. Future studies can benefit from the increasing availability of information about executive's characteristics over time, and try to enhance higher levels of data completeness in order to check whether our results remain stable with a larger and more complete sample.

Last but not least, the study focuses solely on the effects of top managers' demographic characteristics and experiences, and therefore it does not take into account the psychological processes through which demographic attributes are reflected in organizational outcomes. As mentioned before, this is a common criticism in the upper echelons literature, and it can only be overcome by establishing measures for quantifying executives' psychological frames and perceptual filters (Hambrick, 2007). Demography researchers suggest that a valid and concrete measurement of psychological attributes of executives is difficult - if not impossible - and that demographic characteristics constitute more reliable proxies for assessing the impact of executives on organizations (Hambrick & Mason, 1984; Pfeffer, 1983). However, future studies are encouraged to use qualitative case studies or survey questionnaires in order to unravel the psychological processes through which CEOs and other senior executives interactively impact TMT composition and its firm level effects.

6.5 Closing remarks

This dissertation shows that diverse TMT composition does play an important role in affecting organizational actions and outcomes. It suggests that firms should continue to search for mechanisms that allow them to benefit from TMT diversity. At the same time, researchers should expand their efforts to investigate the critical factors that are likely to help organizations to realize diversity advantages.

As a closing remark, this dissertation concludes that building and managing TMT diversity effectively is a multifaceted matter. A dynamic research approach that considers both drivers and effects of TMT diversity is essential for disentangling the complexity of this topic. To benefit from diverse TMT configuration, firms need to pay careful attention to the selection routes through which they alter diverse TMT membership over time. At the same time, they should put emphasis on the key role of the CEO as a '*bridge-builder*' who can reduce the costs of interpersonal differences within the executive team and enhance diversity benefits. As firms become increasingly aware of how to optimize the benefits of interpersonal differences in TMTs and other working groups, we can expect that workplace diversity will further be translated into a valuable source of innovation and economic prosperity in the years to come.

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[4] Asterisk (*) indicates the studies that appear in Appendix 1 and have been used for the conceptual review of the dissertation (i.e., for chapter 2). Some of these references may not appear in-text.

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Appendices

Appendix 1
Empirical research on the CEO-TMT interface (1984-2012)

Authors	Journal	Research focus	Sample	Research design	Analytical technique(s)	Theoretical perspective(s)	Key findings with regards to the CEO-TMT interface
Friedman and Saul, 1991	Journal of Management	1-2	235 US firms from various industries	Cross sectional survey data	OLS regression	Upper echelons theory; Leadership continuity theory	Outsider successors are more likely to bring post-succession TMT disruption and turnover than insider successors. These relationships are more pronounced when pre-succession firm performance is low.
Virany, Tushman and Romanelli, 1992	Organization Science	1-3(2); 2-3(1)	59 US minicomputer firms founded between 1968 and 1971	Longitudinal archival data	GLS regression with three-way interactions	Upper echelons theory; Organizational learning theory	CEO succession (especially inside succession) combined with TMT change and strategic reorientation is likely to result to higher post-succession firm performance in turbulent environments.
Boeker and Goodstein, 1993	Academy of Management Journal	2-1	231 CEO succession events at 67 US firms in the semi-conductor industry over a 22 years period	Longitudinal archival data and qualitative interviews	Logistic regression	Agency theory	The number of executive and inside board members interacts with pre-succession firm performance to affect the succession origin of new CEOs.
Kesner and Dalton, 1994	Journal of Management Studies	1-2; 2-3	84 US firms operating from various industries in 1980	Cross sectional archival data	OLS regression	Common sense theory; Ritual scapegoating theory	Outside CEO succession is associated with greater post-succession TMT turnover. Post-succession TMT turnover has, in turn, a curvilinear relationship with post-succession firm performance.
Westphal and Zajac, 1995	Administrative Science Quarterly	1-2; 2-1	413 Fortune/Forbes 500 companies from various industries between 1985 and 1991	Longitudinal archival data	GLS regression	Self-categorization; Agency theory	Powerful CEOs are likely to appoint board members who are demographically similar to themselves. Similarity between the CEO and board members eventually results to increasing CEO compensation.

Puffer and Weintrop, 1995	Leadership Quarterly	2-1	240 CEO successions in large US firms from various industries between 1978 and 1984	Longitudinal archival data	Logistic regression	Agency theory	The likelihood of appointing an outsider CEO decreases when the proportion of internal (executive) board members is high. This effect becomes more pronounced when the departing CEO has reached a retirement age.
Zajac and Westphal, 1996	Academy of Management Journal	2-1	413 Fortune/Forbes 500 companies from various industries between 1985 and 1991	Longitudinal archival data	GLS regression	Upper echelons theory; Self-categorization theory; Power theory	Characteristics of incumbent directors determine the attributes of CEO successors. Outsider CEO successors are more likely to be similar to incumbent board members than internally promoted ones.
Tushman and Rosenkopf, 1996	Management Science	1-2; 1-3(2)	59 US firms in the cement industry between 1918 and 1993	Longitudinal archival data	GLS regression	Upper echelons theory; Organizational learning theory	CEO succession has important effects on strategic reorientation and performance growth. This is more pronounced under conditions of high post-succession executive team change and environmental turbulence.
Ward, Bishop and Sonnenfeld, 1999	Journal of Organizational Behavior	1-2	456 CEO succession events at the largest 1000 US listed companies from various industries between 1988 and 1992	Longitudinal archival data	OLS regression	Agency theory	Outside CEO successors are more likely to alter TMT composition at the post-succession stage. This relationship is moderated by firm level characteristics such as poor firm performance and takeover or merger with another firm.
Westphal, 1999	Academy of Management Journal	1-2; 1-2-2-3	243 CEOs and 564 outside directors in 600 US industrial and service firms	Longitudinal archival data and cross sectional survey data	OLS regression	Agency theory; Stewardship theory	CEO's incentive alignment and friendship ties with other board members increase board participation in decision making and, in turn, positively impacts firm performance.

Flood, Hannan, Smith, Turner, West and Dawson, 2000	European Journal of Work and Organizational Psychology	1-2	79 high technology firms in USA and Ireland	Cross sectional survey data	OLS regression	Upper echelons theory; Leadership theory	CEO transformational leadership style is positively related with TMT decision making consensus and effectiveness.
Carpenter, Sanders and Gregersen, 2001	Academy of Management Journal	1-3(2)	245 US multinational firms from various industries in 1993	Cross sectional archival data	OLS regression	Upper echelons theory; Resource based view	CEO international experience is positively related with firm performance. This relationship is more pronounced when the TMT is composed of members with diverse international experience.
Carpenter and Wade, 2002	Academy of Management Journal	1-2	90 large publicly listed US firms from various industries between 1981 to 1985	Longitudinal survey data	GLS regression	Upper echelons theory; Resource dependency theory; Similarity attraction theory; Organization theory	Non-CEO executives who are similar to the CEO are more likely to receive higher cash compensation.
Shen and Cannella, 2002a	Academy of Management Journal	2-3(1)	300 US listed organizations from various industries between 1988 and 1994	Longitudinal archival data	OLS regression	Upper echelons theory; Power circulation theory	The performance effect of TMT executive turnover at the post CEO succession period conditionally depends on the origin of the new CEO. Outside successors are likely to have a negative moderating effect on the relationship between TMT turnover and post-succession firm performance.
Shen and Cannella, 2002b	Academy of Management Journal	2-1	387 US corporations from various industries over the period 1988 to 1997	Longitudinal archival data	Event history analysis	Upper echelons theory; Power circulation theory	The proportion of inside executive directors is positively related to CEO dismissal followed by inside CEO succession.

Peterson, Smith, Martorana and Owens, 2003	Journal of Applied Psychology	1-2; 1-2-2-3	17 CEOs from firms in various industries and countries	Q-Sort archival data and qualitative interviews	Inter-rater and canonical correlations	Upper echelons theory; Organizational demography theory	CEO personality attributes such as conscientiousness, emotional instability, agreeableness, extraversion and openness are likely to affect TMT dynamics that, in turn, influence firm performance.
Jensen and Zajac, 2004	Strategic Management Journal	1-3(2) 2-3(1)	280 corporations from the Fortune-500 list between 1985 and 1995. Firms were operating in various industries	Longitudinal archival data	Logistic regression	Upper echelons theory; Agency theory	Having CEOs with background in finance and non-CEO executive board members with non-finance background results to greater levels of diversification and acquisition activities.
Maitlis, 2004	Organization studies	1-2	2 firm cases	Qualitative case study	Longitudinal case studies	Agency theory; Managerial hegemony theory	CEOs affect the performance of the TMT through his or her influence on TMT dynamics and processes.
Zhang and Rajagopalan, 2004	Academy of Management Journal	2-1	204 CEO succession events in 184 US firms from various industries between 1993-1998	Longitudinal archival data	OLS regression	Upper echelons theory; Organizational learning theory; Contingency theory	The higher number of internal executive candidates for the CEO position, the lower the likelihood of relay CEO succession.
Simsek, Veiga, Lubatkin and Dino, 2005	Academy of Management Journal	1-2	402 US firms from various industries	Cross-sectional survey data	SEM	Upper echelons theory; Self-categorization theory; Similarity attraction theory	CEO tenure and collectivistic orientation is positively related with TMT behavioral integration.

Boeker and Wiltbank, 2005	Organization Science	1-2	86 US semiconductor firms founded between 1983-1995	Longitudinal archival data	GLS regression	Life cycle perspective	High CEO ownership results to more changes at the TMT level owing to outbound mobility of executive members.
Chen, Tjosvold and Liu, 2006	Journal of Management Studies	2-1; 2-1-1-3	105 Chinese firms from various industries	Cross sectional survey data	SEM	Theory of cooperation and competition	Cooperative goals at the TMT level increase CEO leadership effectiveness that, in turn, results to organizational innovation.
Karaevli, 2007	Strategic Management Journal	1-3(2)	163 CEO successions occurred in the US Airline and Chemical industries between 1972 and 2002	Longitudinal archival data	OLS regression	Upper echelons theory, Organizational Learning and Adaptation Perspective	The effect of outside CEO succession on firm performance is positively moderated by post-succession TMT change. It is also affected by other characteristics of the internal and external environment of the firm.
Simsek, 2007	Strategic Management Journal	1-2; 1-2-2-3	495 CEOs in firms from various industries	Cross sectional survey data	SEM	Upper echelons theory	CEO tenure positively affects TMT risk taking propensity and entrepreneurial orientation that, in turn, results in higher firm performance.
Ling, Simsek, Lubatkin and Veiga, 2008	Academy of Management Journal	1-2; 1-2-2-3	152 US SMEs from various industries	Cross sectional survey and archival data	SEM	Upper echelons theory, Leadership theory, Agency theory	CEO transformational leadership influences TMT behavioral integration, risk taking propensity and decentralization of responsibilities that, in turn, foster corporate entrepreneurship.
Colbert, Brown, Bradley, and Barrick, 2008	Academy of Management Journal	1-2; 1-2-2-3	94 credit union firms in USA	Cross sectional survey data	SEM	Upper echelons theory, Strategic leadership theory, Transformational leadership theory	The relationship between CEO transformational leadership and firm performance is mediated by TMT goal congruence.

de Hoogh and den Hartog, 2008	Leadership Quarterly	1-2	73 interviews and 130 survey responses from CEOs in Dutch firms operating in different industries.	Qualitative interviews and cross sectional survey data	OLS regression	Not specified	CEOs with ethical leadership style positively affect TMT dynamics and performance.
Jansen, Gerard, Van den Bosch and Volberda, 2008	Journal of Management Studies	2-3(1)	211 Dutch branches of a large European firm operating in the banking industry	Cross sectional survey data	OLS regression	Upper echelons theory, Transformational leadership theory, Contingency theory	TMT shared vision and social integration positively affect organizational ambidexterity. This positive relationship is more pronounced when the CEO has a transformational leadership style.
Graffin, Wade, Porac and McNamee, 2008	Organization Science	1-2	366 large companies from the S&P 500 list at the end of 1992. Firms were operating in different industries.	Cross sectional archival data	OLS regression	Upper echelons theory, Agency theory	CEO status is negatively associated with average TMT compensation and positively related with the CEO-TMT pay gap. The latter relationship is moderated by subsequent firm performance.
Plambeck and Weber, 2010	Strategic Management Journal	2-1	220 CEOs in German firms from various industries	Cross sectional survey and archival data	OLS regression	Not specified	TMT functional diversity does not significantly affect CEO ambivalence in decision making.
Minichilli, Corbetta, McMillan, 2010	Journal of Management Studies	2-3(1)	113 Italian listed firms from various industries in 2005	Cross sectional survey data	OLS regression	Upper echelons theory, Faultlines theory, Social capital theory, Agency theory	There is a U-Shaped relationship between the proportion of family TMT members and firm performance. This relationship becomes more pronounced when the firm is led by a family CEO.
Cao, Simsek and Zhang, 2010	Journal of Management Studies	1-3(2)	122 Chinese High-Tech SMEs	Cross sectional survey data	OLS regression	Upper echelons theory	CEO network extensiveness in interaction with TMT communication richness, CEO-TMT functional complementarity and power decentralization result to increasing organizational ambidexterity.

Ramdani and van Witteloostuijn, 2010	British Journal of Management	1-3(2)	313 East Asian firms from various industries	Cross sectional survey data	OLS and quantile regressions	Agency theory, Stewardship theory	CEO duality is positively related to firm performance. This relationship is negatively moderated by board size.
Buyl, Boone, Hendriks and Matthyssens, 2011	Journal of Management Studies	2-3(1)	33 Dutch and Belgian Information Technology firms	Cross sectional survey data	OLS regression	Upper echelons theory, Information processing theory, Similarity attraction, Attraction selection attrition theory	CEO characteristics (i.e., common team specific experience with other executives, status as an owner and intrapersonal functional diversity) moderate the relationship between TMT functional diversity and firm performance.
Tang, Crossan, Rowe, 2011	Journal of Management Studies	1-3(2)	51 publicly traded firms from the US computer industry for the period 1997-2003	Cross sectional archival data	OLS regression	Neo-institutional perspective	CEO power is positively related to strategic deviance and performance extremeness. This relationship is less pronounced when board power is high.
Carmeli, Schaubroeck and Tishler, 2011	Leadership Quarterly	1-2-2-3	82 CEOs in US firms from various industries	Cross sectional survey data	SEM	Upper echelons theory, Leadership theory	CEO empowering leadership is positively related to TMT behavioral integration that, in turn, impacts firm performance positively.
Tian, Haleblian and Rajagopalan, 2011	Strategic Management Journal	2-3(1)	208 CEO succession events in US firms from various industries	Longitudinal archival data	OLS regression	Agency theory, Social capital theory	The positive effect of board experience and outside directorships on market reaction after the appointment of a new CEO is more pronounced when the CEO is hired from outside the firm.
Stoker, Grutterink and Kolk, 2012	Leadership Quarterly	1-2	38 CEOs and TMTs in Dutch firms from various industries	Cross sectional survey data	OLS regression	Upper echelons theory, Leadership theory	CEO transformational leadership is positively related TMT effectiveness. This relationship is negatively moderated by TMT feedback seeking behavior.

Carmeli, Tisher and Edmondson, 2012	Strategic Organization	1-2	77 CEOs and TMTs from firms operating in different industries. Data acquired through contact with the alumni of MBA programs in Israel.	Cross sectional survey data	SEM	Upper echelons theory; Social identity theory; Leader-member-exchange theory; Relational cognition theory	CEO relational leadership is positively associated with TMT learning behavior. This relationship is mediated by levels of trust among TMT members.

Appendix 2.1a
Endoigeneity test - Step 1: Probit model of external hiring

	Coef.	Std.Err
Intercept	-1.69***	(0.14)
Team size	0.01	(0.01)
Past performance	-0.60	(0.42)
Organizational complexity	-0.25*	(0.13)
CEO tenure	-0.04***	(0.01)
Environmental uncertainty	0.63	(1.56)
Year 2005	-0.05	(0.09)
Year 2006	0.04	(0.09)
Year 2007	*omitted*	*omitted*
Year 2008	0.02	(0.09)
Year 2009	0.05	(0.08)
CHE	-0.04	(0.10)
DEU	-0.10	(0.10)
NLD	*omitted*	*omitted*
GBR	-0.03	(0.11)
Industry external hiring rate	6.45***	(0.85)
Chi^2	109.53***	

N= 5365
† p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Appendix 2.1b
Endogeneity test - Step 2: Results of HLM Analysis with inverse Mills ratio included [a, b]

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	coef.	*coef.*	*coef.*	*coef.*	*coef.*	*coef.*
Intercept	2.16***	2.21***	2.22***	2.21***	2.21***	2.22***
	(0.25)	(0.25)	(0.25)	(0.25)	(0.25)	(0.25)
Inverse Mills ratio	-0.05	-0.06	-0.07	-0.06	-0.07	-0.07
	(0.13)	(0.12)	(0.13)	(0.12)	(0.12)	(0.12)
Level 3						
Year 2005	0.10†	0.09	0.09	0.09	0.10†	0.09
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Year 2006	-0.08	-0.08	-0.07	-0.08†	-0.08	-0.07
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Year 2007	*omitted*	*omitted*	*omitted*	*omitted*	*omitted*	*omitted*
Year 2008	-0.01	-0.01	-0.01	-0.02	-0.01	-0.01
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Year 2009	0.02	0.02	0.03	0.03	0.04	0.05
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
CHE	-0.05	-0.05	-0.05	-0.05	-0.05	-0.04
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
NLD	*omitted*	*omitted*	*omitted*	*omitted*	*omitted*	*omitted*
GBR	0.07	0.07	0.07	0.07	0.08	0.07
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
DEU	-0.24*	-0.24*	-0.24*	-0.24*	-0.23*	-0.24*
	(0.10)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
Environmental uncertainty	1.15	1.07	1.02	1.00	2.87*	2.72*
	(0.95)	(0.95)	(0.95)	(0.94)	(1.12)	(1.12)

Continued in the next page

Appendix 2.1b (Continued)
Endogeneity test - Step 2: Results of HLM Analysis with inverse Mills ratio included [a, b]

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	coef.	*coef.*	*coef.*	*coef.*	*coef.*	*coef.*
Level 2						
Team size (*log*)	0.03 (0.08)	0.01 (0.08)	0.02 (0.08)	0.01 (0.08)	0.01 (0.08)	0.01 (0.08)
Incumbent TMT diversity	0.33*** (0.06)	0.36*** (0.06)	0.35*** (0.06)	0.35*** (0.06)	0.35*** (0.06)	0.35*** (0.06)
Past performance (ROA)	0.62 (0.42)	0.64 (0.42)	0.60 (0.42)	0.63 (0.42)	0.65 (0.42)	0.62 (0.42)
Organizational complexity	0.64*** (0.16)	0.61*** (0.15)	0.63*** (0.16)	0.44* (0.18)	0.63*** (0.15)	0.49** (0.18)
CEO firm tenure (*log*)	-0.01 (0.02)	-0.02 (0.02)	-0.04 (0.03)	-0.01 (0.02)	-0.02 (0.02)	-0.05 (0.04)
Level 1						
Educational level	0.01 (0.02)	0.01 (0.02)	0.01 (0.02)	0.01 (0.02)	0.01 (0.02)	0.01 (0.02)
External appointment		-0.08* (0.04)	-0.07* (0.04)	-0.08* (0.04)	-0.08* (0.04)	-0.08* (0.03)
Cross-level interactions						
CEO firm tenure (log) X external appointment			0.06† (0.03)			0.05 (0.04)
Org. complexity X external appointment				0.38* (0.19)		0.34† (0.19)
Env. uncertainty X external appointment					-4.99** (1.70)	-4.83** (1.69)
Deviance: -2*e(ll)	565.88***	561.18***	557.93***	557.26***	552.60***	546.74***

[a] Individual level: N= 567, firm/team level: N=167, industry level: N=38
[b] Standard errors are indicated in parentheses
† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Appendix 3.1a
Heckman step 1: Probit model of outside CEO succession

	Coef.	Std.Err
Intercept	-1.92***	0.21
Team size	0.02	0.02
Past performance	-2.16**	0.80
Industry munificence	0.43	0.80
Employees	-0.00	0.00
Year 2005	0.01	0.15
Year 2006	-0.15	0.16
Year 2007	-0.29†	0.17
Year 2008	-0.01	0.15
Year 2009	*omitted*	*omitted*
CHE	0.11	0.14
GBR	0.11	0.14
NLD	-0.15	0.17
DEU	*omitted*	*omitted*
Industry outside succession rate	5.29***	0.60
Chi^2	106.09***	

N= 1426
† p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Appendix 3.1b
Heckman step 2: OLS regression with inverse Mills ratio included [a]

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	0.08	0.07	0.09	0.11	0.07	0.15†
	(0.09)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Pre-succession firm performance	0.66***	0.72***	0.71***	0.75***	0.72***	0.74***
	(0.12)	(0.12)	(0.12)	(0.12)	(0.13)	(0.12)
Post-succession change in DOI	0.03	-0.01	-0.02	-0.02	-0.01	-0.04
	(0.09)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Firm size (employees)	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00	(0.00)
Team size	0.00	0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Post-succession TMT change	-0.00	-0.00	0.00	-0.01	0.00	0.01
	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)
Industry munificence	0.09	0.07	0.11	0.03	0.08	0.08
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.11)
Country level CEO discretion	-0.02*	-0.02†	-0.02†	-0.02*	-0.02†	-0.02*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Year 2005	0.02	0.02	0.02	0.02	0.02	0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Year 2006	-0.02	-0.02	-0.01	-0.02	-0.02	-0.00
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Year 2007	-0.03	-0.02	-0.02	-0.02	-0.02	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Year 2008	-0.02	-0.02	-0.02	-0.01	-0.02	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Year 2009	*Omitted*	*Omitted*	*Omitted*	*Omitted*	*Omitted*	*Omitted*
CEO educational qualification	-0.00	-0.00	-0.00	0.00	-0.00	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
CEO-TMT similarity	0.02	0.05	-0.00	0.05	0.05	-0.04
	(0.05)	(0.05)	(0.06)	(0.05)	(0.05)	(0.05)
CEO international exp. diversity	0.02	0.02	0.02	-0.01	0.02	-0.02
	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)	(0.03)
Outside CEO succession		-0.03*	-0.14*	-0.07**	-0.03	-0.24**
		(0.01)	(0.06)	(0.02)	(0.02)	(0.07)
CEO-TMT similarity X Outside CEO origin			0.15†			0.23**
			(0.08)			(0.08)
CEO international exp. diversity X Outside CEO origin				0.09*		0.13**
				(0.04)		(0.04)
Post-succession TMT change X Outside CEO origin					-0.01	-0.04
					(0.06)	(0.06)
Inverse Mills ratio	0.01	-0.01	-0.00	-0.01	-0.01	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
R-Squared	0.37	0.41	0.43	0.44	0.41	0.50
F	3.50***	3.78***	3.87***	4.02***	3.52***	4.36***

N= 104; † p<0.10; * p<0.05; ** p<0.01; *** p<0.001

[a] Unstandardized coefficients are reported. Standard errors are indicated in brackets.

Appendix 3.2
OLS regression with ROA industry adjusted as dependent variable[a]

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	-0.00 (0.07)	-0.02 (0.07)	0.01 (0.07)	0.00 (0.07)	-0.02 (0.08)	0.05 (0.07)
Pre-succession firm performance	0.47*** (0.13)	0.47*** (0.13)	0.44*** (0.12)	0.49*** (0.12)	0.48*** (0.13)	0.45** (0.12)
Post-succession change in DOI	0.04 (0.08)	0.03 (0.08)	0.02 (0.08)	0.02 (0.08)	0.03 (0.08)	0.00 (0.07)
Firm size (employees)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Team size	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Post-succession TMT change	0.03 (0.03)	0.03 (0.03)	0.03 (0.03)	0.02 (0.03)	0.02 (0.03)	0.03 (0.03)
Industry munificence	0.06 (0.11)	0.06 (0.11)	0.09 (0.11)	0.03 (0.11)	0.05 (0.11)	0.07 (0.11)
Country level CEO discretion	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Year 2005	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)
Year 2006	-0.00 (0.02)	-0.00 (0.02)	0.01 (0.02)	-0.01 (0.02)	-0.00 (0.02)	0.01 (0.02)
Year 2007	-0.02 (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.01 (0.02)
Year 2008	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	0.00 (0.02)
Year 2009	*Omitted*	*Omitted*	*Omitted*	*Omitted*	*Omitted*	*Omitted*
CEO educational qualification	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)
CEO-TMT similarity	0.00 (0.04)	0.02 (0.04)	-0.04 (0.05)	0.02 (0.04)	0.02 (0.04)	-0.06 (0.05)
CEO international exp. diversity	0.01 (0.02)	0.01 (0.02)	0.01 (0.02)	-0.01 (0.02)	0.01 (0.02)	-0.02 (0.02)
Outside CEO succession		-0.02 (0.01)	-0.13* (0.05)	-0.04* (0.02)	-0.02 (0.02)	-0.21** (0.06)
CEO-TMT similarity X Outside CEO origin			0.15* (0.07)			0.22** (0.08)
CEO international exp. diversity X Outside CEO origin				0.06† (0.04)		0.10* (0.04)
Post-succession TMT change X Outside CEO origin					-0.02 (0.06)	0.00 (0.06)
R-Squared	0.24	0.26	0.29	0.28	0.26	0.34
F	1.97*	2.01*	2.23**	2.10*	1.88*	2.47**

N= 104; † p<0.10; * p<0.05; ** p<0.01; *** p<0.001

[a] Unstandardized coefficients are reported. Standard errors are indicated in brackets.

Appendix 3.3
OLS regression with ROA year adjusted as dependent variable[a]

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	0.06 (0.08)	0.03 (0.08)	0.06 (0.08)	0.06 (0.08)	0.03 (0.08)	0.11 (0.08)
Pre-succession firm performance	0.67*** (0.12)	0.71*** (0.12)	0.71*** (0.12)	0.73*** (0.12)	0.71*** (0.12)	0.73*** (0.11)
Post-succession change in DOI	0.02 (0.08)	-0.00 (0.08)	-0.02 (0.08)	-0.01 (0.08)	-0.00 (0.08)	-0.04 (0.08)
Firm size (employees)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Team size	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Post-succession TMT change	-0.00 (0.03)	-0.00 (0.03)	0.00 (0.03)	-0.01 (0.03)	0.00 (0.04)	0.01 (0.03)
Industry munificence	0.08 (0.12)	0.07 (0.12)	0.10 (0.12)	0.03 (0.12)	0.07 (0.12)	0.08 (0.12)
Country level CEO discretion	-0.02* (0.01)	-0.02† (0.01)	-0.02† (0.01)	-0.02* (0.01)	-0.02† (0.01)	-0.02* (0.01)
Year 2005	0.00 (0.02)	0.00 (0.02)	0.00 (0.02)	0.00 (0.02)	0.00 (0.02)	0.00 (0.02)
Year 2006	0.01 (0.02)	0.01 (0.02)	0.02 (0.02)	0.00 (0.02)	0.01 (0.02)	0.02 (0.02)
Year 2007	0.02 (0.02)	0.02 (0.02)	0.03 (0.02)	0.02 (0.02)	0.02 (0.02)	0.03 (0.02)
Year 2008	0.01 (0.02)	0.01 (0.02)	0.02 (0.02)	0.02 (0.02)	0.01 (0.02)	0.02 (0.02)
Year 2009	*Omitted*	*Omitted*	*Omitted*	*Omitted*	*Omitted*	*Omitted*
CEO educational qualification	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)	0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)
CEO-TMT similarity	0.02 (0.05)	0.05 (0.05)	-0.01 (0.06)	0.05 (0.05)	0.05 (0.05)	-0.04 (0.05)
CEO international exp. diversity	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	-0.01 (0.03)	0.02 (0.02)	-0.02 (0.02)
Outside CEO succession		-0.03* (0.01)	-0.14* (0.06)	-0.06** (0.02)	-0.03 (0.02)	-0.24** (0.07)
CEO-TMT similarity X Outside CEO origin			0.15† (0.08)			0.24** (0.08)
CEO international exp. diversity X Outside CEO origin				0.09* (0.04)		0.13** (0.04)
Post-succession TMT change X Outside CEO origin					-0.01 (0.06)	-0.04 (0.06)
R-Squared	0.34	0.38	0.41	0.41	0.38	0.47
F	3.30***	3.61***	3.71***	3.84***	3.35***	4.21***

N= 104; † p<0.10; * p<0.05; ** p<0.01; *** p<0.001

[a] Unstandardized coefficients are reported. Standard errors are indicated in brackets.

Appendix 4.1
Sensitivity analysis with 90 percent complete experience faultlines data[a]

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Intercept	0.01 (0.03)	0.07† (0.04)	0.10* (0.05)	0.04 (0.05)	0.12* (0.05)	0.13** (0.05)	0.17** (0.06)
Industry munificence	-0.01 (0.05)	-0.00 (0.05)	0.00 (0.05)	0.00 (0.05)	-0.01 (0.05)	-0.01 (0.05)	-0.01 (0.05)
CEO country level managerial discretion	0.01† (0.01)	0.01* (0.01)	0.01* (0.01)	0.01† (0.00)	0.01† (0.01)	0.01† (0.01)	0.01 (0.01)
Year 2005	0.01† (0.01)	0.01* (0.01)	0.01* (0.01)	0.02* (0.01)	0.01* (0.01)	0.02* (0.01)	0.01* (0.01)
Year 2006	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)	0.00 (0.01)	-0.00 (0.01)
Year 2007	-0.02** (0.01)	-0.02** (0.01)	-0.02*** (0.01)	-0.02** (0.01)	-0.02*** (0.01)	-0.02** (0.01)	-0.02** (0.01)
Year 2008	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Year 2009	*Omitted*	*Omitted*	*Omitted*	*Omitted*	*Omitted*	*Omitted*	*Omitted*
Past performance (ROA)	0.57*** (0.05)	0.56*** (0.05)	0.56*** (0.05)	0.55*** (0.05)	0.58*** (0.05)	0.54*** (0.05)	0.56*** (0.05)
Firm size (log)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
TMT size (log)	-0.01 (0.01)	-0.02* (0.01)	-0.02* (0.01)	-0.02* (0.01)	-0.02† (0.01)	-0.02* (0.01)	-0.02* (0.01)
CEO tenure	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
CEO career length	-0.00** (0.00)	-0.00*** (0.00)	-0.00*** (0.00)	-0.00** (0.00)	-0.00** (0.00)	-0.00** (0.00)	-0.00** (0.00)
CEO TLAP	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.01* (0.00)	-0.01† (0.01)	-0.02** (0.01)
CEO exp. diversity	0.01 (0.01)	0.00 (0.01)	-0.03 (0.02)	0.04 (0.03)	0.00 (0.01)	0.00 (0.01)	-0.02 (0.03)
Experience faultlines		-0.06*** (0.02)	-0.14** (0.05)	-0.06*** (0.02)	-0.15*** (0.04)	-0.06*** (0.02)	-0.25*** (0.06)
Social faultlines		-0.02 (0.02)	-0.02 (0.02)	0.04 (0.04)	-0.02 (0.02)	-0.08* (0.03)	-0.02 (0.05)
Experience Fau X CEO exp. diversity			0.08† (0.04)				0.10* (0.04)
Social Fau X CEO exp. diveristy				-0.05 (0.04)			-0.04 (0.04)
Experience Fau X CEO TLAP					0.02** (0.01)		0.02* (0.01)
Social Fau X CEO TLAP						0.02* (0.01)	0.01† (0.01)
R^2	0.45	0.46	0.47	0.46	0.47	0.47	0.48
Wald X^2	205.57***	215.4***	220.8***	220.7***	231.9***	222.2***	242.3***

N= 434; † p<0.10, * p<0.05, ** p<0.01, *** p<0.001

[a] Unstandardized coefficients are reported. Standard errors are indicated in brackets

Appendix 4.2
Random effects GLS regression analysis with ROA year-adjusted as dependent variable[a]

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Intercept	-0.03 (0.03)	0.02 (0.05)	0.06 (0.05)	-0.01 (0.05)	0.07 (0.05)	0.07 (0.05)	0.13* (0.07)
Industry munificence	-0.02 (0.05)	-0.02 (0.05)	-0.01 (0.05)	-0.01 (0.05)	-0.02 (0.05)	-0.02 (0.05)	-0.02 (0.05)
CEO country level discretion	0.01* (0.01)	0.01* (0.01)	0.01* (0.01)	0.01* (0.01)	0.01* (0.01)	0.01† (0.01)	0.01† (0.01)
Year 2005	-0.01 (0.01)	-0.00 (0.01)	-0.01 (0.01)	-0.00 (0.01)	-0.01 (0.01)	-0.00 (0.01)	-0.00 (0.01)
Year 2006	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)
Year 2007	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
Year 2008	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
Year 2009	*Omitted*	*Omitted*	*Omitted*	*Omitted*	*Omitted*	*Omitted*	*Omitted*
Past performance (ROA)	0.59*** (0.05)	0.58*** (0.05)	0.58*** (0.05)	0.57*** (0.05)	0.60*** (0.05)	0.56*** (0.05)	0.58*** (0.05)
Firm size (log)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
TMT size (log)	-0.01 (0.01)	-0.02 (0.01)	-0.02 (0.01)	-0.02† (0.01)	-0.02 (0.01)	-0.02 (0.01)	-0.02 (0.01)
CEO tenure	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
CEO career length	-0.00* (0.00)	-0.00** (0.00)	-0.00** (0.00)	-0.00** (0.00)	-0.00* (0.00)	-0.00* (0.00)	-0.00* (0.00)
CEO TLAP	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.01* (0.00)	-0.01 (0.01)	-0.02* (0.01)
CEO exp. diversity	0.01 (0.01)	0.00 (0.01)	-0.03 (0.02)	0.03 (0.03)	0.00 (0.01)	0.00 (0.01)	-0.03 (0.04)
Experience faultlines		-0.05** (0.02)	-0.13** (0.05)	-0.05** (0.02)	-0.14*** (0.04)	-0.05** (0.02)	-0.25*** (0.07)
Social faultlines		-0.01 (0.02)	-0.01 (0.02)	0.04 (0.05)	-0.01 (0.02)	-0.07* (0.04)	-0.02 (0.06)
Experience Fau X CEO exp. diversity			0.08† (0.05)				0.11* (0.05)
Social Fau X CEO exp. diversity				-0.05 (0.04)			-0.04 (0.04)
Experience Fau X CEO TLAP					0.02* (0.01)		0.02* (0.01)
Social Fau X CEO TLAP						0.01* (0.01)	0.01 (0.01)
R^2	0.42	0.43	0.43	0.43	0.44	0.43	0.45
Wald X^2	189.0***	196.4***	199.1***	200.1***	209.2***	200.2***	214.2***

N= 386; † p<0.10, * p<0.05, ** p<0.01, *** p<0.001

[a] Unstandardized coefficients are reported. Standard errors are indicated in brackets

Appendix 4.3
Sensitivity analysis with only social faultlines and without CEO career experience

	Model 1	Model 2	Model 3
Intercept	0.04 (0.03)	0.06† (0.04)	0.12** (0.04)
Industry munificence	-0.02 (0.03)	-0.02 (0.03)	-0.02 (0.03)
CEO country level discretion	0.01 (0.01)	0.00 (0.01)	0.00 (0.00)
Year 2005	0.01* (0.01)	0.01† (0.01)	0.01* (0.01)
Year 2006	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)
Year 2007	-0.02*** (0.01)	-0.02*** (0.01)	-0.02*** (0.01)
Year 2008	-0.01* (0.01)	-0.01* (0.01)	-0.01* (0.01)
Year 2009	*Omitted*	*Omitted*	*Omitted*
Past performance (ROA)	0.29*** (0.04)	0.29*** (0.04)	0.28*** (0.04)
Firm size (log)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
TMT size (log)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
CEO tenure	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
CEO career length	-0.00* (0.00)	-0.00** (0.00)	-0.00** (0.00)
CEO TLAP	0.00 (0.00)	0.00 (0.00)	-0.01** (0.01)
Social faultlines		-0.02 (0.02)	-0.09*** (0.03)
Social Fau X CEO TLAP			0.02*** (0.01)
R^2	0.29	0.29	0.29
Wald X^2	105.4***	105.7***	119.6***

N= 892; † p<0.10, * p<0.05, ** p<0.01, *** p<0.001

[a] Unstandardized coefficients are reported. Standard errors are indicated in brackets

Appendix 4.4a
Random effects GLS regression analysis: Multiple subgroups and TMT size above five members[a]

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Intercept	-0.02 (0.07)	-0.00 (0.07)	0.00 (0.08)	0.00 (0.08)	-0.00 (0.07)	-0.03 (0.08)	-0.01 (0.08)
Industry munificence	-0.06 (0.05)	-0.06 (0.05)	-0.06 (0.05)	-0.06 (0.05)	-0.06 (0.05)	-0.05 (0.05)	-0.05 (0.05)
CEO country level discretion	0.02* (0.01)	0.02† (0.01)	0.02† (0.01)	0.02† (0.01)	0.02† (0.01)	0.02† (0.01)	0.02† (0.01)
Year 2005	0.02*** (0.01)	0.02*** (0.01)	0.02*** (0.01)	0.02*** (0.01)	0.02*** (0.01)	0.02*** (0.01)	0.02*** (0.01)
Year 2006	0.01† (0.01)	0.01* (0.01)	0.01† (0.01)	0.01† (0.01)	0.01* (0.01)	0.01* (0.01)	0.01* (0.01)
Year 2007	-0.01* (0.01)	-0.01* (0.01)	-0.01* (0.01)	-0.01* (0.01)	-0.01* (0.01)	-0.01* (0.01)	-0.01* (0.01)
Year 2008	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Year 2009	*Omitted*	*Omitted*	*Omitted*	*Omitted*	*Omitted*	*Omitted*	*Omitted*
Past performance (ROA)	0.40*** (0.10)	0.41*** (0.10)	0.41*** (0.10)	0.40*** (0.10)	0.41*** (0.10)	0.41*** (0.10)	0.42*** (0.10)
Firm size (log)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
TMT size (log)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)
CEO tenure	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
CEO career length	-0.00† (0.00)	-0.00† (0.00)	-0.00† (0.00)	-0.00† (0.00)	-0.00† (0.00)	-0.00† (0.00)	-0.00† (0.00)
CEO TLAP	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.01)	0.00 (0.01)
CEO exp. diversity	-0.00 (0.01)	-0.01 (0.01)	-0.01 (0.02)	-0.01 (0.03)	-0.01 (0.01)	-0.01 (0.01)	-0.02 (0.03)
Experience faultlines		-0.00 (0.01)	-0.01 (0.04)	-0.00 (0.01)	-0.01 (0.03)	-0.00 (0.01)	-0.03 (0.05)
Social faultlines		-0.02 (0.02)	-0.02 (0.02)	-0.03 (0.06)	-0.02 (0.02)	0.02 (0.05)	0.02 (0.08)
Experience Fau X CEO exp. diversity			0.01 (0.03)				0.01 (0.03)
Social Fau X CEO exp. diversity				0.01 (0.06)			0.01 (0.06)
Experience Fau X CEO TLAP					0.00 (0.01)		0.00 (0.01)
Social Fau X CEO TLAP						-0.01 (0.01)	-0.01 (0.01)
R^2	0.49	0.49	0.49	0.49	0.49	0.49	0.49
Wald X^2	69.5***	69.4***	69.38***	68.67***	68.88***	69.8***	68.9***

N= 190; † p<0.10, * p<0.05, ** p<0.01, *** p<0.001

[a] Unstandardized coefficients are reported. Standard errors are indicated in brackets

Appendix 4.4b
Random effects GLS regression analysis: Multiple subgroups[a]

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Intercept	-0.01 (0.03)	-0.01 (0.04)	-0.01 (0.04)	-0.01 (0.04)	-0.01 (0.04)	0.02 (0.04)	0.05 (0.05)
Industry munificence	-0.02 (0.05)	-0.01 (0.05)	0.00 (0.05)	-0.01 (0.05)	0.00 (0.05)	-0.01 (0.05)	0.01 (0.05)
CEO country level discretion	0.01* (0.01)	0.01* (0.01)	0.01* (0.01)	0.01* (0.01)	0.01* (0.01)	0.01* (0.01)	0.01* (0.01)
Year 2005	0.01 (0.01)	0.01† (0.01)	0.01† (0.01)	0.01† (0.01)	0.01† (0.01)	0.01† (0.01)	0.01† (0.01)
Year 2006	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)
Year 2007	-0.02** (0.01)	-0.02** (0.01)	-0.02** (0.01)	-0.02*** (0.01)	-0.02*** (0.01)	-0.02** (0.01)	-0.02*** (0.01)
Year 2008	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Year 2009	*Omitted*	*Omitted*	*Omitted*	*Omitted*	*Omitted*	*Omitted*	*Omitted*
Past performance (ROA)	0.59*** (0.05)	0.56*** (0.05)	0.58*** (0.05)	0.56*** (0.05)	0.58*** (0.05)	0.56*** (0.05)	0.58*** (0.05)
Firm size (log)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
TMT size (log)	-0.00 (0.01)	-0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
CEO tenure	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
CEO career length	-0.00* (0.00)	-0.00** (0.00)	-0.00** (0.00)	-0.00** (0.00)	-0.00* (0.00)	-0.00** (0.00)	-0.00** (0.00)
CEO TLAP	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.01 (0.01)
CEO exp. diversity	0.01 (0.01)	0.00 (0.01)	0.02 (0.01)	0.00 (0.03)	0.00 (0.01)	0.00 (0.01)	0.02 (0.03)
Experience faultlines		-0.04*** (0.01)	-0.09** (0.03)	-0.04*** (0.01)	-0.10*** (0.03)	-0.04*** (0.01)	0.14*** (0.04)
Social faultlines		-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.05)	-0.00 (0.02)	-0.04 (0.04)	-0.04 (0.06)
Experience Fau X CEO exp. diversity			0.05 (0.03)				0.04 (0.03)
Social Fau X CEO exp. diversity				0.00 (0.05)			0.01 (0.05)
Experience Fau X CEO TLAP					0.01** (0.01)		0.01* (0.01)
Social Fau X CEO TLAP						0.01 (0.01)	0.01 (0.01)
R^2	0.43	0.45	0.45	0.45	0.45	0.45	0.46
Wald X^2	202.2***	215.5***	221.5***	211.5***	222.3***	214.3***	218.8***

N= 386; † p<0.10, * p<0.05, ** p<0.01, *** p<0.001

[a] Unstandardized coefficients are reported. Standard errors are indicated in brackets

Curriculum Vitae

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ACADEMIC POSITIONS

2014 –	Senior Research Fellow. Research Institute for International Management, University of St. Gallen, Switzerland.
2014 –	Research Project Leader. SCOPES, Swiss National Science Foundation (SNSF).
2013 –	Research Consultant, Competence Center for Diversity and Inclusion (CCDI), University of St. Gallen, Switzerland.
2009 – 2014	Research Assistant, Research Institute for International Management (FIM-HSG), University of St. Gallen, Switzerland.

EDUCATION

2009 – 2014	Ph.D. (Distinction) in Strategic Management, University of St. Gallen, Switzerland
2007 – 2008	M. Sc. (Distinction) in Management, Brunel University, London, United Kingdom.
2001 – 2004	B. Sc. (Hons) in Business Administration, Technological Institute of Larissa, Greece.

PRACTICAL EXPERIENCE

2008 – 2009	Research Consultant, Gnosis Management Consultants, London, United Kingdom.
2006 – 2007	Direct Assistant of the CEO, Euromedic International, Athens, Greece.
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