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**The impact of CEO humility on strategic choices and
management control systems**

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List of Abbreviations

AVE	Average Variance Extracted
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CR	Composite Reliability
CSE	Core Self-Evaluation
GLS	Generalized Least Squares
MCS	Management Control Systems
PMS	Performance Measurement System
R&D	Research and Development
ROA	Return on Assets
P&E	Plant and Equipment
SIC	Standard Industrial Classification
SGA	Selling, General and Administrative (expenses)
US	United States
USD	United States Dollar
TMT	Top Management Team = Management board in this research

A Introduction

A.1 Research motivation

“In the face of the complex, multitudinous, and ambiguous information that typifies top management task, no two strategists will identify the same array of options for the firm; they will rarely prefer the same options; if, by remote chance, they were to pick the same options, they almost certainly would not implement them identically.” (Hambrick, 1989)

By virtue of their positions, top managers make major decisions, thereby setting the framework and boundaries within which the entire company operates (Finkelstein et al., 2009). Because each top manager responds differently to complex situations and decisions (Hambrick, 1989), variations among top managers operate as antecedents of organizational behavior (Hambrick & Mason, 1984). The view that the specific characteristics and personalities of top managers matter has inspired a broad body of management research on their many strategic choices and actions. Scholars have been able to both theoretically and empirically connect individual top executives to the calculated decisions made by their respective companies and to the organizational outcomes of these decisions (Bertrand & Schoar, 2003; Hambrick, 2007). Thus, company actions are shaped not only by external environmental factors but also by the interpretations, preferences, and decision-making processes of their main actors; as such, top managers matter (Child, 1972; Hambrick & Mason, 1984).

The research on the influence of top managers has stimulated work in the field of strategy and management studies as well as in economics, finance, psychology, and accounting. The studied characteristics of top managers are as myriad as the studied organizational outcomes. In the case of the former, the literature includes studies of age, tenure, career experience, functional

background, ties to persons inside or outside the company, and in the case of the latter the individual's impact on performance, strategy, internationalization, and acquisitions (see Bromiley & Rau, 2016; Carpenter et al., 2004; Finkelstein et al., 2009 for reviews).

As the research on the impact of personality traits of top managers in this context still is rather sparse and to advance the knowledge about the impact of Chief Executive Officers' (CEO) characteristics on strategic choices and organizational outcomes, I studied the association between CEO humility and various aspects of strategic change. My research deals with, first, the level of initiation; second, the financial impact of strategic change; and, lastly, the use of management control systems (MCS) as tools to implement, communicate, and monitor strategic change to ensure financial success. Prior research has shown promising results when integrating CEO personality and research on initiation, implementation, and monitoring of strategic change; however, there remains a dearth of empirical research on how leadership humility impacts organizations (Owens & Hekman, 2012) – this is particularly relevant as the modern economy has been shown to value humility because it fosters learning capabilities (Owens et al., 2011) and the potential impact of humility's features of selflessness and respect to the overall organization (Argandona, 2015). Frostenson (2016) even argues that “leadership scholars interested in humility have no reason to portray humility as a virtue contrary to the nature of business, but, most likely, in line with its very nature. (Frostenson, 2016, p. 100).

In particular, my research aimed to understand the tenure-related circumstances under which humble CEOs initiate strategic change; if their humility helps their companies to become financially successful when implementing strategic change; and how they use MCSs during this process, as MCS play an acknowledged role in the implementation, formulation, and communication of strategy (Chenhall & Langfield-Smith, 2003; Henri, 2006; Simons, 1991, 1994).

“Considering their combined roles in strategy formulation, strategy implementation, and leadership, there would seem to be ample scope for CEOs to place their marks on their organizations—for good and for ill.” (Hambrick & Quigley, 2014, p. 476)

Most existing research relied on demographic characteristics as proxies for underlying (personality) traits and experience when studying the impact on different strategic decisions and organizational outcomes. Already Hambrick and Mason (1984) have acknowledged the flaws associated with such proxies and consequently scholars have called for studies that use richer personality variables (e.g., Marcóczy, 1997; Priem et al., 1999; Resick et al., 2009). Extant research on the associations between personality traits and the initiation and implementation of strategic change has confirmed the utility of such an approach and has gained momentum but insights remain limited (Herrmann & Nadkarni, 2014). Examples of such personality traits scholars have been studying include locus of control and need for achievement (Miller et al., 1982; Miller & Toulouse, 1986), narcissism (Chatterjee & Hambrick, 2007, 2011), hubris (Hayward & Hambrick, 1997), core self-evaluation (Simsek et al., 2010), and the “Big Five” personality dimensions (Conscientiousness, Neuroticism, Agreeableness, Extraversion, and Openness) (Herrmann & Nadkarni, 2014; Peterson et al., 2003). Early evidence has indicated that also the humility level of the CEO closely relates to the initiation of strategic change and the performance impact of such action (Collins, 2001); yet research on the performance impact of CEO humility remains a fundamental but unexplored issue (Ou et al., 2015) and in general the outcomes of humility lack empirical testing (Owens & Hekman, 2012).

Consequently, my focus was on the impact of CEO humility on the strategy process and choices and processes related to strategic change and on the implementation of and control over such change. To my knowledge, no study has empirically linked CEO humility to decisions on

strategic change (see Bromiley & Rau, 2016). It is a subject long overdue, given established associations between humility and change, in general (Owens & Hekman, 2012) as well as innovation (Vera & Rodriguez-Lopez, 2004) and learning (Morris et al., 2005; Vera & Rodriguez-Lopez, 2004). Further, humility relates to an explicit focus on high-quality interactions with colleagues and subordinates (Davis et al., 2011; Nielsen et al., 2010; Owens et al., 2013), a facet particularly important to the implementation of strategic change.

Humility is considered a virtue by most scholars (Tangney, 2000; Vera & Rodriguez-Lopez, 2004). They have highlighted key elements such as the ability to nondefensively understand one's strength and weaknesses and to accurately evaluate success and failure (Vera & Rodriguez-Lopez, 2004) while remaining open minded, willing to learn (Exline & Geyer, 2004; Morris et al., 2005), and appreciating others and seeing them as nonthreatening (Owens & Hekman, 2012). Humility still means taking credit for one's contributions (Devers et al., 2011) as humble persons occupy the middle of a spectrum between arrogance and lack of self-esteem (Vera & Rodriguez-Lopez, 2004), having neither self-deprecating nor grandiose self-regard (Morris et al., 2005; Nielsen et al., 2010; Tangney, 2000).

Most of the existing research on the effects of CEO humility lack empirical support (O'c et al., 2015; Owens & Hekman, 2012; Rego et al., 2017). Furthermore, the focus of humility research has been on individual-level and team-level outcomes and less so on the organization level (Wang et al., 2018). Hence, I aimed at building on existing research and advancing the knowledge about organizational outcomes of CEO humility.

A.2 Research objectives

In this research project, I sought to answer three interrelated, yet distinct research objectives related to the association of CEO humility with:

- The initiation of strategic change (research objective 1)
- The successful implementation of strategic change / ensuing financial impact (research objective 2)
- The applied means of managing strategic change using the example of Management Control Systems (MCS) (research objective 3)

The impact of CEO humility on the entire process of strategic change is the overarching theme of my study. I consider from the initiation to outcomes as well as managing the outcomes instead of randomly picking one of these interrelated aspects. First, I researched whether CEO humility distinctively influenced the relevance of the CEO-TMT interface in terms of the level of strategic change that CEOs initiate during their tenure, depending on the average tenure of their TMTs. Second, I examined whether CEO humility moderated the outcome of strategic change in terms of financial success. Financial success of strategic change is based on the success of implementing the change. One factor determining the implementation of strategic change is the use of MCS. Hence, the third topic I explored was the influence of CEO humility on the use of MCS by the top management team as an important means of implementing a strategic agenda.

CEOs are among top managers generally considered as the most influential actors due to their elevated position within the Top Management Team (TMT) and the power that is usually associated with that position (Jones & Cannella, 2011; Rajagopalan & Datta, 1996). They influence the direction of the company (Resick et al., 2009) and have the power to realize their preferences

and beliefs as organizational outcomes (Hambrick & Fukutomi, 1991). CEOs are able to directly and indirectly shape organizations by affecting important decisions (Jones & Cannella, 2011) and essential internal processes. According to Finkelstein, “Executives make big and small decisions. They shape the frameworks by which their organizations hire, mobilize, and inspire others to make decisions” (Finkelstein et al., 2009, p. 3).

First and foremost, a CEO task is formulating and implementing strategies (Gioia & Chittipeddi, 1991). The CEO is responsible for aligning the company with its environment – both currently and in the future (Hambrick, 1989). Strategy and, by extension, strategic change are central aspects of executive leadership and thus of central concern to management research (Bednar et al., 2013); indeed, strategic change in response to changing environments is essential to company survival (Kraatz & Zajac, 2001; Miller, 1991). Strategy can be conceptualized as deviation from or adherence to industry tendencies in terms of resource deployment within the company’s functional areas (Geletkanycz & Hambrick, 1997). As such, a change in the strategy can be defined as a change in the “fundamental pattern of present and planned resource deployments and environmental interactions that indicate how the organization will achieve its objectives” (Hofer & Schendel, 1978, p. 25). In their seminal paper, Hambrick and Mason (1984) consider different organizational choices related to resource deployment, such as innovation, capital intensity, plant and equipment newness, and financial leverage as well as administrative complexity. While changes and deviations in these resource deployment choices have since been established as indicators of strategic change (Finkelstein & Hambrick, 1990), administrative complexity is known to be related to the implementation of and control over the strategic agenda.

CEOs have the power to make resource allocation decisions and administrative choices (Hambrick & Finkelstein, 1987), and their humility is likely to have an impact on the organization

(Argandona, 2015); although CEOs cannot perform these tasks single-handedly and the remaining top management take part in these processes (Boeker, 1997; Papadakis & Barwise, 2002; Wiersema & Bantel, 1992). Thus, some researchers have argued that studying groups of executives yields better predictive power than studying the CEO alone (Hambrick, 2007). This dependency on the TMT shows particularly in my German, Austrian and Swiss research context due to the more collectivistic orientation and powerful board governance in these societies (Crossland & Hambrick, 2007) which should favor team-level research over CEO-level research (Olie et al., 2012). However, due to their elevated positions, CEOs are not just ordinary members of TMTs (Hambrick, 1994; Peterson et al., 2003; Simsek, 2007). Thus, Arendt et al. (2005) introduced the CEO-Advisor model to account for the power of the CEO to make the final decision while acknowledging the influence of the TMT as advisors in the decision-making process. This conclusion spurred interest in the so-called CEO-TMT interface as a base for research on strategic choices and performance (Ling et al., 2008; Ou et al., 2015) as it acknowledges that the CEO is not an ordinary member of the top management team. For example, Buyl et al. (2011) researched whether CEO characteristics moderated the association between TMT functional diversity and company performance. Heyden et al. (2017) discovered that TMT tenure and TMT age altered the relationship between the CEO's career horizon and R&D intensity. Cao et al. (2010) found that communication richness between the CEO and the TMT and power decentralization strengthened the effects of CEO network extensiveness on organizational ambidexterity. These studies showed that interaction between CEO and TMT characteristics help explain different organizational outcomes.

The CEO-TMT interface framework accounts for the remaining members of the top management team while acknowledging the distinct role of the CEO, as the tangible influence of the remaining members of the top management team on decision making is context specific (Arendt

et al., 2005). One determinant is the CEO him- or herself. “The CEO has the ability to determine both who participates in the process and how the process evolves” (Jones & Cannella, 2011, p. 29). CEOs determine the decision-making context for the top management team and create the framework and context that influence decision making in the entire company (Finkelstein et al., 2009; Hogan & Kaiser, 2005; Jones & Cannella, 2011; Peterson et al., 2003), and, in particular, the culture and team behavior of the top management (Owens & Hekman, 2016). However, calls to study the conditions that determine CEO or TMT impacts (Arendt et al., 2005) remain mostly unanswered. Thus, in addition to considering the main effect of CEO personality on strategic choices such as resource deployment, I studied the impact of the TMT in this process by further researching whether CEO humility alters the relevance CEO-TMT interface in research objective one.

With this research work I aimed to fill several gaps in the existing research. First, I integrated different research streams from management, psychology, and management accounting research to produce a more nuanced understanding of the CEO’s impact. An understanding that is not solely based on demographic proxies but also on the personality trait of humility in combination with experience as measured by positional tenure. Second, I aimed to advance research on the CEO-TMT interface and how different levels of CEO humility operate as an important condition for this framework. Finally, I sought to shed light on the impact of CEO humility on different aspects and processual steps of strategic change and thus contribute to the growing literature on effects of humility among top managers. Such a comprehensive survey of CEOs of listed companies in Austria, Germany, and Switzerland and their personalities follows a promising yet seldom-chosen avenue of research.

This research is part of a larger research project to study the association between CEO's personality traits and strategic choices of the respective company. Combining individual research projects to this larger project was undertaken to seize the opportunity of studying a very complex association such as CEO personality and company-level choices and outcomes respectively in a more comprehensive way by trying to understand more facets of the potential impact of CEO personality traits. Several distinct aspects of this association, which is complex in nature, could be studied as part of this endeavor. All individual projects have in common that they focused on researching one specific CEO personality trait. Woloszczak (2015) focused his research on the distinct yet related personality trait of Core Self-Evaluation (CSE). Meanwhile Menz (2018) also studied CEO humility but researched different aspects such as the association with investment decisions and the configurations of the levers of control framework. The latter is different from my third research objective as I studied the focus put on the individual levers and she put the focus on the different settings and configurations of the four levers of control. The data on the CEO's personality trait and the MCS use is derived from the shared survey.

A.2.1 Research objective one: Researching the effect of CEO humility on the CEO-TMT interface – The case of tenure and strategic change

Research has consistently found a negative association between top executives' tenure and the level of strategic change in their respective companies (e.g., Boeker, 1997; Finkelstein & Hambrick, 1990; Gabarro, 1987; Miller & Shamsie, 2001; Wiersema & Bantel, 1992). The theoretical arguments that support this finding are manifold. For example, longer-tenured top executives are believed to operate with a more rigid paradigm (Hambrick & Fukutomi, 1991; Miller & Shamsie, 2001; Weng & Lin, 2012), which is thus less likely to change than it was early in their

tenure (Henderson et al., 2006). Their personal investment in the current course has been found to constrain their ability to initiate strategic change (McClelland et al., 2010); as such, they tend to suffer from limited information diversity as the cast of people they consult is rather stable and their information sources become increasingly internal (Hambrick & Fukutomi, 1991). On the other hand, a longer tenure is believed to be valuable in terms of accumulating knowledge about internal processes and stakeholders (Boeker, 1997; Simsek, 2007), easing the process leading to strategic change.

However, one pivotal issue that remains unresolved is whether studying the CEO or the entire top management team leads to more meaningful results when researching the association between positional tenure and strategic change. In general, studying teams often leads to better results in such research (Hambrick, 2007), yet given the disproportionate influence of the CEO on the TMT and should not be treated as an ordinary member of the TMT (Hambrick, 1994; Peterson et al., 2003). Theoretical arguments regarding the positive effects of longer and shorter tenures on levels of strategic change have been proposed but exploring a combination of both within the main actors these might actually lead to the highest levels of strategic change. Wiersema and Bantel (1992) hypothesized such a positive effect of tenure heterogeneity between the top managers; however, they were unable to find empirical support. My aim in this study was to find such empirical support as part of the CEO-TMT interface.

Humility is a rich subject for studying conditions determining the relevance of the CEO-TMT interface, as humility is associated with both the quality and the quantity of interactions (Davis et al., 2011; Nielsen et al., 2010; Owens et al., 2013). CEO humility increases TMT integration and power sharing (Ou et al., 2014; Ou et al., 2015). Thus, the level of CEO humility is very likely to determine the influence of the TMT on decision making regarding strategic change

(Owens & Hekman, 2016), as interaction likely leads to increased influence. Theoretically, when the influence of the TMT increases, the impact of their average tenure on the level of strategic change is also more evident.

Research question 1: How is the level of strategic change contingent on CEO tenure and the average tenure of the TMT, and how does CEO humility moderate this relationship and thus the relevance of the CEO-TMT interface?

A.2.2 Research objective two: Investigating the moderating role of CEO humility on strategic change and company performance

In contrast to the relationship between CEO tenure and the initiation of strategic change the empirical results of extant research on the performance impact of such strategic change remain ambiguous (Rajagopalan & Spreitzer, 1997; Zhang & Rajagopalan, 2010). Research has used, on the one hand, environmental and company factors as contingencies and, on the other hand, a curvilinear relationship to examine the performance effects of different levels of strategic change (e.g., Corsi et al., 1991; Deephouse, 1999; Eapen & Krishnan, 2009; Geletkanycz & Hambrick, 1997; Goll et al., 2007; Haveman, 1992; Kraatz & Zajac, 2001; Lant & Mezias, 1990; Miller & Chen, 1996; Norman et al., 2007; Smith & Grimm, 1987; Zhang & Rajagopalan, 2010). These studies were able to explain variances in the performance impact of strategic change. Yet, only a few studies with mixed results accounted for characteristics of the CEO as the main corporate actor. To make strategic change financially successful, the top management of a company must do more than just initiate the change (Augier & Teece, 2009). For example, the CEO plays an important role with regard to the communication and implementation of strategic change (Gioia &

Chittipeddi, 1991; Narayanan et al., 2011; Waldman et al., 2004). Thus, research benefits from integrating the CEO, as each individual very likely implements strategic choices differently (Hambrick, 1989), and thus, with different financial success. Waldman et al. (2004) were not able to find support for the moderating role of CEO charisma, and Zhang and Rajagopalan (2010) found a significant difference between CEOs who were promoted internally and those who were hired from external companies. However, these studies did not consider underlying CEO personality traits. I added to the existing research by emphasizing the management of strategic change implementation as a function of the underlying CEO's personality. The only study on CEO personality is that of Herrmann and Nadkarni (2014), who researched the effects of the five-factor personality model on the implementation of strategic change among Ecuadorian SMEs. They found that some of these five factors promoted successful implementation, while others hindered financial performance. Thus, more research is needed to identify the personality traits that promote or hinder successful strategic change.

Researching the factors related to the implementation of strategic change and the actors ultimately responsible for implementation allows for a more thorough examination and, potentially, a resolution for conflicting findings. Implementation of strategic change is closely related to organizational learning as change is the result of a learning process (Lant & Mezias, 1992). In particular, the adaptive and disruptive nature of different levels of strategic change can relate to organizational learning and, thus, to the preferences and abilities related to the CEO's personality traits. As humility is associated with learning (Morris et al., 2005; Vera & Rodriguez-Lopez, 2004), the impact of CEO humility on the implementation process and, subsequently, on the financial success of strategic change seems very likely.

Research question 2: How is the performance effect of strategic change contingent on the level of CEO humility?

A.2.3 Research objective three: Researching CEO humility and MCS use by the top management team

To extend my research on the impact of CEOs on the implementation of strategic change, I found that one means of communicating the strategic agenda was worth examining likewise: the impact of CEO humility on the use of MCS by the top management team. Several researchers have acknowledged the role of MCS in the implementation, formulation, and communication of strategy (Chenhall & Langfield-Smith, 2003; Henri, 2006; Langfield-Smith, 1997; Simons, 1991, 1994). This stems from the fact that corporate strategy, resource allocation, and control are intertwined (Bowman & Helfat, 2001). Hence, MCS are related to the company strategy because, among other things, they enable companies to adapt to changing environments (Merchant & Otley, 2007). MCSs also considered a key element of strategic change (Miller, 1991), and to effectively communicate and monitor the strategic agenda (Simons, 1994). This view is further supported by the argument that the distal effects of CEOs as executives create a decision-making context for other managers, not least through measurement systems (Finkelstein et al., 2009).

The four levers of control framework based on Simons (1994) was a suitable MCS framework for this research. He defined MCS as the “formal, information-based routines and procedures used by managers to maintain or alter patterns in organizational activities” (Simons, 1994, p. 170). This framework divides MCS into diagnostic control systems that monitor critical performance variables; interactive control systems that control for strategic uncertainties; boundary

systems that control for risks that should be avoided; and belief systems that control the core values of the company (Simons, 1994). However, research on the role of top managers in shaping the use of a company's MCS has a brief history (Emsley et al., 2006). Studies that applied a perspective of upper echelons showed the benefit and predictive power of integrating top managers into MCS research (e.g., Abernethy et al., 2010; Jansen, 2011; Naranjo-Gil et al., 2009; Naranjo-Gil & Hartmann, 2007). The underlying argument for the integration of top managers was that individual managers approached their tasks differently and thus used MCS according to their preferences (Abernethy et al., 2010). However, as in other upper echelons research, early MCS studies used demographic proxies and leadership or cognitive style as antecedents of MCS use. Hence, the underlying personality traits that shape the cognitive base and the values of the CEO remain relatively unexplored. Humility is a promising personality trait to study due to its association with high-quality interactions, frequent and open feedback, appreciation for others, and shared decision and learning processes (Owens et al., 2013; Owens & Hekman, 2012; Vera & Rodriguez-Lopez, 2004).

Research question 3: How does the level of CEO humility influence the use of management control systems by the top management team?

A.3 Research approach

The main theoretical foundation of this study of the impact of CEO humility on the initiation and implementation of strategic change – as well as on the use of MCS in this process – was upper echelons theory. I also drew on previous research on humility, organizational learning, and MCS research, where appropriate.

Upper echelons theory, an influential theory in research on the impact of top managers, was introduced by Hambrick and Mason (1984). Building on the concept of “bounded rationality” (Cyert & March, 1963), they argued that top managers were unable to make decisions on a purely “techno-economic basis” (Hambrick & Mason, 1984, p. 194). As a consequence, top managers facing complex situations react differently based on their idiosyncratic perceptions of stimuli. This concept added a behavioral and an individual dimension to the process of decision making. That is, top managers filter conflicting stimuli and information through their own values and cognitive base. The cognitive base reflects their knowledge and assumptions about future events, alternatives, and the consequences of these alternatives (Hambrick & Mason, 1984). Their proposed filtering process includes a limited field of vision, selective perceptions, and interpretation by the top managers. A limited field of vision relates to areas of external and internal stimuli to which top managers attend. They only perceive selected stimuli in these areas and interpret these stimuli based on their individual cognitive base and values, leading to idiosyncratic managerial perception as the basis for decision making. At the heart of this theory is the assumption that the cognitive base, values and, consequently, the interpretation of stimuli and strategic choices are influenced by the person’s experience and personality (Hambrick, 2007). Thus, important organizational outcomes can be associated with the characteristics of powerful actors in the company (Carpenter et al., 2004). Contrary to other theories, upper echelons theory has been specifically developed to research the impact of the top managers including the CEO and thus does account for the specific circumstances of being a CEO (Busenbark et al., 2016).

Personality traits play an important role in the filtering, as these traits and fundamental dispositions influence the overall process through their impact on values and the assumptions that comprise a specific person’s cognitive base. Hence, the personalities of the main corporate actors

can be considered important antecedents of their choices and are thus good predictors of organizational outcomes with regard to all my research objectives.

Hambrick and Mason (1984) also posited that the cognitive base is constantly updated, implicitly emphasizing the importance of (career) experience in addition to a fundamental disposition that can be related to underlying personality traits. Thus, this aspect is of particular interest with regard to research objective 1, as the combined research of personality traits and experience theoretically allows for a more complete assessment of the association of these antecedents and strategic changes.

The data used in this research project are part of a larger research project examining the impact of CEO personality traits on strategic decisions using matching survey and archival data. On the one hand, this approach is recommended, as data from archival sources are not affected by the subjective interpretations of survey respondents; on the other hand, data on personality traits collected via surveys as more direct measurements are preferable to the use of indicators (Resick et al., 2009). The advantages of using indicators include “objectivity, parsimony, and possible replication” (Michel & Hambrick, 1992, p. 16). Despite being muddied (Hambrick & Mason, 1984), indicators are considered useful if a construct is not easily measurable or is unobservable (Michel & Hambrick, 1992). However, indirect measures suffer from a lack of conceptual clarity, might interfere with the dependent variable being studied (Bollaert & Petit, 2010; Resick et al., 2009), and are potentially only loosely related to the construct of interest (Marcóczy, 1997; Priem et al., 1999). Furthermore, if suitable direct measures are available, the arguments in favor of indicators are weakened (Marcóczy, 1997). As scales to measure humility using a survey instrument are available (e.g., Davis et al., 2011; Owens et al., 2013) direct measurement is available. This research is based on the scale developed by Owens et al. (2013).

Moreover, due to potential problems arising from common method variance (Podsakoff & Organ, 1986), some scholars have advised avoiding research in which both independent and dependent variables are measured in one survey. Thus, I used matched archival data to measure the remaining independent and dependent variables: strategic change, performance, and tenure were obtained from archival sources, while CEO humility and MCS use were obtained from the survey, as no established indicators from archival sources were available for MCS use.

A.3.1 Survey data

The population for this work consisted of all listed companies in Germany, Austria, and Switzerland. Listed companies were suitable for this research as listing ensures a minimum size and level of professionalism in internal and external processes. Furthermore, due to the requirements of stock exchanges and professional investors, one could expect MCS to be formalized (Davila & Foster, 2005). Moreover, disclosure requirements improve the availability of data on size, industry, financial results, expenditures, and CEO demographic information, which are necessary information for independent, dependent, and control variables. I identified companies using information from the *Hoppenstedt*, *Amadeus*, and *Dafne* databases. Afterwards I manually checked for inconsistencies using information from company websites and annual reports.

Self-reported measures of humility are not recommended due to an inherent paradox: truly humble people are likely to assess their humility correctly or to slightly underrate it, whereas truly non-humble people are likely to overrate their humility (Davis et al., 2011). Thus, researchers suggest the use of informants or peer reports to measure CEO humility (Davis et al., 2011; Owens et al., 2013), an approach particularly common in the field of organization research (Nielsen &

Marrone, 2018). Research on reports from informants have shown that reports collected from subordinates were more reliable for interpersonal dimensions than those gathered from supervisors (Blair et al., 2008). Thus, subordinates are more reliable sources for my type of research than, for example, members of the supervisory board.

To mitigate the shortcomings of self-reported information on humility and to benefit from their exposure to top executives and company MCSs, the contact person for the survey was each respective company's senior finance manager. The finance function yielded additional advantages for this research. First, due to their importance to overall company well-being (Zorn, 2004), senior finance managers presumably interact with both the top management team and the CEO, and thus could provide meaningful and well-informed answers to survey questions related to the CEO's personality. Second, due to their extensive knowledge of the MCS in place, senior finance managers could be expected to provide meaningful and well-informed responses with regard to the use of MCS within the top management team. This supposition made finance managers preferable to the managers of other corporate functions. When no information on the senior managers of the finance department was available, the Chief Financial Officer (CFO) was contacted to respond to the survey. The data collection took place between April and July 2012. Overall, 255 of the 1,031 persons contacted responded to the survey.

A.3.2 Archival data

The archival data that were matched to the survey responses were obtained mainly from *Compustat*. Data from years 2007 to 2011 were used for the independent and dependent variables in this research project. I used data on assets, net income, sales, research and development

expenses, net plant and equipment, gross plant and equipment, selling and general administrative expenses, inventories, debt, and equity. Missing data on sales, net income and assets were taken from company annual reports, when available. The data on CEO and TMT tenure as well as the control variables were obtained from the *Compustat*, *Amadeus*, *Dafne*, *Hoppenstedt*, and *Datastream* databases, company annual reports, and company websites.

B The impact of CEO humility on the CEO-TMT interface, tenure and strategic change¹

B.1 Abstract

The research on the CEO-TMT interface has helped to explain different organizational outcomes because interactions between CEOs and TMTs influence corporate decision making. However, little is known about the factors that contribute to the relevance of the CEO-TMT interface. Although I consider it appropriate to assume that CEO and TMT tenures jointly determine levels of strategic change, the premise that the interaction between those powerful actors is not affected by the CEO's personality as the group leader is too simplistic. This project posited that research should not only account for the influence of the TMT but also address the extent to which the CEO is open to such influence. Hence, I integrated research on CEO humility to account for the openness of the CEO for feedback, input, and interaction with the TMT. My results are based on a survey study of 86 CEOs in Germany, Austria, and Switzerland. They supported the idea that CEO humility is relevant to the CEO-TMT interface with regard to the effect of CEO and TMT tenure on strategic change.

¹ This chapter is based on: Schmidt, S., Reimer, M., & Schäffer, U. (2019). *The impact of CEO humility on the CEO-TMT interface, tenure and strategic change*. Unpublished Working Paper, WHU – Otto Beisheim School of Management

B.2 Introduction

The two dominating models in the research on top executives and their decision making have focused either on the CEO or the TMT as a group (Arendt et al., 2005). Among these the antecedents of strategic change have been among the fundamental areas addressed in the strategic management literature (Bednar et al., 2013). As one important antecedent of strategic change scholars have established CEO tenure (e.g., Boeker, 1997; Hambrick & Fukutomi, 1991; Miller, 1991). These researchers argued that an individual's characteristics and experience matter in such strategic choices - particularly those of the CEO, who is key to any strategic change (Waldman et al., 2004). They have also found empirical support for a negative relation between CEO tenure and strategic change (e.g., Boeker, 1997; Miller, 1991; Miller & Shamsie, 2001). This conclusion is summarized in the assertion that "long-tenured CEOs grow stale in the saddle" (Miller, 1991, p. 34). However, a core premise of the upper echelons theory, the foundation of such research, is that the study of top management teams yields more explanatory power than does the study of CEOs alone (Hambrick, 2007; Hambrick & Mason, 1984; Simsek, 2007). Consequently, studies have been able to find a negative relation between TMT tenure and strategic change (e.g., Wiersema & Bantel, 1992). Although these studies rightfully accounted for the impact of top management teams (Boeker, 1997), they unduly disregarded the unique position of CEOs and their influence on TMTs (Hambrick, 1994; Peterson et al., 2003; Simsek, 2007). Neglecting these distinct roles and how they interact led to a too-narrow definition, as "many strategic decisions in many firms are made neither by a unilateral CEO nor by a TMT" (Arendt et al., 2005, p. 682).

A growing body of literature has addressed this important gap and the interaction between CEOs and their TMTs by using the framework of the so-called CEO-TMT interface to account for the specific roles in the research on strategic choices and firm-level outcomes (e.g., Buyl et

al., 2011; Heyden et al., 2017; Ling et al., 2008). Arendt et al. (2005) referred to this middle ground between studying the CEO alone and considering the entire TMT while neglecting the distinct position of the CEO as the CEO-Adviser model. In this conceptual model, advisers help gather and process information, but the CEO has the power to make the final decision. Thus, the CEO-TMT interface could work as a complementing element in research on strategic change: increasing tenure is believed to limit the willingness to change while simultaneously polishing one's abilities and capabilities to implement strategic change (Simsek, 2007). Hence, based on their respective tenures, CEOs and TMTs could complement each other in terms of their willingness and ability to implement strategic change. For example, Heyden et al. (2017) found support for the argument that TMT tenure influences the relation between CEO career horizon and investments in Research and Development (R&D). Some researchers treat this CEO-Advisor perspective, which is concerned about the influence of TMTs on the decision making of the CEO, as separate from the CEO-TMT interface. The latter being treated as an approach of studying the CEO and TMT as separate yet dependent entities (e.g. Ma & Seidl, 2018) and defining the interface as situations when these players come into contact and influence each other (Simsek et al., 2018). However, I consider both perspectives to be jointly relevant in my research. The CEO-TMT interface gives a sound foundation to study the actors separately and the CEO-Advisor models gives a theoretical foundation of the role of the players.

However, the research has not addressed the conditions that determine the relevance of the CEO-TMT interface, despite calls to redress this dearth of information. For example, Arendt et al. (2005) called for revisiting existing research based on either exclusively CEO or exclusively TMT characteristics; but even more importantly, they called for research on the conditions that determine the impact of TMTs as advisers in the CEO-Advisor model. Based on existing research

on top management's humility, I argued that, ultimately, the CEO's personality determines his or her willingness to work collaboratively and have interactions, the relevance of the CEO-TMT interface, and the joint impact of CEO and TMT tenure on strategic change. Consequently, I did not only follow the literature stream on the CEO-TMT interface by researching the joint impact of CEO and TMT tenure on strategic change but extended such research by integrating a study of CEO personality to examine one potential boundary condition in terms of the relevance of the interface.

Some of the existing studies implicitly assume that all top executives are affected in similar ways by increased tenure, simplistically assuming that all CEOs have similar preferences and tendencies (Weng & Lin, 2012). As such, potential intervening factors that stem from psychological aspects have been treated as a black box (Hambrick et al., 1993). However, the intensity and impact of joint interpretation during discussions between CEOs and TMTs and, consequently, the relevance of the CEO-TMT interface are likely to depend on the personality of the CEO: "CEOs have tremendous managerial discretion over group process and culture issues and that personality plays a role in how team process unfolds" (Peterson et al., 2003, p. 803). By researching CEO humility, I chose a personality variable that supposedly affects group processes and, consequently, the CEO-TMT interface, because humility only manifests in interactions with fellow human beings (Davis et al., 2011). This impact is likely since humble CEOs distinguish themselves through their eagerness to learn, fostering a culture of experimentation, information sharing, openness to feedback and innovation while maintaining awareness of existing strengths without being blinded by past success (Morris et al., 2005; Ou et al., 2015; Owens & Hekman, 2012; Reimann, 1995; Vera & Rodriguez-Lopez, 2004).

My contribution is two-fold. As my primary contribution, I aimed at finding support for the hypothesis that CEO humility has an important impact on the CEO-TMT interface and its relevance with regard to decisions on strategic change. I aimed also at finding support for the literature on the CEO-TMT interface and the general emphasis placed on the interaction between CEOs and TMTs while accounting for their specific roles. As part of my research, I intended to show that the strategic change choices of CEOs are not affected by their positional tenures in all the same ways and the idea of complementary abilities of CEOs and TMTs. Thus, I aimed to obtain a more nuanced understanding of the relation between CEO tenure and strategic change, because CEO tenure, TMT tenure and CEO humility can all shape the field of vision, the process of interpretation and interaction and, consequently, the choices that are made with regard to strategic change. However, more importantly, this supports the that there are conditions for the emergence of what Arendt et al. (2005) called the middle ground between CEO and TMT-models. CEO humility makes the CEO-TMT interface more relevant with regard to CEO and TMT tenure and strategic change.

Second, I applied a recently developed measure of humility (Owens et al., 2013) to the top management research, thereby validating its applicability in the top management context. This step is notable because past research and most of the claims in the literature that have been made regarding the impacts of humility are speculative and lack empirical testing, partly due to the absence of accepted measures (Davis et al., 2011; Ou et al., 2014; Owens & Hekman, 2012). Moreover, only a few such empirical studies have been conducted (e.g., Ou et al., 2014; Owens et al., 2013; Owens et al., 2015; Owens & Hekman, 2016). Through this project, I have added to the knowledge about the consequences of CEO humility in the organizational context and firm

outcomes, which was as-yet limited (Ou et al., 2015). I considered humility to be important in the explanation of strategic outcomes as the its effects on the company level are not fully understood.

B.3 Theory and hypotheses

B.3.1 Tenure and strategic change

Strategic change generally refers to an organization's realignment to its environment; and, more specifically, according to the definition applied in my work, this terms refers to a change in the organization's fundamental pattern of resource deployment (Hofer & Schendel, 1978; Rajagopalan & Spreitzer, 1997). Strategic change consists of two facets: strategic variation and strategic deviation. Strategic variation captures the change in the resource deployment over time as a change of past patterns within the company. In contrast, strategic deviation captures the discrepancy from industry norms (Carpenter, 2000; Finkelstein & Hambrick, 1990; Haynes & Hillman, 2010).

The basis for my research was the upper echelons theory, which posits that the decisions made by senior executives reflect their values and cognitions, which are a function of their personality characteristics and experiences, as reflected in their tenure (Carpenter et al., 2004; Finkelstein et al., 2009; Hambrick & Mason, 1984). The foundation of the theory is the CEO's cognitive base and a set of "givens" such as: "1. knowledge or assumptions about future events; 2. knowledge of alternatives, and 3. knowledge of consequences attached to alternatives" (Hambrick & Mason, 1984, p. 195). Hambrick and Fukutomi (1991) related this set of "givens" to a CEO's knowledge system or schema, which derive from both experience and personality. Part of this schema is the CEO's perception of his or her available repertoire or set of skills. This

set of “givens”, which influences cognition and interpretation, is constantly being updated (Hambrick & Mason, 1984) as experience; thus, learning and stimuli will alter this knowledge. Accordingly, Hambrick and Fukutomi (1991) associated an executive’s tenure with changes in attention and behavior patterns. This approach gave rise to the study of executive tenure in this context.

Theoretical arguments for a decrease in engagement in strategic change during a CEO’s tenure are manifold. For instance, scholars have argued that a CEO’s commitment to a paradigm – “a finite model . . . of how the environment behaves, what options are available, and how the organization should be run” (Hambrick & Fukutomi, 1991, p. 721) – becomes stronger and more rigid during his or her tenure (Hambrick & Fukutomi, 1991; Miller & Shamsie, 2001; Weng & Lin, 2012). Their personal investments and stakes in the current strategy make them more resistant to change (McClelland et al., 2010), and the sources of information CEOs use become less diversified throughout their tenure (Hambrick & Fukutomi, 1991), which leads to the generation of fewer new ideas (Weng & Lin, 2012). Hence, it is not expected that many CEOs and executives are able to transform their paradigm (Henderson et al., 2006). Other authors argued that executives become more confident or even overconfident regarding a necessary course of action due to their acquired business-related knowledge and prior performance (Miller, 1991; Miller & Shamsie, 2001). Moreover, longer-tenured CEOs are believed to refine their existing skills rather than learn new skills (Weng & Lin, 2012). More generally, it has been argued that as executives spend more time in an organization, they become more convinced that the organization is acting in the right way. Thus, they become more committed to their own actions (Finkelstein & Hambrick, 1990; Hambrick et al., 1993; Henderson et al., 2006). Furthermore, extensive industry insights may restrict the consideration of actions that deviate

from industry norms (Hambrick et al., 1993). Finally, a longer tenure or extensive work experience has also been shown to shape the knowledge structure or cognitive perspective of executives (Boeker, 1997; Walsh, 1995; Weng & Lin, 2012), for example, in a manner that limits deviation from other team members (Wiersema & Bantel, 1992) and, consequently, restricts the amount of innovation.

Many studies have been able to find empirical support for the proposition of a negative relation between tenure and strategic change (Finkelstein et al., 2009; Rajagopalan & Spreitzer, 1997). For example, Gabarro (1987) found that CEOs initiated the most strategic change within the first three years of their positional tenure. Wiersema and Bantel (1992) and Boeker (1997) found a negative relation between executives' organizational tenure and strategic change, whereby latter strategic change was measured as diversification. Similarly, Finkelstein and Hambrick (1990) showed that executives' organizational tenure was positively related to strategic persistence and strategic conformity – both of which are the opposite of strategic change, according to my conceptualization. In a study about the film industry, Miller and Shamsie (2001) found support for the study's hypothesis that strategic innovation, as expressed by experimentation with new products, decreased with positional tenure. Finally, it has been shown that longer tenure was associated with less advice seeking (McDonald & Westphal, 2003), less information diversity (Finkelstein et al., 2009), and a negative relation to the attitude toward change (Musteen et al., 2006), which made it more unlikely that long-tenured executives would change their paradigm.

Hypothesis 1: CEO tenure is negatively associated with the level of strategic change of the company.

B.3.2 The moderating effect of the CEO-TMT interface

In complex organizations, strategic decision making is not only concentrated in the hands of the CEO (Wiersema & Bantel, 1992). The members of the TMT have a significant influence on strategic decisions as well (Boeker, 1997; Papadakis & Barwise, 2002). However, the CEO should not be misleadingly considered an ordinary member of the TMT, a supposition that neglects the immense influence of the CEO on the TMT (Hambrick, 1994; Ling et al., 2008; Peterson et al., 2003). Arendt et al. (2005) concluded that although the CEO holds the main decision power, the TMT, among others, acts as a group of influential advisors. Studying CEO or TMT characteristics in isolation incompletely depicts the process of decision making (Heyden et al., 2017). Consequently, the respective tenure of CEOs and TMTs will affect the roles and prominence within this interface. Additionally, the interaction effect of CEO and TMT tenure goes well beyond just researching the two direct effects as antecedents of strategic change simultaneously. For example, CEO tenure will likely influence the CEO's openness toward the TMT's advice, whereas TMT tenure will likely influence the quality of the advice that is given the CEO. Little is known about the mutual influence of CEO and TMT tenure because the specific roles of CEOs and TMTs have not been studied in detail. In general, the CEO-TMT interface is still relatively unexplored (Simsek, 2007). Isolated research efforts on either CEO or TMT tenure are "anchor points on a strategic decision-making continuum" (Arendt et al., 2005, p. 681); however, they do not acknowledge the specific situation of the CEO-TMT interface. I expected the TMT to play two potentially important roles depending on their tenure. The first role includes input and discussion during strategy formulation, and the second role supports the

implementation of strategic change. Depending on the fit of these roles to the CEO's set of abilities, the CEO-TMT interface will be more relevant in certain settings.

CEOs are central in the development of ideas for strategic change, and they possess the power to bring these ideas forward within the TMT (Hambrick, 1994; Peterson et al., 2003). CEO tenure increases the power and legitimacy to influence TMT members (Simsek, 2007), and this increasing power leads to subordinates who only present information that reinforces the CEO's existing paradigm (Hambrick & Fukutomi, 1991; McClelland et al., 2010). This is a self-reinforcing effect because during their tenure, the sources of information for CEOs become increasingly restricted, with internal sources of information gaining importance (Hambrick & Fukutomi, 1991) and joint tenure leading to a common paradigm (Hambrick et al., 1996), which thus limits the number of new ideas being generated (Weng & Lin, 2012). Drawing on arguments of social interaction, CEOs who repeatedly receive the same information from available sources will likely not be overly critical in their scrutiny of such information (Park et al., 2011). CEO tenure also improves the integration into networks of key stakeholders, which makes TMT members and their advice more dispensable (Simsek, 2007). Finally, tenure, power, and integration into networks increase the CEO's status, and CEOs with high social status are subject to opinion conformity and flattery from subordinates (Park et al., 2011).

Hence, the longer the CEO tenure, the more rigid are the CEO's paradigm and mental models. While a TMT with low average tenure could challenge these mental models, the power increase that comes with longer CEO tenure will limit this effect. Thus, the TMT will not be able to effectively change the paradigm of the CEO and alter his or her views and inject some new ideas into the CEO's thinking. A longer-tenured TMT, on the other hand, is likely to enforce the

process of paradigms becoming rigid. Consequently, longer CEO tenure will be negatively associated with strategic change regardless of TMT tenure. But the drop-off will be amplified by longer average TMT tenure. Thus, average TMT tenure has a strengthening effect on the relationship between CEO tenure and strategic change (Gardner et al., 2016).

This dynamic leaves ample room for an effect of TMT tenure in situations in which CEO tenure is short. In such situations, the inclination of the CEO to listen to internal advisers and the openness to new ideas is likely to be higher than in later years during strategy formulation. Especially a newly appointed CEO in combination with a short-tenured TMT is likely to intensely challenge the status quo; but in that case, the TMT including the CEO lacks the ability to form a common understanding of strategic change and the abilities to implement strategic change. A TMT with a short average tenure is likely to be a group with low levels of social cohesion. Without sufficient cohesion, individuals may form ideas, but the lack of interaction within the team restrains the development of such ideas because information and knowledge are not exchanged (Hambrick, 1994; Ling et al., 2008). The lack of a common vocabulary, which is also developed during a joint tenure, also aggravates the formulation of strategic change (Hambrick et al., 1996). Consequently, new ideas are likely to actively being generated, but the group lacks the ability to put these ideas into place.

In contrast, longer-tenured TMT members serving as internal advisers can highlight shortcomings or untapped opportunities regarding strategic initiatives (Heyden et al., 2013). With regard to the ability to implement strategic change, the increased tenure of executives leads to a better understanding of internal procedures and policies (Boeker, 1997) and the accumulation of company-specific skills and knowledge (Simsek, 2007). A longer-tenured TMT member

possesses the appropriate internal knowledge in his or her domain (Ling et al., 2008). This internal knowledge, which the short-tenured CEO may not possess, is important for turning ideas into strategic change. Consequently, a short-tenured TMT has the ability to bring up new ideas and change the mental models of the CEO, while a longer-tenured TMT will actually amplify the effect of rigid mental models but has the ability to implement the ideas. Hence, I hypothesized the following:

Hypothesis 2: Average TMT tenure strengthens the negative impact of CEO positional tenure on the strategic change of the company – that is, the negative relation between CEO positional tenure and strategic change is more negative in the case of higher TMT tenure.

B.3.3 CEO humility

Humble individuals demonstrate neither low self-esteem nor a grandiose or self-deprecating self-view (Morris et al., 2005; Nielsen et al., 2010; Tangney, 2000); rather, they reside between arrogance and a lack of self-esteem (Vera & Rodriguez-Lopez, 2004). Generally considered being a virtue (Tangney, 2000; Vera & Rodriguez-Lopez, 2004), definitions of humility highlight key elements, such as the ability to accurately evaluate success and failure (Vera & Rodriguez-Lopez, 2004) and to nondefensively understand one's strength and weaknesses while being open-minded, willingness to learn (Exline & Geyer, 2004; Morris et al., 2005), seeing others in an appreciative way, and being nonthreatening (Owens & Hekman, 2012). In this sense, accurate self-assessment also includes adequately taking credit for one's own contributions (Devers et al., 2011). Authors have labeled the main dimensions of humility as self-

awareness, openness, and transcendence (Morris et al., 2005) or a willingness to view oneself accurately, an appreciation of others' strengths and contributions, and teachability (Owens & Hekman, 2016).

Humility is conceptually distinguishable from other personality constructs, such as modesty, narcissism, openness to experience, and core self-evaluation (see Owens et al., 2013 for a detailed discussion on the conceptual differences in these constructs). For example, modesty is concerned with the evaluation of achievements and not with an orientation toward other and an appreciation of their worth (Tangney, 2000). Moreover, modesty does not include the motivation for learning and development (Owens et al., 2013). In contrast, humility is likely to be negatively related to narcissism (Devers et al., 2011; Morris et al., 2005; Owens et al., 2011; Tangney, 2000). However, being non-narcissistic, for example, lacks information about the ability to accurately assess a situation, individual strengths, and weaknesses (Tangney, 2000) and teachability (Owens et al., 2013). "At best, the absence of narcissism is a necessary but incomplete condition for humility" (Morris et al., 2005, p. 1335). However, in recent research, even the possible co-existence of narcissism and humility has been discussed (Owens et al., 2015; Zhang et al., 2017). Although CSE does share some concepts with humility, compared to the accurate self-view in humility, the optimistic self-view in CSE is different as it is less concerned with the views of others (Owens et al., 2013).

B.3.4 CEO humility and the CEO-TMT interface

Studying the CEO-TMT interface is about how the CEO and the other TMT members interact and about the impact of these actors on important decisions and outcomes. One very

important aspect of this interface is the inclination of the persons involved to work together. Thus, the personality – especially of the CEO – is an important element to the CEO-TMT interface. The relevance of the CEO-TMT interface is determined by the information exchange between the CEO and members of the TMT and how the CEO accepts these top managers as advisers. The effectiveness of information exchange and integration between members of the TMT and the CEO can be fueled by CEO characteristics (Buyl et al., 2011; Ou et al., 2015; Peterson et al., 2003). CEO humility is one such condition because of its potential impact on the nature of the collaboration between the CEO and the TMT: humility is associated with openness to feedback (Morris et al., 2005; Owens, 2009; Owens & Hekman, 2012), willingness to learn from others (Morris et al., 2005) and receptivity to advice (Exline & Geyer, 2004; Owens et al., 2011; Tangney, 2000). Furthermore, humble executives “are not anchored to old solutions, no matter how successful these solutions have been in the past” (Vera & Rodriguez-Lopez, 2004, p. 399). Humble CEOs are more aware of the limitations of their strategies due to the complex environment in which they work (Vera & Rodriguez-Lopez, 2004); they accept uncertainty and are willing to re-evaluate their decisions based on new information to constantly make adjustments (Owens & Hekman, 2012).

Because individuals tend to rely more on advice if they perceive situations to be complex and uncertain (Heyden et al., 2013), humble CEOs most likely will seek more advice based on their acceptance of uncertainty. Furthermore, with regard to TMT advice, CEOs devalue and ignore internal sources of advice if they see these sources as threats to their position and status (Tanya Menon & Pfeffer, 2003). But a humble CEO sees others as nonthreatening (Owens & Hekman, 2012) and is therefore more likely to incorporate the advice of the TMT.

Building on these effects, it is likely that the impact of TMT tenure is moderated by the level of CEO humility. CEO humility makes a difference first in terms of quantity of TMT input and second in terms of the degree to which the CEO will incorporate such input.

First, with regard to the quantity of TMT input, humble CEOs foster frequent interaction and discussion and have been shown to positively influence TMT integration through empowering leadership (Carmeli et al., 2011; Ou et al., 2014; Ou et al., 2015) – even to a degree that humility is considered an antecedent of shared leadership (Chiu et al., 2016). According to the argument of Ling et al. (2008), the increased social and behavioral integration of the TMT and the CEO also increases the quantity and the quality of the information that is exchanged, and it supports idea development and the exploitation of new knowledge. Frequent interactions also facilitate the transfer of sensitive and complex information (Arendt et al., 2005). When internal advice seeking is established and accepted, advisers are more willing to share their ideas (Alexiev et al., 2010). And when the information-seeker shows humble behavior, the information-provider is believed to be more willing to share the knowledge (Anand et al., 2019). The genuine advice seeking of a humble CEOs is also likely to offer new and diverse perspectives to the TMT, which also leads to better information exchange (Ling et al., 2008) and, as a consequence, to better-informed decisions about the strategic change of the entire group. Through seeking feedback and sharing their information they signal trust and empower subordinates (Bharanitharan et al., 2018). Hu et al. (2018) found that humble leaders increased the level of information sharing in the team and promoted creativity.

Furthermore, the empowering leadership style of humble CEOs (Ou et al., 2014) decentralizes responsibilities in the TMT, which increases the ability to innovate (Ling et al.,

2008) and allows CEOs to tap the TMT's knowledge and capabilities, thereby ensuring that strategic change is developed in a meaningful manner. Humble CEOs are also more likely to recruit capable subordinates who challenge the CEO's views (Ou et al., 2014). Such interactions will be even more fruitful as TMT members emulate the humble behavior (Owens & Hekman, 2016) and prove even more open to discussion and feedback themselves, thereby cultivating strategic change. "Compared with less open teams, teams that are open to feedback and new information are more likely to sense collectively that seeking new attainments, future possibilities, and improvements is normal and legitimate" (Owens & Hekman, 2016, p. 1093).

Second, with regard to input quality and its incorporation into the decision making, humble CEOs understand their own limitations and are willing to empower their subordinates and include them in the decision-making process (Ou et al., 2014). Thus, the knowledge (due to the longer tenure) of the TMT will have greater impact, and the advice will be particularly beneficial to humble CEOs. Their disposition to foster frequent interactions forms a shared understanding, trust, and familiarity, and increases TMT integration (Ou et al., 2014; Ou et al., 2015), which allows the entire group to discuss fewer alternatives, but in a more deeply focused manner as heterogeneity of the TMT might become lower as a function of the integration which leads to such focused discussion (Heyden et al., 2013). Moreover, subordinates of humble leader feel better about their power to influence the leader and about their input to be heard by humble leaders (Lin et al., 2019) and humility increases the engagement of subordinate (Sousa & van Dierendonck, 2017), consequently I expect increasing quality of subordinates' input. Finally, through CEO humility, which fosters a collective that promotes focus seeking, pursuing new opportunities will be collectively accepted (Owens & Hekman, 2016).

For purposes of this study, then, based on these suppositions, high CEO humility was be associated with greater impact of the TMT and TMT tenure. Humble CEOs will accept help in terms of fresh input during strategy formulation and rely on capable TMT members during strategy implementation, while CEOs who are low on humility in general are likely not to pay too much attention to input from the TMT irrespective of their tenure, which thus limits the impact of that tenure. Consequently, the joint negative impact of CEO and TMT tenure on strategic change will be amplified. This conclusion might be counterintuitive as the CEO's openness to input from the TMT should limit the negative effect. However, when average TMT tenure is longer, self-reinforcing is even more pronounced as the CEO is open to this input, making the overall relationship negative and thus strengthening the joint negative effect of CEO and TMT tenure.

Hypothesis 3: CEO humility strengthens the negative impact of the joint effect of CEO positional tenure and average TMT positional tenure on the strategic change of the company – that is, the negative relation among CEO positional tenure, average TMT positional tenure, and strategic change is more negative in the case of higher CEO humility. The differences between high and low CEO tenure and high and low average TMT tenure will be more pronounced in the case of high CEO humility.

B.4 Method

B.4.1 Sample and data

The study was part of a larger research project to investigate the impact of the personality traits of CEOs on organizational outcomes.² The focus of the research project was on listed companies in Germany, Switzerland, and Austria. To obtain more generalizable conclusions, I did not limit the study to an industry or company size (Hambrick et al., 1993). I used the *Hoppenstedt*, *Amadeus*, and *Dafne* databases to identify the companies and relevant contact persons. I then conducted thorough checks to correct and complete the information on the contact persons, addresses, and respective CEOs.

I used matched data from a survey and archival sources such as the *Compustat* database, the *Datastream* database, information from company websites, and annual reports. I measured CEO humility through a survey to avoid the shortcomings of proxies in the psychological research, as “proxy measures offer less conceptual clarity and scientific understanding than more explicit measures of underlying psychological characteristics” (Resick et al., 2009, p. 1366). However, because some traits are expected to be over- or underrated in self-reports (Davis et al., 2011; Morris et al., 2005), I used a peer-report. Particularly in the case of humility, it would potentially be somewhat paradoxical to the construct to self-report high levels of humility (Morris et al., 2005; Owens et al., 2013). Furthermore, it has been argued that humility is only manifested in a relationship or, more generally, in interactions with fellow human beings (Davis et al., 2011), which strengthens the argument for using peer-reports. Because subordinates’ ratings have been found to be more reliable than supervisors’ ratings in the case of interpersonal

² This was part of a larger research project - see Chapter A

dimensions (Blair et al., 2008), and because subordinates are more suitable for rating executives by focusing on personality than superiors are (Sosik et al., 2012), I asked subordinates to rate their respective CEOs. I contacted a senior manager of the finance or controlling department of each company to give his or her ratings regarding the management in his or her company. If the designated finance manager could not be identified, I chose the CFO as the alternative contact person. Both are expected to have enough exposure to the CEO to give meaningful and accurate ratings about the CEO's personality.

I employed English and German questionnaires, depending on the nationality of the contact person. For the German questionnaire, two researchers separately translated the original items into German and discussed their translations to reach a consensus. Subsequently, a native German and English speaker retranslated the items back into English, comparing these to the original items to ensure that their meaning remained unchanged. In this vein, I followed established procedures (Brislin, 1986; Felfe, 2006). Then, I conducted a pretest of the questionnaire with both scholars and practitioners to ensure appeal and comprehensibility. Following these pretests, I sent out a cover letter and the paper-based questionnaire by postal mail, followed by an invitation by e-mail, two e-mail reminders, and follow-up phone calls. The participants were promised a detailed report of the results, a chance to win a small prize, and a donation to a charity organization for each completely completed questionnaire. Thus, I followed established procedures to maximize response rates (Dillman et al., 2009). The data collection took place between April and July 2012.

Of the 1,031 persons, I successfully contacted 255, who filled out the questionnaire. The response rate of 25% seems acceptable compared to the common expectations for a survey in a

top-management context (Cycyota & Harrison, 2006; Hambrick et al., 1993; Simsek et al., 2010). Subsequently, I matched the responses to the archival data of CEO tenure, TMT tenure, and strategic change collected through *Compustat*, annual reports, and company websites for the years 2008–2011.

I only included observations in my analyses that occurred after the current CEO took office, and I only included CEOs in my analysis who were already in office at the beginning of 2009. I excluded companies for which there were no other TMT members in addition to the CEO. Hence, I used 86 CEOs and 281 observations in my models. To ensure that the CEO had sufficient opportunity to influence the resource deployment according to his or her strategic agenda, I only used observations for strategic change if the CEO had already been in office in the previous year.

To make my analysis more robust and manageable, I classified all of the companies that responded to the survey into SIC groups. I then merged the smaller groups, which left me with the following categories: “Manufacturing,” “Transportation, Communications, Electric, Gas, and Sanitary Services,” “Services,” and “Others,” as industry classifications. For a detailed split of the industry groups by country, see Table B-1.

Table B-1 Sample Split Country and Industry Research Question 1

Variables	Germany %	Austria %	Switzerland %	Total %
Manufacturing	44.3	6.6	9.4	60.3
Transportation, Communications, Electric, Gas, And Sanitary Services	9.8	0.0	5.2	15.0
Services	16.0	0.0	1.4	17.4
Other Industries	5.9	0.0	1.4	7.3
Total	76.0	6.6	17.4	100.0

I conducted several tests to check for potential biases in the survey regarding nonresponse, response-medium, and response-timing. I found no significant differences in the number of employees, total assets, or return on assets adjusted by the industry average, all of which were based on the data obtained from *Compustat* for the year 2011 between responding and nonresponding companies. None of these tests was significant at the 5% level. Based on these tests, I did not consider a nonresponse bias to be a major issue in this study. Furthermore, there was no significant difference in the responses regarding CEO humility between either paper-based and online responses or early and late responses.

B.4.2 Measures

I measured all of the independent variables and the dependent variables using existing measures.

Control variables – I used several environmental-, company-, and individual-level controls. For the environmental-level controls, I included controls for the country and expectations from external stakeholders. The country might, among other factors, affect the level

of managerial discretion to initiate strategic change (Crossland & Hambrick, 2011; Finkelstein & Hambrick, 1990), but it also includes controls for legislation and nationwide performance and strategic change effects. Furthermore, I accounted for external expectations, expected volatility, and pressures from stakeholders (Bednar et al., 2013) by using the 5-year beta of the stock compared to the STOXX-EUROPE-600 index from *Datastream*. Additionally, I included a dummy variable for the respective year. I did not control for industry division because strategic change and performance were centered on the industry median.

For the company-level controls, prior research has indicated that company size and prior company performance have an impact on strategic choices such as strategic change (Haynes & Hillman, 2010; Zhang & Rajagopalan, 2010). It has been argued that increasing company size leads to inertia and to less need for change due to diversification (McClelland et al., 2010). In contrast, previous studies have found that poor past performance might lead to subsequent strategic change (Rajagopalan & Spreitzer, 1997). The data on performance and size were obtained from *Compustat*. Company size was measured as the natural logarithm of the number of employees, and I used return on assets (ROA) above industry average in the previous year (t-1) as a measure for past performance. I calculated the performance above industry average for every company as the difference to the industry median. The industry median was calculated as the median of all companies in the given industry group that responded to the survey and were not considered outliers. To use the same dataset as in chapter C, where performance is used as the dependent variable, I excluded all observation in the top or bottom 0.5% of performance.

With regard to the CEO level, I accounted for his or her age because this information has been associated with commitment to the status quo (Hambrick & Mason, 1984; McClelland et al.,

2010; Wiersema & Bantel, 1992). I used the data on age and company size from annual reports and company websites.

Humility – Thus far, the greatest obstacle in the study of humility has been the lack of an established measure (Davis et al., 2011), with researchers maintaining that it is less visible in leaders than other characteristics (Vera & Rodriguez-Lopez, 2004). Furthermore, definitions derived from psychological, philosophical, and religious perspectives (Owens, 2009) have varied in their dimensions (Owens et al., 2011). To measure CEO humility by using a survey, I used a recently developed scale by Owens et al. (2013). The measure contains nine items and has been tested as a subordinates' report in the organizational context. I slightly rephrased the items to account for my research setting and used a 5-point Likert scale.

Prior theoretical studies of humility have seen some discussion about the stability of humility (Devers et al., 2011; Owens et al., 2011). Most authors have viewed humility as a trait that is mostly stable over time (Davis et al., 2011; Morris et al., 2005; Owens & Hekman, 2012; Vera & Rodriguez-Lopez, 2004). Thus, I assumed humility to be constant over the 4 years investigated in my study.

Overall, the items showed acceptable consistency, with a Cronbach's Alpha of 0.92, factor loadings from 0.63 to 0.84, a composite reliability of 0.93, and an average variance extracted of 0.58. The results are summarized in Table 14 in the appendix. Owens et al. (2013) tested a three-factor structure with a second-order factor versus a one-factor solution to capture three indicators of expressed humility that are reflected in their nine items. In my work, this three-factor solution did not yield acceptable results; consequently, I used a one-factor structure

in my analyses. I considered this to be a minor issue, as the overall construct loaded acceptable, and I did not use facets of humility in my hypotheses.

Strategic change – To measure the level of strategic change, I followed the existing research that captured strategic change by researching multiple key dimensions of resource deployment (e.g., Finkelstein & Hambrick, 1990; Haynes & Hillman, 2010; Zhang & Rajagopalan, 2010). Finkelstein and Hambrick (1990) introduced six indicators to measure strategic change – or, to be more precise, the lack thereof, specifically strategic persistence and strategic conformity. Due to a lack of data, advertising intensity could not be calculated and used; Finkelstein and Hambrick (1990) encountered the same issue. The remaining indicators were research and development intensity (R&D expenses / sales), plant and equipment newness (net P&E / gross P&E), nonproduction overhead (SGA expenses / sales), inventory levels (inventories / sales), and financial leverage (debt / equity), all of which were calculated based on data from *Compustat*.

Strategic change consists of two facets: strategic variation and strategic deviation (Carpenter, 2000; Haynes & Hillman, 2010). The second facet is important to accounting for changing patterns in the industry (Zhang & Rajagopalan, 2010) because general trends induce changes in the resource deployments of all companies in the industry. As following such an industry-wide trend would lead to strategic variation but should not be considered innovative or risky, I applied a conceptualization that captures the magnitude of both aspects in one measure (Zhang & Rajagopalan, 2010). Thus, I calculated the annual change for every company in each of the above-mentioned indicators and computed the absolute difference to the industry median to obtain an annual figure for each indicator. The industry median was calculated as the median of

all companies in the given industry group as found in *Compustat* and were not considered to be outliers. To address the outliers, I computed the Mahalanobis distance from all tuples of strategic change indicators to the means of these indicators. I then excluded all survey companies that had a distance greater than the 99.5 % quantile of the chi-squared distribution on each side. I excluded extreme observations such as bankruptcy and elevated and volatile ratios of R&D to sales in young pharmaceutical companies that did not seem to accurately reflect the relation that I sought to study. The existing research excluded these volatilities by limiting their population to only large companies (e.g., \$m 100 sales Zhang & Rajagopalan, 2010), which I avoided to obtain more generalizable findings. Finally, the overall measure for each company and year was obtained as the mean of the five standardized single indicators.

Tenure – Tenure was measured as positional tenure (i.e., the number of years that the CEO and TMT had been in office in the current company in that given year). I obtained the data on CEO and TMT tenure from annual reports, press releases, and company websites. I used the average TMT tenure in my calculations. Members of the TMT for my purpose were the members of the management board.

B.4.3 Data analysis

Because my data analysis included cross-sectional and time series components, I followed Zhang and Rajagopalan (2010) by using a panel with a cross-sectional time-series regression for the time period 2008–2011. The method that I applied is generalized least squares (GLS) regression. Each CEO is considered to be a panel in such a setting. Furthermore, autocorrelation was addressed by specifying a panel-specific AR1 autocorrelation structure. I modeled my data

as “balanced” using missing data indicators for the years that the CEO was not yet in office or when the archival data were not available. For the latent construct CEO humility, I used standardized factor scores. For my purposes, CEO and TMT tenures were also standardized. To accurately assess the impact of CEO humility, I excluded all CEOs who came into office later than the beginning of 2009.

B.5 Results

I summarize the descriptive statistics of all variables in Table 2. The nonstandardized measure for CEO tenure has a mean of 9.40 years and a standard deviation of 7.62 years.

Table B-2 Descriptive Statistics - Research Question 1

Variables	Mean	Std. dev.	Min	Max
1. Strategic Change	-0.03	0.61	-0.43	8.06
2. CEO tenure	0.29	1.11	-0.89	4.12
3. Humility	-0.05	0.97	-2.90	1.70
4. Avg. TMT tenure	0.03	0.99	-1.46	4.56
5. Year 2008	0.19	0.39	0.00	1.00
6. Year 2009	0.24	0.43	0.00	1.00
7. Year 2010	0.30	0.46	0.00	1.00
8. Germany	0.76	0.43	0.00	1.00
9. Austria	0.07	0.25	0.00	1.00
10. Switzerland	0.17	0.38	0.00	1.00
11. Firm size	7.67	1.86	2.30	11.80
12. Prior firm performance	0.04	0.06	-0.23	0.28
13. CEO age	53.19	7.14	32.00	70.00
14. Beta Euro STOXX 600	0.88	0.47	-0.04	2.33

The bivariate correlation coefficients are reported in Table 3. The negative coefficients of the control variables company size, prior performance, and CEO age showed the expected negative association. Thus, larger companies, companies with a strong financial performance in the recent past, and companies with older CEOs, indeed, seem to initiate significantly less strategic change.

Table B-3 Bivariate Correlations - Research Question 1

Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. Strategic Change	-													
2. CEO tenure	0.12*	-												
3. Humility	-0.07	-0.26*	-											
4. Avg. TMT tenure	0.04	0.23*	-0.10	-										
5. Year 2008	0.00	0.03	-0.07	-0.06	-									
6. Year 2009	0.06	-0.02	-0.03	-0.02	-0.29*	-								
7. Year 2010	-0.02	-0.04	0.04	-0.02	-0.32*	-0.36*	-							
8. Germany	0.09	0.17*	-0.03	-0.09	0.03	0.00	-0.01	-						
9. Austria	-0.02	-0.05	-0.18*	0.07	-0.03	-0.02	0.02	-0.45*	-					
10. Switzerland	-0.09	-0.15*	0.14*	0.06	-0.02	0.01	0.00	-0.84*	-0.11*	-				
11. Firm size	-0.39*	-0.35*	0.09	-0.14*	-0.05	-0.03	0.02	-0.13*	0.09	0.10	-			
12. Prior firm performance	-0.2*	-0.10	-0.05	0.11	-0.01	-0.03	-0.07	-0.16*	0.02	0.17*	0.13*	-		
13. CEO age	-0.16*	0.3*	-0.07	-0.06	-0.09	-0.03	0.01	0.06	-0.02	-0.05	0.26*	-0.04	-	
14. Beta Euro STOXX 600	-0.03	-0.13*	-0.03	-0.10	-0.01	-0.03	-0.01	-0.12*	0.16*	0.04	0.28*	0.03	0.04	-

*: p-value significant at <0.05.

To test my hypotheses about the association among CEO tenure, average TMT tenure, CEO humility, and strategic change, I generated five models. In Model 1, I used the control variables to predict strategic change. I added the main effect of CEO tenure and average TMT tenure in Model 2 and Model 3, respectively. In Model 4, the 2-way interaction effect between CEO tenure and average TMT tenure was added; and finally, Model 5 included CEO humility and the 3-way interaction effect among CEO tenure, average TMT tenure, and CEO humility. The results of all five models are presented in Table 4.

Table B-4 GLS Regression CEO Tenure, CEO Humility TMT Tenure, and Strategic Change

Variables	Strategic Change				
	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	1.77*** (0.29)	1.69*** (0.26)	1.76*** (0.29)	1.76*** (0.26)	2.11*** (0.29)
<u>Control variables</u>					
Year 2008	-0.05 (0.09)	-0.09 (0.09)	-0.05 (0.09)	-0.09 (0.09)	-0.07 (0.09)
Year 2009	0.10 (0.08)	0.04 (0.07)	0.10 (0.08)	0.05 (0.07)	0.07 (0.07)
Year 2010	0.00 (0.07)	-0.03 (0.06)	0.00 (0.07)	-0.02 (0.06)	-0.02 (0.06)
Austria	0.03 (0.09)	-0.02 (0.07)	0.02 (0.09)	-0.01 (0.08)	0.14* (0.07)
Switzerland	-0.07 (0.09)	-0.10 (0.08)	-0.09 (0.09)	-0.14* (0.08)	-0.10 (0.09)
Firm size (ln employees)	-0.15*** (0.02)	-0.20*** (0.02)	-0.15*** (0.02)	-0.21*** (0.02)	-0.23*** (0.03)
Prior firm performance (RoA)	-0.31 (0.46)	0.06 (0.33)	-0.31 (0.44)	0.09 (0.40)	0.13 (0.38)
CEO age	-0.01** (0.00)	0.00 (0.00)	-0.01** (0.00)	0.00 (0.00)	-0.01 (0.01)
External expectation (Beta Euro STOXX 600)	0.11 (0.07)	0.08 (0.06)	0.12* (0.07)	0.10 (0.07)	0.13* (0.08)
<u>Predictors/main effects</u>					
CEO tenure		-0.15*** (0.03)		-0.17*** (0.03)	-0.16*** (0.04)
TMT tenure			0.01 (0.03)	0.06* (0.03)	0.05 (0.04)
CEO humility					0.18*** (0.04)
<u>Interactions</u>					
CEO tenure X TMT tenure				-0.04* (0.02)	-0.07* (0.03)
CEO tenure X CEO humility					-0.12*** (0.03)
TMT tenure X CEO humility					0.14*** (0.04)
CEO tenure X TMT tenure X CEO humility					-0.09** (0.03)
Wald χ^2	97.90***	212.51***	97.94***	131.80***	158.63***
N	281	281	281	281	281

a) Standard errors are in parentheses *** p < 0.001, ** p < 0.01, * p < 0.05, two-tailed tests

In the German, Austrian, and Swiss corporate settings, I found clear support for the findings from the prior research that CEO tenure has a negative relation to strategic change, as CEO tenure had a negative and significant association with strategic change in Models 2, 4, and 5. Thus, Hypothesis 1 was supported. The main effect of CEO tenure on strategic change in Model 2 was negative and highly significant ($b = -0.15, p < 0.001$). This relation remained highly significant when average TMT tenure and the two-way interaction terms were added in Model 4 ($b = -0.17, p < 0.001$); it was also highly significant in Model 5, when the three-way interaction term was added ($-0.16, p < 0.001$).

Hypothesis 2, with regard to the hypothesized effect of the two-way interaction between CEO tenure and average TMT tenure, was also supported, as the term is negative and significant in Model 4 and 5 ($b = -0.04, p < 0.1$ in Model 4 and $b = -0.07, p < 0.1$ in Model 5). Hence, average TMT tenure amplified the negative relationship between CEO tenure and strategic change; however, the effect was not highly significant.

Finally, with regard to the joint effect of CEO tenure, average TMT tenure, and CEO humility, I found support for Hypothesis 3. The three-way interaction in Model 5 was negative and significant ($b = -0.09, p < 0.05$), which means that the level of strategic change declined faster with increasing CEO tenure when the average TMT tenure and CEO humility were high. A second calculation that treated all observations with a Mahalanobis distance greater than the 99% quantile of the chi-squared distribution as outliers yielded basically the same results.

To further illustrate my findings, I plotted the relevant two- and three-way interactions. The positive or negative values of strategic change in my analysis and consequently in these graphs do not refer to any direction of the strategic change but to a variation from year to year in

the amount of strategic change relative to the industry. Negative values depict an absolute annual change below the industry average, whereas positive values indicate an absolute annual change above the industry average, as I used the absolute deviation from the industry median and standardized measures.

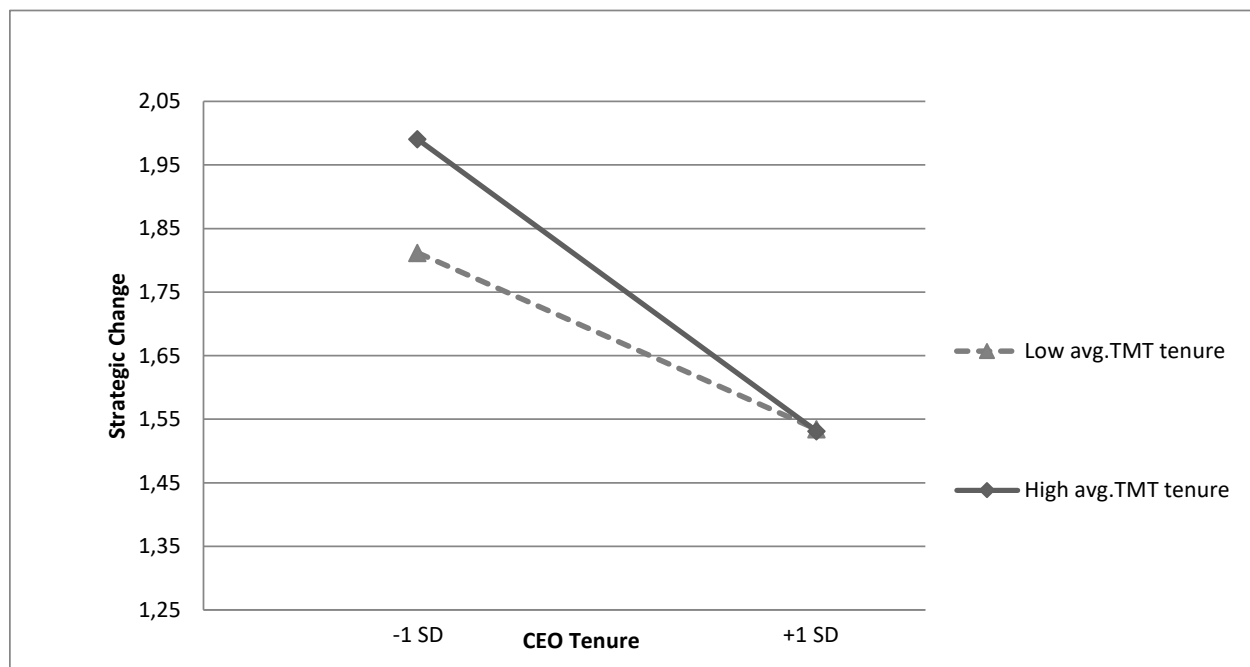


Figure B-1. Relation between CEO tenure and strategic change, moderated by TMT tenure.

The relation between CEO positional tenure and strategic change is plotted in Figure 1 under the conditions of low and high average TMT tenure (+/- one standard deviation). First, Figure 1 illustrates Hypothesis 1, as both graphs have a negative slope and consequently indicate the negative relationship between CEO tenure and strategic change regardless of average TMT tenure. However, the steeper and more negative slope for CEOs with higher average TMT tenure

in Figure 1 illustrates Hypothesis 2, as the negative relationship between CEO tenure and strategic change is more pronounced in the case of high average TMT tenure.

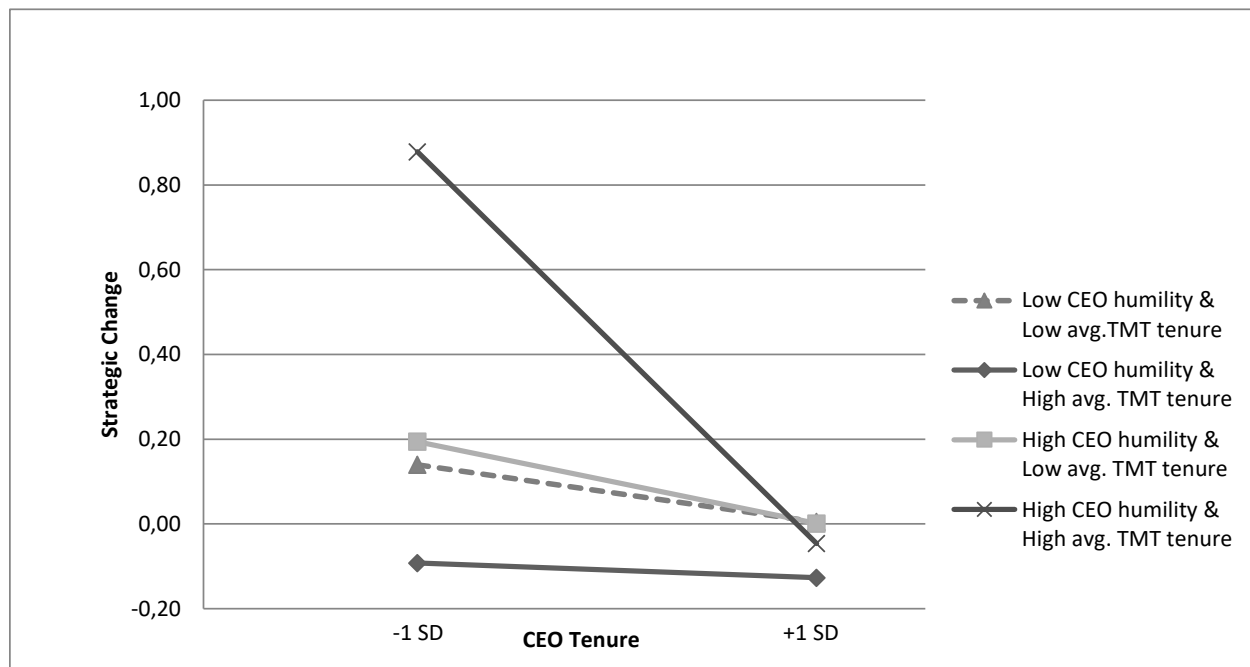


Figure B-2. Three-way interaction between CEO tenure, CEO humility, and TMT tenure on strategic change.

The three-way interaction is shown in Figure 2. The illustration helps depict the main findings. First, the combination of high CEO humility and longer TMT tenure led to the steepest drop-off in the level of strategic change as the CEO matured. However, this combination also by far had the highest level of strategic change when CEO tenure was low. The combination of the CEO's willingness to change and the internal knowledge of the TMT clearly sparked strategic change. This was driven by both factors – CEO humility and TMT tenure – as both graphs for high CEO humility are above the graphs for low CEO humility, and in the case of high CEO

humility, the graph for high TMT tenure is above the one that illustrates low TMT tenure. The differences disappear in the later years of the CEO tenure, and the level of strategic change becomes more similar. Obviously, neither CEO humility nor TMT tenure were able to fully diminish the effects of increasing CEO tenure.

Table B-5 Results Slope Difference Test

Pair of slopes	t-value for slope difference	p-value for slope difference
(1) and (2)	-4.262	0.000
(1) and (3)	-3.273	0.001
(1) and (4)	-4.298	0.000
(2) and (3)	1.378	0.169
(2) and (4)	0.645	0.520
(3) and (4)	-1.237	0.217

The test for slope difference yielded only significant results for the graph “high CEO humility and high TMT tenure” compared to the three other graphs; hence, the slope difference is significantly different from zero (Aiken & West, 1991). Based on the not significant results of the other slope difference test, I did not interpret the other slopes. The results of the slope difference test are reported in Table 5. This slope difference test is not about researching the significance of the interaction effect itself, which is shown by the significant coefficient of the interaction term in my model (Aiken & West, 1991), but about the question of whether the slopes are significantly different.

B.6 Discussion

The purpose of this study and my primary contribution was to research the CEO-TMT interface and the conditions that determined the relevance of this CEO-TMT interface with regard

to strategic change. CEO humility as a personality trait that is likely to change habits and the intensity of interactions served as such a condition for the CEO-TMT interface relevance. Thus, at first, the joint impact of CEO and TMT tenure on strategic change as one observable result of the CEO-TMT interface was established to research whether the relevance of this relation was ultimately altered by CEO humility.

The CEO-TMT interface offered a useful framework in which to study the joint effect of this group of powerful actors within the company on pivotal aspects of decision making at the corporate level. I expected it to help better explain the variances in corporate actions than limiting the research to any one subset of these executives as it accounts for the characteristics of both the CEO and the TMT while factoring in their distinct roles in the company. To establish this CEO-TMT interface in my study, I followed Arendt et al. (2005) and their call to reexamine existing research that used only a subset of top executives and their characteristics by researching both the CEO and the TMT. The negative relation between tenure and strategic change is well researched and the CEO-TMT interface research is gaining momentum, yet there has been little research on the combination of CEO and TMT tenure and the effects on strategic change. It seemed reasonable to distinguish between the position of the CEO and the remaining TMT due to the outstanding position of the CEO within the executive suite; however, the knowledge and capabilities of the TMT are nonetheless likely to facilitate the implementation of strategic change. Thus, none of these executives should be ignored when studying the antecedents of strategic change.

Theoretically, the complementary nature of CEO and TMT tenure should allow different abilities and capabilities that are associated with shorter or longer tenure to reinforce high levels

of strategic change when the tenures of the CEO and TMT differ. A newly appointed CEO has novel strategic initiatives and ideas on his or her agenda, whereas experienced TMT members have the knowledge to adapt these initiatives to fit the company-specific situation and the capabilities to facilitate the implementation of strategic change. On the other hand, an experienced CEO receives fresh input from a newly appointed TMT, as short-tenured TMT is likely to bring new ideas to the CEO, preventing the CEO from getting stuck in old solutions.

I was able to find support for a robust and significant joint association between CEO tenure and TMT tenure on one side and different levels of strategic change on the other side. In my study, this joint association went beyond the two main effects of CEO tenure and average TMT tenure on strategic change. Hence, the CEO-TMT interface was very relevant in my research and helped to explain better the established, negative relationship between tenure and strategic change. The higher the average TMT tenure, the more pronounced the decline of strategic change initiated as CEO tenure increased, as tendencies to stick to solutions that worked in the past kept reinforcing. It is not contradictory yet noteworthy that the level of strategic change was higher for short-tenured CEOs when the TMT has a higher average tenure. The abilities with regard to idea creation and strategy formulation and adjusting to company specifics seemed to complement each other in such settings very strongly. Future research could look into the specific roles during this process in more detail. Prior research has suggested that having diverse backgrounds in terms of demographics and experience can have a negative impact on the personal relationships and the intensity of communications (Ling et al., 2015). However, frequent interactions and getting to know each other will reduce these potential conflicts (Ling et al., 2015) – thus, CEO humility is likely to offset these tendencies and consequently enable fruitful relationships and interactions by increasing the amount of interactions. As in the case study based

work of Ma and Seidl (2018) new CEOs can use the more experienced members of the TMT for sparring new ideas and get no perspectives specific to the company.

Existing research has implicitly assumed that all CEOs and their respective TMT do not necessarily work together in a similar fashion but at least do so to a similar extent and, consequently, that the CEO-TMT interface is similarly relevant in all instances. Although this basic assumption that the CEO-TMT interface helps to extend our knowledge about corporate outcomes was supported in my study, the premise that all executives act uniformly within the framework of the CEO-TMT interface seems simplistic and was refuted in my research. In accounting for the specific context in which the CEO and TMT are situated, one should account not only for industry and size but also for the CEO's personality. By integrating research from different streams to test whether CEO humility helps to further explain the variances in levels of strategic change, I challenged these assumptions that the CEO-TMT interface is similarly relevant for all combinations of CEOs and TMT.

As CEO humility increases the quality and quantity of interaction between the CEO and TMT and thus strengthened the relevance of the CEO-TMT interface itself, the interface became more relevant in explaining different levels of strategic change. By including CEO humility as an additional moderator, I was, indeed, able to detect a significant pattern. Thus, as hypothesized, the influence of the TMT members appeared to be contingent upon the degree to which the CEO was open to such influence and was willing to listen to the advice and rely on the support of the TMT. The plotted graphs in Figure 2 show that the difference between low and high TMT tenure was clearly more pronounced when CEO humility was high. Thus, the TMT and effects of TMT tenure seemed to be more influential when the CEO was humble. At the beginning of their

tenure, all CEOs seemed to initiate more changes in resource deployment according to their strategic agenda, regardless of their level of humility and the TMT tenure. However, as shown by the magnitude of the drop-off later in their tenure, humble CEOs who benefited from the internal knowledge of a seasoned TMT seemed to have much less of a need to adjust their resource deployment and initiate strategic change in the later phases of their tenure compared to their early years in office.

By choosing a research setting outside of North America, these findings likely are even stronger. Germany, Switzerland, and Austria have a somewhat collaborative culture, in which the CEO is believed to have less managerial discretion than US CEOs (Crossland & Hambrick, 2007, 2011). Thus, the effect of CEO humility should be even more pronounced in countries such as the United States. That I found this relation in this type of corporate culture strengthened my belief that CEO humility is relevant with regard to the CEO-TMT interface.

Secondly, my research added to the growing literature on virtue and, in particular, humility among top executives. After a series of corporate scandals, the study of positive traits seemed to be worthwhile, not least for its practical implications for companies. In general, this study added to a growing body of empirical knowledge about the outcomes of top management personalities – a research field long been dominated by the use of demographic proxies. In fact, my research is part of a growing stream of empirical studies of humility as a personality trait among top executives and shed further light on the relevance of studying CEO humility—as most of the existing research on humility has been speculative or conceptual (Owens & Hekman, 2012). I added to the recent empirical research on the consequences of CEO humility (e.g., Ou et al., 2014; Owens & Hekman, 2016). Lastly, my study validated the applicability of the humility

scale that has been developed by Owens et al. (2013) as subordinate reports to research CEO humility.

As for practical implications, this kind of research helps internal and external stakeholders refine their expectations regarding strategic change when they face humble CEOs. My results also inform boards of directors about the general change patterns of CEOs based on their humility level and the TMT that is already in place. The mandate for change might differ depending on the CEO's personality. Boards that seek higher levels of strategic change may want to keep the TMT in place and not give in to the impulse to replace the entire TMT to provide a humble CEO with an experienced TMT with whom to work; or, more generally speaking, to complement the CEO with specific experience patterns of the TMT

As in all research studies, my study has limitations. Using a survey that asks subordinates to rate their respective CEO's level of humility is, in my view, the most appropriate method to date. However, the answers may have been biased or ill-informed; although I expected the respondents to have exposure to the CEO because the finance function is central to contemporary firms (Zorn, 2004). However, I could not distinguish between the actual personality trait and perceived humility. I also assumed that CEO humility remained constant over this short period of 4 years. Although this assumption was backed by theorists who claim that humility is a stable trait (Owens & Hekman, 2012), I was not aware of any empirical evidence that humility within top executives does or does not change over time. Furthermore, it is not fully confirmed whether humility and perceptions of humility may be biased due to prior company performance and success (Owens & Hekman, 2012). However, I worked to ensure that the respondents and the

CEOs had at least one year of joint tenure to ensure that the former had time to distinguish between superficial and situational humility, as opposed to an underlying personality trait.

Second, I was unable to measure the quality and quantity of the theorized information exchange between the CEO and the members of the TMT. The existing research on top executives' humility and the conceptualization used in my research suggest that humble CEOs are more able to use frequent and high-quality information exchange and joint decision making. The recent research on the positive effects on TMT integration (Ou et al., 2014) has provided support for these assumed processes.

Third, using a cross-sectional setting for the survey allowed more generalizable conclusions, but might also have altered the results of my findings due to industry differences. I tried to address this limitation by using the industry groups and measuring strategic change and performance beyond the respective industry group's average. Furthermore, in this research setting, I did not consider the humility level of the overall top management team or measure the average tenure of the CEO's sources of information. This would have been only possible in the context of an in-depth survey of the CEO.

Finally, I was not able to eliminate the potential problem of reverse causality and CEO self-selection in that a certain type of company may be more attractive to humble CEOs based on a culture of strategic change or on prior patterns of strategic change. I tried to address this issue by using a measure of strategic change that also captured the deviation from past patterns.

This topic and my findings offer several fruitful avenues with which to extend my research on the organizational outcomes of CEO humility. I have only hypothesized that CEO humility increases the quality and quantity of the information exchange between the CEO and

members of the TMT. Future research might examine this information exchange to shed further light on the underlying processes of the CEO-TMT interface.

Moreover, researchers can address the question of whether different combinations of TMT tenure and CEO humility also lead to different performance levels or if a different set of personality traits is necessary to translate strategic change into financial success (Herrmann & Nadkarni, 2014). Does CEO humility make a difference in adapting to changes in the environment and help to build flexible organizations that are able to fluidly react without major changes in strategy? I did not test whether the strategic change that is initiated by humble CEOs and a seasoned TMT leads to better or worse performance for the company. The existing literature does not show any univocal link between strategic change and performance (Zhang & Rajagopalan, 2010). To some degree, strategic change seems to be necessary in order for companies to adapt to the environment and ensure superior performance (Miller, 1991); however, strategic change occasionally seems to serve the need of the CEO more than those of the company (Chatterjee & Hambrick, 2007). Arguments that humble CEOs generally achieve superior performance (Vera & Rodriguez-Lopez, 2004) or might be better suited to detecting the few strategic initiatives that are worth pursuing (Owens & Hekman, 2016) conceptually point to better financial performance. A related question is whether the commitments to the status quo also grow stronger in humble CEOs or if they maintain their openness to change – as hypothesized by some authors – and their declining levels of strategic change are due to persistence with regard to their long-term plan.

C The moderating effect of CEO humility on the performance impact of strategic change³

C.1 Abstract

Research on the performance impact of strategic change has produced ambiguous results in the past. The existing research has largely neglected the influence of the CEO as the main actor responsible for initiating and implementing strategic change. According to the upper echelon theory, individuals react differently to their environment, and consequently implement strategic change differently. While only a few studies have researched the impact of CEO characteristics on successful strategic change at all, none has researched the underlying personality traits of the CEO. Integrating the CEO into this research allows for a more complete assessment of the relationship between strategic change and performance. Some evidence has linked CEO humility to differentiation and consequent long-term success of companies. This study introduced CEO humility as a moderating variable into the relationship between strategic change and company performance. In a study of listed companies in Germany, Austria, and Switzerland, I found support for a negative moderating effect of CEO humility.

³ This Chapter is based on: Schmidt, S. (2019b). *The moderating effect of CEO humility on the performance impact of strategic change*. Unpublished Working Paper, WHU – Otto Beisheim School of Management

C.2 Introduction

Strategic change aims to align an organization with the environment by changing the fundamental pattern of the organization's resource deployments (Hofer & Schendel, 1978; Rajagopalan & Spreitzer, 1997). Studying the context and antecedents of effective strategic change is important to management research, as strategic change is considered a means of ensuring company performance (Kraatz & Zajac, 2001).

Prior research on the performance impact of strategic change and the related concept of strategic conformity has used various theoretical arguments. However, no univocal empirical findings have emerged (Rajagopalan & Spreitzer, 1997; Zhang & Rajagopalan, 2010), as scholars have followed two main research approaches. Researcher following the first method have studied environmental or company factors as moderators of the association between strategic change/conformity and performance by researching contingencies such as industry deregulation, environmental uncertainty and dynamism, and company size (e.g., Corsi et al., 1991; Eapen & Krishnan, 2009; Geletkanycz & Hambrick, 1997; Goll et al., 2007; Haveman, 1992; Kraatz & Zajac, 2001; Lant & Mezias, 1990; Miller & Chen, 1996; Smith & Grimm, 1987). This method focuses on the context and antecedents of successful strategic change. The second approach focuses on the level of strategic change, positing a curvilinear, inverted U-shaped relationship between strategic change/conformity and performance, focusing on the external pressures and the internal efforts necessary to implementing strategic change (e.g., Deephouse, 1999; Norman et al., 2007; Zhang & Rajagopalan, 2010).

While I recognized the merits of these approaches and build on their findings, I argued that prior research has not sufficiently considered an important perspective - namely, the impact of the

main corporate actors initiating and implementing strategic change. One notable exception is Herrmann and Nadkarni (2014), who studied the impact of CEO personality traits based on the five-factor model on the implementation of strategic change. Neglecting the influence of top managers implies that all top managers and, ultimately, all companies react to environmental stimuli in the same way and, furthermore, that they implement their actions correspondingly. Such an assumption is too simplistic (Hambrick, 1989). Successful change requires actions to implement the change beyond the mere allocation of funds (Augier & Teece, 2009). In a qualitative study, CEO were described as “architects, assimilators, and facilitators of strategic change” (Gioia & Chittipeddi, 1991, p. 446), stressing the role of CEOs in the implementation and sense-giving of change (Gioia & Chittipeddi, 1991; Narayanan et al., 2011). Furthermore, while personality characteristics that inspire subordinates might be less relevant to their main effect on the chosen strategy, they might be significant with regard to the implementation of strategic choices (Cannella & Monroe, 1997). These arguments support a moderating role of CEO personality traits. Based on upper echelons theory, individuals react differently to environmental stimuli based on their cognitive base and values (Hambrick & Mason, 1984). I thus researched the moderating impact of CEO humility on the association between strategic change and subsequent company performance.

According to Collins (2001), studying CEO humility in this regard is promising. He studied the commonalities of CEOs of what he called “great companies”, 11 companies that outperformed their peers over an extended period. He found that humility was common among the CEOs of these companies. Owens and Hekman (2012) concluded that humble leaders foster flexibility and reevaluation of decisions and that humble behavior might facilitate change and fosters key skills that are necessary for managing change. The role of humility in successful strategic change has also been acknowledged by Reimann (1995), who anecdotally identified humility among

successful strategic leaders. Moreover, relationships have been established between humility and organizational learning (Morris et al., 2005; Owens et al., 2011; Vera & Rodriguez-Lopez, 2004) and charismatic leadership (Nielsen et al., 2010), which are or relate to elements of strategic change (Bontis et al., 2002; Lant & Mezias, 1992; Tosi et al., 2004; Virany et al., 1992; Waldman et al., 2004).

Humility, initially intensively discussed in positive psychology, has gained attention in the management literature (e.g., Devers et al., 2011; Ou et al., 2014; Ou et al., 2015; Owens et al., 2013; Owens & Hekman, 2012, 2016). It is an orientation associated with an accurate self-view, appreciation of other's contributions and strengths, and teachability (Owens, 2009; Owens et al., 2013). I was unaware of any study that has used CEO humility to explain the short-term performance impact of strategic change, and only a few studies have accounted for the influence of the CEO; notable exceptions being CEO charismatic leadership (Waldman et al., 2004), the five-factor model of CEO personality (Herrmann & Nadkarni, 2014), and the CEO as outsider or insider (Zhang & Rajagopalan, 2010). In line with this research, I focused on the moderating effect of the CEO as the most powerful actor within the company and only controlled for other members of the TMT. I hypothesized a moderating role of CEO humility on the relationship between strategic change and performance and tested this hypothesis using a sample of listed companies in Germany, Austria, and Switzerland.

This work contributes to the literature in three distinct ways. Its primary contribution was to study whether the relationship between strategic change and performance is contingent on an important CEO personality trait – namely, the level of humility. In my view, the extant research has not paid sufficient attention to the influence of the CEO, and hence, our knowledge can be

advanced by integrating the influence of the main corporate actor who is ultimately responsible for the implementation of change. Secondary contributions included adding to the growing literature on the implications of humility among top managers. Most of this literature has been rather speculative (Owens & Hekman, 2012); hence, I contribute to empirical knowledge about the consequences of CEO humility. Furthermore, I redressed a dearth in the literature by empirically testing the concept of humility among top managers, specifically testing the applicability of humility as conceptualized by Owens et al. (2013).

C.3 Theory and hypotheses

C.3.1 Strategic change and performance

For purposes of this study, I defined strategic change as a modification in the deployment of resources in dimensions of strategic importance (Hofer & Schendel, 1978; Rajagopalan & Spreitzer, 1997). To date, the empirical findings on the relationship between strategic change and subsequent organizational performance are ambiguous (see Rajagopalan & Spreitzer, 1997 for a review). Additionally, on a theoretical level, scholars have proposed conflicting arguments regarding whether strategic change leads to improved performance.

Scholars positing a positive performance impact of strategic change have relied upon two main arguments. First, companies need to fit to their changing environments in order to prosper and survive (Hannan & Freeman, 1984; Miller, 1991; Porter, 1991). Second, companies may achieve favorable positions in the industry only through differentiation from competitors (see Deephouse, 1999 for a discussion). Such research focused on the adaptive nature of change, as most work hypothesizing a positive impact of strategic change emphasized the need to adapt to

changing environments to avoid damaging financial performance (Goll et al., 2007; Miller, 1991). In that respect, companies should implement strategic change to align themselves with critical environmental resources (Smith & Grimm, 1987). However, scholars have argued that merely attempting to maintain one's current position leads to diminishing success (Jacobson, 1992), and if industry leaders are not pursuing aggressive actions – that is, more innovative, broad-ranging, and faster actions than those of their competitors – aggressive competitors will catch up (Ferrier et al., 1999). Moreover, innovative responses to competitors' moves are expected to yield better results than imitative responses (Smith et al., 1991). In the case of fundamental changes affecting an entire industry, even disruptive strategic changes have been found to contribute to improved performance, as for example, empirically shown in studies of the railroad industry (Smith & Grimm, 1987), the savings and loans industry (Haveman, 1992), and the airline and trucking industries (Audia et al., 2000). A study of motor carriers, however, did not find support for a hypothesized positive relationship (Corsi et al., 1991). Zajac et al. (2000) found that insufficient change is more harmful than excessive change.

In contrast, scholars arguing in favor of a negative performance impact of strategic change based their work on the following arguments: first, companies are structurally inert (Tushman & O'Reilly, 1996) and incur experimentation costs (Anderson, 1988; Geletkanycz & Hambrick, 1997); and second, deviant companies suffer performance consequences from losing legitimacy (Deephouse, 1999; DiMaggio & Powell, 1983; Geletkanycz & Hambrick, 1997). Such research focuses on the disruptive nature of change. Scholars have argued that change in the central dimensions of the company increases performance volatility (Hannan & Freeman, 1984). Scholars have questioned the rationale for adapting to a changing environment, seeing strategic persistence and deviation from industry norms as antecedents to competitive advantage (Geletkanycz &

Hambrick, 1997; Kraatz & Zajac, 2001). Scholars have also argued that inappropriate change could compromise the resources that have previously made the company successful and that companies rich in these resources are not at a disadvantage when they do not react to environmental changes (Kraatz & Zajac, 2001). Furthermore, persistence can improve efficiency, and hence financial performance (Lant & Mezias, 1992). The literature on the effects of strategic conformity supports this thesis.

The definition of change/conformity is not univocal, as some scholars researched absolute positioning in the allocation of assets or funds (e.g., Deephouse, 1999; Geletkanycz & Hambrick, 1997), while others focused on conformity of strategic actions and the relative positioning to the industry (e.g., Norman et al., 2007). Methodically, I followed the second line of research as it automatically controls for industry trends. Scholars have posited that conformity should, on average, lead to positive returns (Geletkanycz & Hambrick, 1997) and decrease competitive risks (Miller & Chen, 1996). Furthermore, through legitimacy, strategic conformity results in more favorable business terms with exchange partners and in the ability to obtain the requisite support and resources (Deephouse, 1999; Geletkanycz & Hambrick, 1997; Heugens & Lander, 2009; Kale & Ardit, 2003). Empirical support for a positive linear effect of strategic conformity on performance has been obtained by, for example, the study of Chen and Hambrick (1995) of the airline industry; Geletkanycz and Hambrick (1997) in a study of the computer industry; and Heugens and Lander (2009) in a meta-analysis. However, for the food industry – a more stable industry – Geletkanycz and Hambrick (1997) found a contrary effect.

Not least due to ambiguous prior findings, several scholars have concluded that curvilinear relationships – specifically, inverted U-shaped relationships – exist between both strategic

conformity and performance (e.g., Deephouse, 1999; Norman et al., 2007) and strategic change and performance (e.g., Zhang & Rajagopalan, 2010). Deephouse (1999) and Zhang and Rajagopalan (2010) found support for their hypotheses, while the results of Norman et al. (2007) only supported the hypothesis under the condition of industry regulation. Studies on the non-linear impact of strategic conformity were either based on opposing needs to be different for competitive reasons and to be similar for legitimacy reasons (Deephouse, 1999; Norman et al., 2007), or on the opposing effects of adaption to the environment and disruption of current actions (Zhang & Rajagopalan, 2010). All three studies maintained that a positive effect of strategic change on performance is dominant for low-to-medium levels of strategic change, while the disruptive or negative effect is dominant for high levels of deviation and change. Thus, higher levels of strategic change came at the cost of losing legitimacy and higher friction due to more disruptive changes, ultimately lowering the positive performance impact. According to this nuanced view, strategic change is necessary to obtain positive performance outcomes; however, too much change will actually result in worse financial performance.

I followed these arguments and expected organizations to be more proficient in implementing adaptive levels of strategic change than in implementing disruptive change. Hence, I hypothesized the following:

Hypothesis 1: Low and medium levels of strategic change is positively associated with company performance and high levels of strategic change is negatively associated with company performance – thus, the association follows an inverted U-shape.

C.3.2 The moderating role of CEO humility

Scholars have identified the importance of the influence of managerial actions on the success or failure of strategic change (Rajagopalan & Spreitzer, 1997) and exploratorily found that humility had an association with successful strategic change (Collins, 2001; Reimann, 1995). However, research on the performance impact of strategic change has, to date, not focused on CEO personality, despite the emphasis in the strategic management literature on the impact of differences among CEOs:

“In the face of the complex, multitudinous, and ambiguous information that typifies the top management task, no two strategists will identify the same array of options for the firm; they will rarely prefer the same options; if, by remote chance, they were to pick the same options, they almost certainly would not implement them identically.” (Hambrick, 1989, p. 5)

Thus, the relationship between strategic change and performance is dependent on organizational conditions (Rajagopalan & Spreitzer, 1997) – one of which is executive leadership (Virany et al., 1992; Zhang & Rajagopalan, 2010). Researchers have identified humility as a promising personality trait in the context of strategic change and performance (Collins, 2001; Reimann, 1995).

During strategy implementation one important task of top managers is to dispel the ambiguity in the organization (Narayanan et al., 2011), as having a common vision helps organizations to manage change (Nielsen et al., 2010). In the case of low levels of strategic change, the pronounced ability of modeling teachability is likely to lower the levels of ambiguity as sense-giving by managers will be facilitated. Furthermore, humility has been associated with improved team processes (Owens et al., 2011; Owens & Hekman, 2016) and subordinate participation

(Argandona, 2015; Chiu et al., 2016; Morris et al., 2005; Ou et al., 2015), and humble CEOs listen and cooperate in order to develop joint solutions (Nielsen et al., 2010; Owens et al., 2011; Owens & Hekman, 2012), use their feedback seeking behavior to increase TMT potency (Ashford et al., 2018), and foster climates that encourage experimentation and learning through dialogue (Owens & Hekman, 2012; Vera & Rodriguez-Lopez, 2004). Moreover, humble CEOs are expected to have a positive impact on task allocation among the TMT and thus on team effectiveness (Rego et al., 2017; Rego et al., 2019). Consequently, as the ambiguity of the organization is addressed by humble top managers, the actions of each individual are aligned, and successful implementation is more likely.

Furthermore, according to Nielsen et al. (2010) subordinates more easily adopt the vision of humble CEOs as humility enables the CEO's vision to better reflect the interest of the entire organization and actively integrate input from subordinates into the vision. However, the latter argument is likely to refer to visions that are closely related to existing strategies, and consequently to adaptive strategic change. Their feedback seeking behavior is argued to offset some of the shortcomings of being perceived as being less visionary (Ashford et al., 2018). Bold actions and large-scale changes call for a vision that is different to the current course of action and thus appeals for a CEO not necessarily integrating the input of subordinates. Humble CEOs are generally less effective in times of turmoil and time pressure when decisions need to be made quickly as they provide less stabilization to their subordinates in such times (Owens & Hekman, 2012).

To further theoretically assess the differences among CEOs implementing strategic change, I referred to the research on organizational learning. I argued that behaviors and preferences related to learning are helpful for understanding the influence of the CEO on the successful implementation

of strategic change as change is believed to result from a learning process (Lant & Mezias, 1992), and organizational learning as a company resource should be factored into discussions about strategy and strategic change (Kraatz & Zajac, 2001). Humility has been positively linked to organizational learning (Morris et al., 2005; Owens et al., 2011; Vera & Rodriguez-Lopez, 2004) and is considered the basis for learning processes (Hayes, 1978) at the individual and organizational levels (Owens et al., 2011) as humble executives accept the uncertainty and potential errors that come with learning (Owens & Hekman, 2012).

The literature on organizational learning has generally identified two forms of learning: exploitation and exploration. Exploitation is about refining and extending existing knowledge, while exploration is about experimentation and finding new technologies or competencies (March, 1991). A second classification distinguishes between two learning modes; namely, first-order learning and second-order learning (Lant & Mezias, 1992). First-order learning is defined as a routine, incremental process, sustaining existing rules. Second-order learning “is characterized by the search for and exploration of alternative routines, rules, technologies, goals, and purposes, rather than merely learning how to perform current routines more efficiently” (Lant & Mezias, 1992, p. 49).

Based on these definitions, exploitation and first-order learning seem to relate to the adaptive effect of low levels of strategic change, while exploration and second-order learning appear to refer to the disruptive effect of high levels of strategic change as argued by Zhang and Rajagopalan (2010). This proposal aligns with the argument of Virany et al. (1992), who related first-order learning to times of “convergence”, or periods during which companies learned to be more efficient with the existing strategy; and second-order learning to times of “reorientation,” periods

during which organizations fundamentally altered their operating modes. Thus, having a disposition for one these learning modes and, more importantly, being able to manage one of these modes more effectively is likely to translate into the ability to implement adaptive or disruptive levels of strategic change.

Regarding the learning modes of exploitation and exploration, humble CEOs should be inclined to prefer the former. Humble executives prefer small, continuous changes to large, infrequent changes (Owens et al., 2013; Owens & Hekman, 2012). Moreover, they favor frequently updating their chosen course and evaluation using newly available information (Owens & Hekman, 2012), learning from feedback (Nielsen et al., 2010), and taking corrective measures after disappointing performance (Owens, 2009). Furthermore, they would rather build on the existing foundation than start from scratch (Owens & Hekman, 2012), although they are willing to change solutions that worked in the past, if necessary (Vera & Rodriguez-Lopez, 2004). Thus, humble CEOs are likely to prefer lower levels of strategic change over disruptive change. As incremental learning in the past makes future incremental learning more efficient (Levinthal & March, 1993), humble CEOs not only prefer small changes but also become increasingly good at managing small changes – thus, making them more successful at implementing low levels of strategic change than high levels.

All these arguments suggest that humble CEOs master low levels of strategic change more efficiently than high levels of strategic change. I concluded that humble executives are better at managing the adaptive aspects of strategic change than the disruptive aspects. Thus, I posited that CEO success in implementing different levels of strategic change depends on their humility level

and that the drop-off in financial performance in case of disruptive strategic change will be more severe when a company is led by a humble CEO.

Hypothesis 2: CEO humility further strengthens the negative impact of strategic change on subsequent company performance, i.e., the performance difference between low and high levels of strategic change is more pronounced for humble CEOs.

C.4 Method

C.4.1 Sample and data

To study the effect of CEO humility on the relationship between strategic change and subsequent performance, I used matched survey data and archival data. My research work focused on all listed companies in Germany, Austria, and Switzerland.⁴ I chose listed companies for this study because they ensured a minimum size and a sophisticated level of internal processes, as regulatory procedures forced them to disclose information (Davila & Foster, 2005). The data used to identify companies and relevant contacts were collected from the *Hoppenstedt*, *Amadeus*, and *Dafne* databases. Furthermore, I conducted thorough checks using information from annual reports and company websites to identify the CEO and the contact for my survey.

Scholars have claimed that traits can be subject to over- or underrating in self-reports (Morris et al., 2005) and that it seems paradoxical to use self-reported humility (Davis et al., 2011; Owens et al., 2013). As relationships and interactions with coworkers are considered important parts of the humility construct (Davis et al., 2011), using peer reporting to measure CEO humility

⁴ This was part of a larger research project – see Chapter A

seemed more appropriate. Moreover, for interpersonal dimensions, ratings by subordinates have been found to be more reliable than ratings by supervisors (Blair et al., 2008). Hence, the survey was sent to a subordinate to rate the humility level of his or her CEO. Specifically, I contacted a senior manager from the finance department to respond to my survey. When such a senior manager could not be identified, the CFO of the company was addressed. I expected both positions to have considerable exposure to the CEO due to the importance of the finance function (Zorn, 2004). Finally, I used matched archival data on performance and strategic change indicators for the period from 2008 to 2011 from *Compustat*, *Datastream*, annual reports and company websites.

Data collection for CEO humility took place between April 2012 and July 2012, and followed established procedures in conducting the survey (Dillman et al., 2009; Naranjo-Gil et al., 2008). Prior to sending out the questionnaire, I conducted pre-tests in several interviews with scholars and practitioners to ensure the clarity and understandability of the questionnaire. An invitation letter enclosed with a paper questionnaire was sent out by postal mail to the finance managers. Follow-up measures included an e-mail invitation containing a link to the online questionnaire, two e-mail reminders, and phone calls. To increase the number of responses, all participants were promised a detailed report of the results, a chance to enter a lottery, and a donation to a charitable organization.

Of the 1,031 persons contacted, 255 completed the questionnaire, resulting in an acceptable response rate of 25% (Cycyota & Harrison, 2006; Hambrick et al., 1993; Simsek et al., 2010). The final analysis only includes CEOs with an appointment date prior to 2009 to ensure that these managers had sufficient time in office to initiate strategic change according to their preferences. Furthermore, as strategic change was calculated as change between t and $t-1$ and its effect on

performance in $t+1$; the available archival data from 2008 to 2011 provided a maximum of three observations per company. Given these constraints and that the analysis needed at least two observations per company, the final sample included 188 observations and 70 CEOs. To ensure the validity of the results, I tested for several sources of bias – namely, non-response bias based on firm revenues and the number of employees based on data obtained from *Compustat*, online versus paper-based questionnaire completion, and early versus late respondents. I found no indication of any bias from these sources, as none of these tests was significant at the 5% level.

C.4.2 Measures and data analysis

I measured all independent and dependent variables in line with prior research using existing measures.

Control variables – I used control variables from three different levels, namely, the country level, the company level, and the individual level. To control for country effects, I included dummy variables for the country of the company and the respective year. These factors influence the amount of managerial discretion (Crossland & Hambrick, 2011; Finkelstein & Hambrick, 1990), which might determine the ability to initiate strategic change and, more importantly, to influence implementation. I did not include an industry dummy variable because all relevant variables (i.e., strategic change and performance) take industry effects into account via centering on the industry median. At the company level, I controlled for company size, measured as the natural logarithm of the number of employees obtained from annual reports, performance in the prior year obtained from *Compustat*, expectations from external stakeholders as measured by the 5-year beta of the stock compared to the STOXX-EUROPE-600 index from *Datastream*, and average TMT tenure.

Size was included because larger companies might have structures that are more difficult to alter (McClelland et al., 2010), while expectations from external parties might influence the actions undertaken by the company (Bednar et al., 2013). Prior performance was included to account for a track record of performance. TMT tenure was used as control variable to account for the assumed effect that longer tenured TMT are better at implementing strategic change than TMT with less tenure in office. Finally, at the individual level, I controlled for CEO age and tenure, as well as for CEO educational background, such as business, engineering, or other, because such CEO background variables might influence strategic change and performance (Zhang & Rajagopalan, 2010). CEO tenure was measured as positional tenure (i.e., the number of years the CEO had been in that position in the current company and year). The data on CEO characteristics were taken from company websites and annual reports.

Data analysis – To analyze my data, I used a panel with cross-sectional time series regression for the period between 2008 and 2011. I estimated a generalized least squares (GLS) regression and addressed autocorrelation between observations – as each CEO is considered a panel – using a panel-specific AR1 autocorrelation structure. This approach aligns with prior research (see, for example, Zhang & Rajagopalan, 2010). Strategic change was measured as the change between year $t-1$ and year t . To capture performance after a strategic change, I used the return on assets in year $t+1$ as the dependent variable.

Humility – To measure CEO humility, I used a survey scale developed very recently by Owens et al. (2013). This measure contains nine items and has been tested for subordinate reports in an organizational context (Owens et al., 2013). Items include *This person actively seeks feedback, even if it is critical* and *This person takes notice of others' strengths*. Items were

measured on a 5-point Likert scale. I slightly rephrased the items to account for my research setting. To create a German questionnaire, two researchers independently translated the nine items into German and discussed their translations to reach consensus. A native speaker of both German and English then back-translated the items into English and compared them to the original items to ensure that their meaning remained unchanged, which is an established procedure (Felfe, 2006). Overall, the items showed acceptable consistency, with a Cronbach's alpha of 0.92, factor loadings ranging from 0.63 to 0.84, a composite reliability of 0.93, and an average variance extracted of 0.58. The results are summarized in Table 14 in the appendix. I used standardized factor scores in my data analysis. Owens et al. (2013) tested a three-factor structure with a second-order factor versus a one-factor solution to account for the different facets of humility. In contrast to their work, I found that the one-factor solution yielded better results.

Performance – I measured performance as the return on assets (ROA) beyond the industry average. Thus, I subtracted the industry average from each company's ROA. To obtain the industry average, I computed the annual average performance of all companies in a particular industry group that responded to my survey, excluding outliers. In this case, outliers included all companies that had an observation in the top or bottom 0.5%. This approach is in line with prior research and controls for industry effects (see, for example, Huson et al., 2004 and Zhang & Rajagopalan, 2010). I used *Compustat* data for my company performance calculations.

Strategic change – Strategic change generally has two facets, strategic variation and strategic deviation (Carpenter, 2000; Haynes & Hillman, 2010). Strategic variation is concerned with changing patterns of resource deployment within the company, while strategic deviation

captures the company's divergence from industry norms. To capture the extent of strategic change in a company, I followed multiple authors who defined strategic change as the "strategic resource allocation profile" (Haynes & Hillman, 2010, p. 1149). The indicators I used were well established in the strategic change literature (Haynes & Hillman, 2010; Zhang & Rajagopalan, 2010). Finkelstein and Hambrick (1990) introduced these six indicators to measure strategic change – or, more precisely, the lack thereof for strategic persistence and strategic conformity. This composite measure covers a broad range of strategic choices available to top executives (Finkelstein & Hambrick, 1990). I used research and development intensity (R&D expenses / sales), plant and equipment newness (net P&E / gross P&E), nonproduction overhead (SGA expenses / sales), inventory levels (inventories / sales), and financial leverage (debt / equity). Due to insufficient data, I had to leave out advertising intensity – an issue that Finkelstein and Hambrick (1990) also encountered. Because of missing data, they excluded advertising intensity and research and development (R&D) intensity from some of their calculations.

Strategic variation can be partly induced by following industry trends – resulting in changes relative to past company patterns – which should not be considered innovative or risky. I followed Zhang and Rajagopalan (2010) in their conceptualization of two facets in one measure. They used the annual change in resource deployment patterns of the company beyond industry-level changes. I obtained these data from *Compustat*. To calculate the extent of strategic change, I classified all companies that responded to my survey by their SIC code into the following industry groups: "Manufacturing," "Transportation," "Communications," "Electric, Gas, and Sanitary Services," "Services," and "Others." The distribution of industries and countries is shown in Table 6.

Following Zhang and Rajagopalan (2010), for every company I calculated the annual change in each of the abovementioned indicators and computed the absolute difference from the industry median to obtain an annual figure for each indicator. The industry median was calculated as the median of all companies in the industry group that responded to my survey, excluding outliers. To exclude the most extreme observations of strategic change, which are results of extreme ratios (for example, between high levels of R&D spending and low levels of sales in young pharmaceutical companies) that do not reflect the true relationship of interest in this research, I eliminated all companies that had an observation in the top or bottom 1% of all observations. Finally, the overall measure for each company and year was obtained as the mean of the five standardized indicators.

Table C-1 Sample Split By Country and Industry – Research Question 2

Variables	Germany %	Austria %	Switzerland %	Total %
Manufacturing	51.0	5.3	9.3	65.6
Transportation, Communications, Electric, Gas, And Sanitary Services	6.9	0.0	4.0	10.9
Services	15.0	0.0	2.4	17.4
Other Industries	4.9	0.0	1.2	6.1
Total	77.7	5.3	17.0	100.0

C.5 Results

A summary of the descriptive statistics is shown in Table 7. The nonstandardized mean and standard deviation of CEO humility were 3.48 and 0.79, respectively, measured on a 5-point Likert scale. The pairwise correlations are shown in Table 8. Not surprisingly, prior performance was positively related to performance and negatively related to strategic change.

Table C-2 Descriptive Statistics - Research Question 2

Variables	Mean	Std. dev.	Min	Max
1. Performance (t+1)	0.03	0.06	-0.23	0.27
2. Strategic Change	-0.03	0.54	-0.47	3.68
3. CEO Humility	-0.13	0.99	-3.00	1.70
4. Year 2008	0.26	0.44	0.00	1.00
5. Year 2009	0.34	0.48	0.00	1.00
6. Year 2010	0.40	0.49	0.00	1.00
7. Germany	0.77	0.42	0.00	1.00
8. Austria	0.06	0.24	0.00	1.00
9. Switzerland	0.17	0.38	0.00	1.00
10. Firm Size	7.53	1.79	4.22	11.67
11. Avg. TMT Tenure	5.05	3.33	0.08	20.00
12. Prior Performance (t)	0.03	0.07	-0.25	0.23
13. CEO Business Education	0.56	0.50	0.00	1.00
14. CEO Engineering Education	0.29	0.45	0.00	1.00
15. CEO Age	52.34	7.32	32.00	69.00
16. CEO Tenure	8.20	6.93	1.00	34.00
17. Beta Euro STOXX 600	0.87	0.45	-0.04	2.33

Table C-3 Bivariate Correlation - Research Question 2

ables	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.
Performance (t+1)	-																					
Strategic Change	0.08	-																				
CEO Humility	0.16*	-0.10	-																			
Year 2008	0.00	-0.10	-0.04	-																		
Year 2009	-0.13	-0.06	-0.06	-0.43*	-																	
Year 2010	0.12	0.14*	0.09	-0.48*	-0.58*	-																
Industry D	-0.07	-0.02	0.09	0.02	-0.03	0.01	-															
Industry E	0.05	-0.16*	-0.03	-0.05	0.05	0.00	-0.51*	-														
Industry H	-	-	-	-	-	-	-	-	-													
Industry I	0.00	0.17*	-0.11	0.04	-0.01	-0.03	-0.63*	-0.17*	-													
Germany	-0.21*	0.06	-0.05	0.04	-0.01	-0.02	-0.02	-0.15*	-0.16*	-												
Austria	-0.02	0.04	-0.22*	-0.02	-0.02	0.04	0.19*	-0.10	-0.12	-0.47*	-											
Switzerland	0.25*	-0.09	0.2*	-0.04	0.03	0.00	-0.10	0.23*	-0.11	-0.82*	-0.12	-										
Firm Size	0.07	-0.36*	0.24*	-0.09	0.01	0.07	0.19*	0.09	-0.32*	-0.12	0.06	0.10	-									
Avg. TMT Tenure	-0.03	-0.04	-0.04	-0.03	0.01	0.02	0.05	0.04	-0.04	-0.13	0.08	0.09	-0.16*	-								
Prior Performance (t)	0.36*	-0.2*	0.02	0.21*	0.00	-0.19*	0.05	-0.01	-0.06	-0.18*	-0.02	0.22*	0.05	0.00	-							
Prior Performance (t-1)	0.26*	-0.2*	0.04	-0.04	0.19*	-0.15*	0.10	-0.07	-0.09	-0.16*	-0.05	0.21*	0.08	0.14	0.53*	-						
CEO Business Education	0.01	-0.04	0.21*	-0.02	0.00	0.02	-0.14*	0.03	0.05	0.04	-0.01	-0.04	0.13	-0.27*	-0.02	-0.04	-					
CEO Engineering Education	-0.01	0.11	-0.12	-0.01	0.00	0.02	0.13	-0.01	-0.07	-0.08	0.06	0.06	-0.07	0.09	-0.03	-0.10	-0.52*	-				
CEO Age	0.08	-0.18*	0.06	-0.07	0.01	0.05	0.02	-0.06	-0.03	0.05	-0.03	-0.04	0.21*	0.00	0.01	0.03	-0.23*	0.17*	-			
CEO Tenure	-0.03	-0.05	-0.24*	0.04	-0.01	-0.03	-0.22*	-0.03	-0.35*	0.11	-0.02	-0.12	-0.43*	0.3*	0.02	0.04	-0.2*	0.12	0.25*	-		
Beta Euro STOXX 600	0.06	0.12	0.00	-0.06	-0.05	0.10	0.36*	-0.23*	-0.24*	-0.2*	0.16*	0.12	0.18*	-0.13	-0.10	-0.13	-0.14*	0.04	-0.09	-0.19*	-	

□

To test my hypotheses, I calculated three different models, as shown in Table 9. Model 1 contains all the control variables. In Model 2, the main effects of strategic change, strategic change squared, and CEO humility are added; and in Model 3, the interactions between strategic change and CEO humility as well as strategic change squared, and CEO humility are included. Significant Wald- χ^2 -statistics indicated good overall model fit.

As for my hypothesized inverted U-shaped relationship between strategic change and performance, I did not find results to support Hypothesis 1. In Model 2, I found a negative effect of strategic change on subsequent company performance ($b = -0.02$, $p < 0.05$) and a positive effect of the squared strategic change term ($b = 0.02$, $p < 0.01$). This would actually result in a U-shaped relationship instead of an inverted U-shape. These findings can be explained by the different samples used in my research and these two studies. For example, Deephouse (1999) focused on one industry (local banks) in one metropolitan area, and Zhang and Rajagopalan (2010) excluded companies with less than 100 million USD in total sales. However, as can be seen in Figure 4, within two standard deviations of strategic change, the plotted relationship is, in fact, nearly a negative linear relationship. Thus, the results supported the literature predicting a negative relationship between strategic change and company performance.

Table C-4 FGLS Regression: Strategic Change, Performance, and CEO Humility

Variables	Firm Performance (t+1)		
	Model 1	Model 2	Model 3
Constant	-0.026 (0.02)	-0.014 (0.02)	-0.032 (0.022)
<u>Control variables</u>			
2008	-0.018* (0.007)	-0.018* (0.007)	-0.015* (0.008)
2009	-0.022** (0.006)	-0.019** (0.007)	-0.018** (0.007)
Austria	0.009 (0.014)	0.014 (0.014)	0.012 (0.015)
Switzerland	0.034** (0.009)	0.029** (0.008)	0.031** (0.007)
Firm Size (ln employees)	0.001 (0.002)	-0.001 (0.002)	-0.001 (0.002)
Prior Firm Performance (RoA in t)	0.422** (0.05)	0.467** (0.039)	0.458** (0.052)
CEO Business Education	-0.003 (0.006)	-0.001 (0.007)	-0.001 (0.007)
CEO Engineering Education	0.005 (0.006)	0.004 (0.008)	0.001 (0.008)
CEO Age	0.001* (0)	0.001† (0)	0.001* (0)
CEO Tenure	0 (0)	0 (0)	0 (0)
External Expectations (Beta Euro STOXX 600)	-0.004 (0.006)	-0.001 (0.006)	-0.001 (0.006)
Average TMT tenure	0.002 (0.004)	0.002 (0.004)	0.002 (0.004)
<u>Predictors/main effects</u>			
Strategic Change		-0.023* (0.011)	-0.025* (0.011)
Strategic Change Squared		0.022** (0.008)	0.013† (0.007)
CEO Humility		0.003 (0.003)	0.002 (0.003)
<u>Interactions</u>			
Strategic Change X CEO Humility			-0.037** (0.011)
Strategic Change Squared X CEO Humility			0.012* (0.005)
Wald χ^2	203.90**	273.87**	336.58**
N	188	188	188

a) Standard errors are in parentheses ** p < 0.01, * p < 0.05, † p < 0.1, two-tailed tests

Regarding the moderating effect of CEO humility, I found support for the hypothesized negative effect. The effect of the interaction term between strategic change and CEO humility in Model 3 was negative and highly significant ($b = -0.04$, $p < 0.01$) while the effect of the interaction term between strategic change squared and CEO humility was positive and significant ($b = 0.01$, $p < 0.05$). Hence, the results showed that the relationship between strategic change and performance was contingent on the level of CEO humility. Moreover, as shown in Figure 4, high and low levels of CEO humility lead to distinctive profiles regarding financial performance after strategic change. While CEOs with low levels of humility can be associated with better performance under high levels of strategic change, the opposite was true for humble CEOs. Overall at least between -2 standard deviations and +2 standard deviations the relationship was negative for humble CEOs and positive for less humble CEOs. These findings help us obtain a more complete assessment of the association between strategic change and subsequent company performance, as they show the moderating impact of the CEO.

A robustness check using the 1% Mahalanobis outliers as in Chapter B resulted in no fundamentally different calculations, as the direction of the main coefficients were the same. However, the interaction effect of humility and strategic change squared was barely no longer significant. Thus, to discuss my findings, I used the above-mentioned outliers.

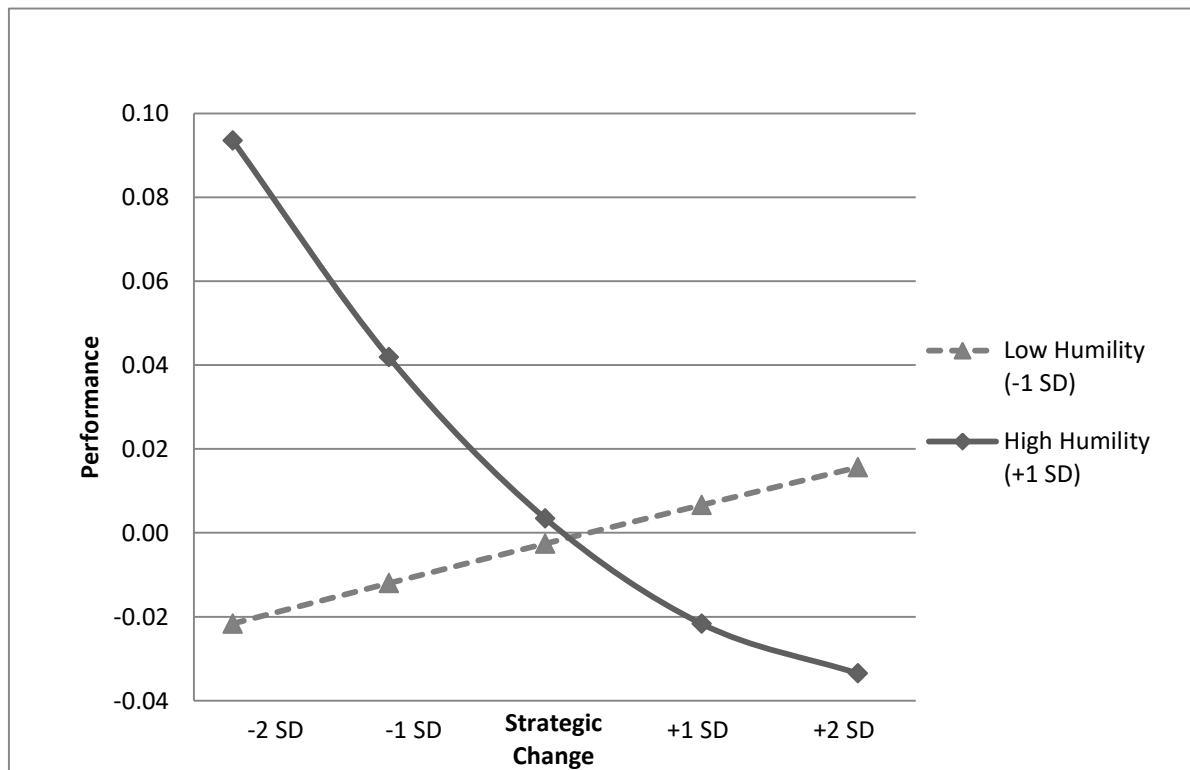


Figure C-1. Relationship between strategic change and performance, moderated by CEO humility.

C.6 Discussion

The results of my study show the importance of studying CEO personality traits with regard to strategic decision making and the implementation of strategic change. I contribute to the literature in three distinct ways. First, I found support for my hypothesis that the mixed findings regarding the performance impact of strategic change were not exclusively explained by a curvilinear relationship or by environmental and firm factors but were also contingent on the level of CEO humility. This finding supports the claim that CEO warrants studying in the context of the performance impact of strategic change. Second, I contribute to the growing literature on the

implications of humility among top managers. More precisely, I answered questions regarding the impact of CEO humility on performance and implementation effectiveness. Third, I tested the humility concept and the conceptualization introduced by Owens and Hekman (2016).

Regarding the first contribution, my results further explain the performance impact of strategic change. The research on the curvilinear relationship between strategic change and performance and research on contingency factors helps to explain financial outcomes of strategic change, but to obtain a more complete assessment, research should also take into account the influence of top managers. Assuming an identical interpretation of environmental stimuli, reactions to these stimuli and the implementation of the reaction is too simplistic (Hambrick, 1989). The results of this study support the hypothesis that CEO humility is associated with the performance impact of strategic change. These data add to our knowledge, as the impact of top managers has found widespread support in management research (see Finkelstein et al., 2009 for a review). The lack of integration of top management and strategic change research is even more puzzling because the significance of top management has, in fact, been acknowledged as an important factor in understanding the performance impact (Zhang & Rajagopalan, 2010). Furthermore, I argue that the moderation analysis yielded insight beyond the research on conditions of a specific effect. My results indicate that humble CEOs are very effective and successful at implementing low levels of strategic change – or adaptive changes – and lead their companies to better performance than their less humble counterparts. These findings supplement prior research that shows associations between humility and a preference for small but continuous change (Owens & Hekman, 2012) in a way that the CEO's abilities seem to match such a preference. The superior ability of humble CEOs to implement such strategic changes could be related to their propensity for advice seeking (Exline & Geyer, 2004) and improved interactions (Owens & Hekman, 2012), as knowledge

dispersion is considered a success factor for strategic change (Bloodgood & Morrow, 2003). Overall, this quality should lead to a rather low likelihood of significant decreases in performance or even in threats to company survival, as it is likely that neither legitimacy nor operations is severely disrupted at low levels of strategic change (Deephouse, 1999; Zhang & Rajagopalan, 2010). Furthermore, focusing on adaptive change and learning exploitation is likely to produce more stable results; however, it also reduces the likelihood of finishing near the top in an aggressive race for first place (March, 1991). Moreover, non-humble CEOs might be better prepared to address fast-changing environments that lead to disruptive change as they provide stabilization to their subordinates in such times (Owens & Hekman, 2012). Thus, the assessment of such performance results might change from industry to industry.

With regard to the lack of support for Hypothesis 1 and to my results on the curvilinear effect, and in contrast to studies by Deephouse (1999), Norman et al. (2007) and Zhang and Rajagopalan (2010), empirical research has shown that the particular effect is contingent on the context. For example, company size has been theoretically and empirically shown to affect the performance impact of strategic conformity or strategic change (Chen & Hambrick, 1995; Eapen & Krishnan, 2009; Miller & Chen, 1996). Larger companies are not expected to suffer legitimacy losses; they have additional resources with which to take on the risk of failure (Eapen & Krishnan, 2009; Miller & Chen, 1996). Furthermore, environmental uncertainty has been theoretically and empirically linked to amplification of the positive effect of strategic conformity (Anderson, 1988; Deephouse, 1999; Geletkanycz & Hambrick, 1997), while overall market growth is argued to have an opposing effect (Miller & Chen, 1996). Hence, the curvilinear effect seems to be contingent on the setting (Norman et al., 2007). Unlike existing studies, my research was not limited to single-industry settings and also included smaller companies.

Regarding my second contribution to knowledge of the outcomes of CEO humility, my study sheds light on the performance impact of CEO humility – in my case, in combination with their ability to implement strategic change. Most of the prevailing research on humility in organizational settings is not empirical (Owens & Hekman, 2012) and, hence, calls have been made to test the outcomes of this quality. Moreover, research on personality traits such as humility has been considered more fruitful than research using demographic proxies (Priem et al., 1999; Resick et al., 2009). With regard to my third contribution, by using the humility scale developed by Owens et al. (2013), I contribute to the validation of their scale and to the overall progress of research on humility without using proxies.

This research also yields important implications for practitioners; for example, members of boards can make more informed decisions about CEO succession depending on the specific company setting and the mandate for change. In the case of a stable course that needs frequent minor adjustments, humble CEOs are likely to yield better results. Moreover, shareholders should factor in knowledge about the CEO's personality in their decision making.

My research and results are subject to limitations. Due to my cross-sectional setting – despite the merits of increased generalizability of the results (Hambrick et al., 1993) – the results might have been subject to industry effects. I sought to address such concerns using measures for strategic change and performance beyond industry standards to account for any industry-specific phenomena. Regarding the measure of strategic change, as mentioned, I was unable to include all six indicators and had to exclude advertising intensity. However, this decision is in line with Finkelstein and Hambrick (1990). Moreover, the study period chosen might be subject to disturbances in performance measures due to the global crisis. Research suggests that periods of

uncertainty can lead to increased managerial discretion, which might result in underestimation of the benefits of conformity and could have impacted my results. I used year dummy variables and performance beyond industry standards to account for this possibility. Furthermore, respondents to my survey might have been induced to overstate or understate (Bollaert & Petit, 2010) the humility level of their CEO. However, I feel that using a survey measure and contacting subordinates who were guaranteed strict confidentiality resulted in the most appropriate measure available. However, due to this subordinate report, I cannot distinguish between actual humility and humility perceived by senior finance managers, although arguments that humility is manifest only in interactions (Davis et al., 2011) support my approach. Finally, researchers have discussed the stability of humility as a personality trait (Devers et al., 2011; Owens et al., 2011), which for the purposes of my research, had to be stable over the 4-year period of interest. While most scholars have argued that humility is a trait and is thus stable (Davis et al., 2011; Morris et al., 2005; Owens & Hekman, 2012; Vera & Rodriguez-Lopez, 2004), its manifestation might be contingent on situational factors (Morris et al., 2005; Owens et al., 2011). While Devers et al. (2011) argued that humility has qualities of both a trait and a state. However, I followed the aforementioned researchers and consider humility to be a trait and thus stable over this 4-year period.

My research offers several starting points for future research. First, I did not explore whether humility was associated with less frequent changes in strategy. My research was concerned with the performance effects of strategic change, but I did not study the frequency of strategic change events among firms with humble CEOs. That question relates to another compelling research possibility: whether humble CEOs are more persistent in their chosen course of action. Despite their hypothesized openness to frequent adjustment, the overall course of action might be unaffected. Moreover, I have studied only the short-term impact of strategic change. Perhaps

exploitation and high levels of strategic change have a long-term impact on company performance. In that case, a researcher should identify major change events and track their performance implications over a longer time span. However, I think that such research should carefully consider alternative explanations for performance divergence. Last, but not least, the means by which humble CEOs achieve superior performance under low levels of strategic change is worth researching in detail. Scholars might be able to identify the mechanisms of smoother and more successful implementations of strategic change and which instruments work best based on the CEO's personality.

D CEO humility and MCS use by the top management team⁵

D.1 Abstract

Research on drivers of the use of formal management control systems (MCS) using a contingency approach assumes that all managers react uniformly to these contingencies. This theory neglects the idiosyncratic perception and interpretation of these individual beings. Thus, the contingency-approach cannot fully explain the existence of different MCS settings. By integrating CEO humility as a driver of management control systems use, I was able to show that personality can explain more variance. My study using the “levers of control” framework indicated that CEO humility was positively associated with increasing MCS use by the top management. Moreover, top management teams led by humble CEOs emphasized inspiring levers of control more compared to restraining levers of control.

⁵ This Chapter is based on: Schmidt, S. (2019a). *CEO humility and MCS use by the top management team*. Unpublished Working Paper, WHU – Otto Beisheim School of Management. A previous version with preliminary hypotheses has been presented at the EIASM – 3rd Workshop on Top Management Teams & Business Strategy Research 2012 in Milan, Italy

D.2 Introduction

Central aspects of executive leadership include directing subordinates to achieve organizational goals (Berson & Avolio, 2004) and providing meaning for critical environmental or strategic elements (O'Reilly et al., 2010; Podolny et al., 2004). When researching the means available to top managers to guide subordinates to objectives, one frequently mentioned instrument is control (Bedford & Malmi, 2015; Merchant & Otley, 2007) or, for these purposes, formal management control systems (MCS). MCS enable companies to adapt to changing environments and deliver key results to stakeholders (Merchant & Otley, 2007), and researchers have acknowledged the role of MCS in strategy formulation, communication, and implementation (Chenhall & Langfield-Smith, 2003; Henri, 2006; Simons, 1991, 1994). However, differences between top managers in general and CEOs in particular also influence the implementation, formulation, of strategy (Hambrick, 1989; Hambrick & Mason, 1984) and, consequently, the way MCS are used in that regard.

Based on findings from the management literature that individuals determine the organizational context (Finkelstein et al., 2009), scholars have called for the integration of top managers into MCS research (Naranjo-Gil et al., 2009; Naranjo-Gil & Hartmann, 2006), as each CEO is likely to approach management and, thus, control (Abernethy et al., 2010) as well as decision making differently (e.g., Chenhall & Morris, 1991; Gul, 1984) and as MCS settings can be changed by managers (Malmi & Brown, 2008). This view is supported by Chenhall (2003), who acknowledged that research on personality adds to the existing knowledge on MCS.

The impact of individuals on the use of MCS has been shown in prior research, for example, as an idea champion (e.g., Anderson, 1995; Brown et al., 2004); through cognitive style (e.g., Chenhall & Morris, 1991; Emsley et al., 2006); leadership / supervisory style (e.g., Abernethy et

al., 2010; Brownell, 1983; Hartmann et al., 2010; Hopwood, 1974; Jansen, 2011); and age, education, and tenure (e.g., Naranjo-Gil et al., 2009). However, demographic proxies only serve as rough indicators of underlying traits (Hambrick & Mason, 1984; Marcóczy, 1997; Priem et al., 1999), and leadership style is a useful mechanism for explaining a link between CEO personality and organizational outcomes (Resick et al., 2009) that is ultimately determined by personality (Hogan & Kaiser, 2005). Yet the personality of the CEO has largely been neglected in research on the use of MCS (see Hiebl, 2014 for a review). One notable exemption is Menz (2018) who as part of the same research project studied the association between CEO humility and the different configurations MCS. Hence, I aimed to study the association between the humility level of the CEO and MCS use by the top management team. Humility, as a personality trait with distinct associations with interactions, feedback, appreciation of others, and shared decision and learning processes (Owens et al., 2013; Owens & Hekman, 2012; Vera & Rodriguez-Lopez, 2004), is likely to influence CEO preferences regarding the use of MCS and, due to the elevated position of the CEO, his/her preferences are prone to having an impact on the decision-making processes, information sharing, team interactions (Ou et al., 2015), and, consequently, the MCS use of the entire TMT team. Furthermore, both MCS and humility are related to strategy and organizational learning (Chenhall & Langfield-Smith, 2003; Merchant & Otley, 2007; Morris et al., 2005; Owens & Hekman, 2012; Vera & Rodriguez-Lopez, 2004), making this combination worthwhile for such research.

My research context and focus on top management did fit the MCS framework of Simons (1994) particularly well. His “levers of control” framework was explicitly developed to research MCS use among top managers. Using this framework, I contribute to the literature in two distinct ways. My primary contribution to the theoretical and empirical research on the antecedents of MCS

is the integration of the upper echelons research with MCS research. My work illustrates the CEO's influence on the internal organizational context that is established through MCS. In addition, I advance this research by providing support for the hypothesis that CEO personality traits are reflected in their style of formulating, implementing, and communicating their agenda. Second, I empirically advance the research on the outcomes of CEO humility by testing the applicability of the Owens et al. (2013) humility construct in the top management context and by revealing the influence of CEO humility on the top managements' use of MCS.

The remainder of this chapter is structured as follows: First, I discuss the MCS framework and review the existing research on personality and MCS. I conclude the "Theory and Hypotheses" section by deducing hypotheses regarding the impact of CEO humility on MCS use by the top management team. The "Methods" section provides the details of my sample, measures, and methods of data analysis. The "Results" section follows. Finally, I elaborate on the results, implications, and limitations of this study in the "Discussion" section.

D.3 Theory and hypotheses

D.3.1 Formal management control systems

Following Simons' definition of formal MCS as "formalized procedures and systems that use information to maintain or alter patterns in organizational activity" (Simons, 1987, p. 358) I used the levers of control framework (Simons, 1994) due to its focus on MCS use by top managers. In this framework, formal MCS are divided into diagnostic control systems, interactive control systems, beliefs systems, and boundary systems.

The four levers of control are well established in MCS research (Kruis et al., 2016; Tucker et al., 2009) and considered appropriate for the holistic study of MCS (Widener, 2007). Further,

they capture cybernetic and cultural controls, as proposed in the framework of Malmi and Brown (2008). In this regard, I considered diagnostic and interactive control systems to be cybernetic controls and beliefs and boundary systems to be cultural controls. The four levers of control have the merit of providing a broad researchable role for MCS use due to its focus on top management's MCS use (Berry et al., 2009; Simons, 1994). Moreover, this framework captures facets that allow both constraining and enabling of subordinates (Mundy, 2010) without evaluation of good or bad controls (Tessier & Otley, 2012). A holistic view is helpful as it is only through combinations of different levers that an effective MCS can be established (Widener, 2007). That is, combinations of at least two levers, such as the use of diagnostic and interactive control systems, create the tension necessary for developing important capabilities within the organization (Henri, 2006). This view is supported by scholars who argue that integrative studies are necessary to deepening our understanding of MCS. For example, the management accounting literature has widely acknowledged that the components of MCS do not operate independently and that these interdependencies should be included in new research settings (Malmi & Brown, 2008; Otley, 1999).

Diagnostic control systems are feedback systems used to monitor critical performance variables and to correct deviations from preset standards (Simons, 1994). This form of ex post monitoring compares quality or quantity outcomes to expectations (Simons, 1995), thereby constraining subordinates' behavior (Widener, 2007). Diagnostic control systems help managers communicate and focus on the drivers that are critical to implementing the company's strategy (Widener, 2007) and help them identify problems and find means to achieve goals (Mundy, 2010). Interactive control systems are forms of cybernetic control over strategic uncertainties (Simons, 1994) and facilitate opportunity-seeking behavior and disruptive environmental change (Simons,

1995). Interactive control systems are future oriented (Widener, 2007), include shared decision activities by leaders and subordinates (Simons, 1994), and are time consuming (Marginson, 2002; Mundy, 2010). Thus, while diagnostic control systems help monitor the implementation of the existing or intended strategy, interactive control systems help monitor uncertainties (Marginson, 2002). With regard to the diagnostic and interactive control systems, I referred to the use of performance measurement systems (PMS) in my study. PMS are defined as the main control systems used to track and report performance, a conceptualization is in line with prior research (e.g., Abernethy et al., 2010; Henri, 2006; Widener, 2007). Both can share the same control systems as the distinction is about how these systems are used – diagnostically or interactive (Tessier & Otley, 2012).

Within the cultural control dimension, beliefs systems are an explicit set of shared beliefs that control the core values and direction of the company (e.g., credos, mission statements, and statements of purpose) (Simons, 1994). They guide subordinates in the direction top management wants them to move in the search for business opportunities (Simons, 1995); they are intended to inspire and motivate subordinates (Widener, 2007). In contrast, boundary systems are formally stated limits and rules intended to reduce risks (Simons, 1994); hence, they are not a positive system but a negative system that constrains the search for opportunities (Simons, 1995). Examples of boundary systems include codes of conduct and formal rules (Marginson, 2002; Simons, 1995). Boundary systems are used to inform subordinates about appropriate actions and actions that are off-limits (Mundy, 2010). Hence, diagnostic control systems and boundary systems are constraining in nature, while interactive control systems and beliefs systems are enabling in nature (Widener, 2007).

D.3.2 CEO personality and management control systems

In addition to the circumstantial factors that lead to specific patterns of MCS use (see Chenhall, 2003 for a review), the influence of managers working with the MCS (Naranjo-Gil & Hartmann, 2006) warrants explication. The inclusion of individuals or groups of individuals in MCS research has a rather brief history despite improving the explanatory power of the antecedents of MCS (Emsley et al., 2006). A few examples in the management accounting research include the introduction of top management support (Brown et al., 2004), cognitive style (Chenhall & Morris, 1991; Emsley et al., 2006), leadership / supervisory style (Abernethy et al., 2010; Brownell, 1983; Hartmann et al., 2010; Hopwood, 1974; Jansen, 2011), and CFO demographic characteristics (Naranjo-Gil et al., 2009). Regarding CEO humility Menz (2018) has already shown that CEO humility has a impact on the configuration of the four levers of control.

My arguments regarding the impact of the CEO's humility level are based on upper echelons theory. This theory was introduced by Hambrick and Mason (1984) and posits that the choices made by top managers reflect their values and cognitive bases, which are themselves a function of their characteristics (Carpenter et al., 2004). Overall, the last decades have seen a broad range of choices being studied, such as acquisitions, internationalization, R&D spending, and firm performance, which are generally associated with top managers' characteristics (Carpenter et al., 2004). However, this theoretical framework also offers arguments that top management – in this case, the CEO – creates the context in which the organization operates through measurement systems, style, and culture (Finkelstein et al., 2009). Hambrick and Mason (1984) posited in their seminal paper that top managers' characteristics – in their case, formal education – are associated with administrative complexity, as in thorough formal planning systems and complex coordination devices, which has been largely omitted from research on the upper echelons. Hence, upper

echelons theory offered an appropriate foundation for this study as they also acknowledged that psychological measures are less noisy and that demographic proxies are muddy indicators of several underlying traits. As such, researchers have called to study personality traits instead of such demographic proxies (Lawrence, 1997; Marcóczy, 1997; Priem et al., 1999). Within MCS research, Chenhall (2003) acknowledged that theories based on selective perception and individual characteristics might explain individuals' differences with regard to MCS.

Due to its influence on feedback preferences and interactions with and appreciation for others, humility is recognizably related to control and MCS. One might argue about the importance of the CEO's personality relative to that of the entire top management team. However, despite the general claim that using the team as the unit of analysis provides stronger results (Finkelstein et al., 2009; Hambrick, 2007), scholars have acknowledged that the inclination to consider TMTs, rather than just CEOs, is not universal. For example, in situations characterized by an autocratic CEO, a CEO who does not permit open debate and discussion of strategic issues, or situations in which the CEO has a very clear and powerful vision, the team may be less important to organizational outcomes (Finkelstein et al., 2009). As discussed later in this section, the first argument is related to low levels of humility, while the second argument is related to CEOs with high levels of humility; consequently, I focused on the CEO in this research. Moreover, evidence indicates that the preferences and styles of CEOs influence the decision-making processes of their respective companies (Hiller & Hambrick, 2005; Miller et al., 1982; Ou et al., 2015). It has also been argued that leader personality is significantly related to how senior management interacts within the company and within the top management team (Peterson et al., 2003). Finally, the CEO is a central node in the organizational advice and influence network (Resick et al., 2009). As a

result, focusing on the CEO was reasonable in this context, and both the CEO and his or her level of humility significantly influence MCS use by the top management team.

D.3.3 CEO humility and the four levers of control

I expected humility in CEOs to be positively related to the use of cybernetic MCS (i.e., to the use of both diagnostic and interactive control systems). Humility is associated with the ability to constantly match environmental demands and follower strengths (Owens & Hekman, 2012) and to communicate standards in a motivating way (Nielsen et al., 2010). Humble CEOs are expected to learn from failures without blaming others for them (Vera & Rodriguez-Lopez, 2004). I argue that all of these behaviors facilitate the use of cybernetic control systems in general.

Concerning the use of diagnostic control systems, Devers et al. (2011) concluded that humble CEOs prefer unbiased information processing and objective information. Moreover, their openness to feedback should include data related to the recent past, as included in diagnostic control systems, as a prompt for adjusting their actions. As humble CEOs are willing to move away from solutions that worked in the past (Vera & Rodriguez-Lopez, 2004), they closely monitor the performance of past actions. They see past failures as an opportunity to learn (Owens & Hekman, 2012). Hence, I expected such CEOs and their TMTs to make more use of PMS than their non-humble counterparts, as diagnostic control systems provide objective information and results of the recent past and build the foundation for intensive information exchange.

Regarding the use of interactive control systems, humility includes an orientation toward others and supportive relationships with subordinates (Nielsen et al., 2010; Owens & Hekman, 2012). Humble CEOs are expected to take responsibility for their team failures, understanding that

they neglected to provide the means necessary for being successful (Owens & Hekman, 2012). Moreover, humility has been associated with openness to feedback and ideas from subordinates (Devers et al., 2011; Exline & Geyer, 2004; Owens & Hekman, 2012). Humble CEOs value others' opinions (Tangney, 2000), and consequently, are likely to actively seek them (Morris et al., 2005). Because humble persons understand their limits (Devers et al., 2011; Vera & Rodriguez-Lopez, 2004), they do not react defensively to criticism (Nielsen et al., 2010); they seek input that challenges their opinions (Vera & Rodriguez-Lopez, 2004) and are willing to ask for help (Owens et al., 2013). Furthermore, humble CEOs are believed to see interactions as opportunities to learn (Owens et al., 2013) and are likely to establish two-way feedback in their communication (Nielsen et al., 2010). Humble behavior has been linked to improved team processes (Owens et al., 2011), being an antecedent of information sharing (Hu et al., 2018), and subordinate participation (Morris et al., 2005). Moreover, humble persons listen and cooperate in order to develop joint solutions (Nielsen et al., 2010; Owens et al., 2011; Owens & Hekman, 2012). They foster climates that encourage experimentation and learning through dialogue (Owens & Hekman, 2012; Vera & Rodriguez-Lopez, 2004) and are associated with cooperation and empowerment (Argandona, 2015). These preferences, abilities, and behaviors indicated positive relations between CEO humility and frequent interactions with subordinates and joint decision-making processes – or at least mutual involvement in decision-making processes. This involvement in decision making corresponded to the definition of interactive control system use (Simons, 1994). Hence, as far as MCS are concerned, this link should lead to the use of PMS by the TMT as an interactive control system.

Thus, I hypothesized the following:

Hypothesis 1: CEO humility is positively associated with top management's use of cybernetic control systems, i.e., with the use of PMS as diagnostic and interactive control system.

With regard to cultural control systems, I researched the emphasis placed on beliefs and boundary systems. CEOs with high levels of narcissism, which is likely to be negatively related to humility, are believed to prefer high-risk decision making (Chatterjee & Hambrick, 2007); conversely, humble CEOs should be associated with less risky decision making (Owens et al., 2013). Furthermore, humility includes realistic assessments of the company's environment and of the limitations of others (Owens et al., 2011). Humble CEOs may see the risks associated with bold moves more clearly and thus may put limits to overly bold experimenting by their subordinates accordingly despite their general openness to experimenting (Owens & Hekman, 2012). Thus, they might use boundary systems to avoid such high-risk decision making by their subordinates or at least to communicate their preference for more incremental change (Owens & Hekman, 2012). On the other side when valuing the input and strengths of others, they most likely regard putting overly tight restrictions on their actions as inappropriate. Boundary systems do not mean per se a reduction of the empowerment of subordinates (Bedford, 2015). Overall, I expected CEOs and their TMT to place only some emphasis on the constraining effects of boundary systems mainly driven by their recognition of human limitations and their preference for small and incremental change.

Regarding inspiring beliefs systems, I expected a positive association with CEO humility because, as explained above, humble CEOs value an environment of experimentation (Owens & Hekman, 2012), but more importantly, learning, and goal orientation (Owens et al., 2011). Such

CEOs see failure as an opportunity to learn (Owens & Hekman, 2012), acknowledge different views (Vera & Rodriguez-Lopez, 2004), and foster nonhierarchical relationships (Nielsen et al., 2010). Moreover, Morris et al. (2005) linked humility to transformational leadership and, more specifically, to intellectual stimulation, which fosters creativity and finding solutions independently from the leaders' ideas. Nielsen et al. (2010) supported this link to intellectual stimulation and expected humility to improve the use of such motivational techniques. Moreover, humble CEOs are able to generate an inspiring, yet not necessarily bold vision, align subordinates with their vision, and implement the vision (Nielsen et al., 2010). The inspiring nature of beliefs systems (Widener, 2007) matches behavior that aims to create an environment in which subordinates are encouraged and inspired to generate ideas through experimenting while following a collective vision.

Hence, I hypothesized the following:

Hypothesis 2: CEO humility is positively associated with top management's use of cultural control systems, i.e., the emphasis placed on beliefs and boundary systems.

D.4 Methods

D.4.1 Sample and data

To study the impact of CEO humility on the use of formal control systems, I conducted a survey of listed companies in Germany, Austria, and Switzerland.⁶ Listed companies yielded several advantages to my research work. First, listing ensured that the company had rather

⁶ This was part of a larger research project – see Chapter A

sophisticated control systems in place to meet stock exchange and external stakeholders' regulatory requirements. Second, I expected such companies to be of a reasonable size to ensure the existence of sophisticated control systems (Davila & Foster, 2005); and third, the availability of control variables was assured as those companies were legally required to disclose information. The data to identify the companies and persons to contact in these companies were obtained from the *Hoppenstedt*, *Amadeus*, and *Dafne* databases. Additionally, I manually checked company websites and reports to verify the contacts. Based on the nationality of the contact, I sent either the German or the English questionnaire. The survey was used to collect information on CEO humility and MCS use. The data for the control variables were obtained from company websites, annual reports, and the *Compustat* and *Datastream* databases.

Self-reported humility is considered to be paradoxical (Davis et al., 2011; Owens et al., 2013), and relationships and interactions with coworkers are deemed important parts of the humility construct (Davis et al., 2011). Furthermore, for interpersonal dimensions, researchers have found that ratings by subordinates are more reliable than ratings by supervisors (Blair et al., 2008), and these traits are thought to be subject to over- or underrating in self-reports (Davis et al., 2011; Morris et al., 2005). Hence, a subordinate was asked to rate the humility level of the CEO. I chose senior managers from the finance department as respondents for my survey, as they are also knowledgeable about the MCS of the company. If it was impossible to identify such a senior manager from the finance department, I addressed the company's CFO. I expected both positions to have considerable exposure to the CEO, due to the importance of the finance function (Zorn, 2004), and to be knowledgeable about the MCS in place and their use.

Data collection via the survey took place between April 2012 and July 2012 and followed established procedures (Dillman et al., 2009; Naranjo-Gil et al., 2008). The first step was to conduct

pretest interviews with practitioners and scholars to optimize the clarity and comprehensibility of the questionnaire. I then sent out an invitation letter and the paper-based questionnaire by postal mail to the finance managers. Follow-up measures included an e-mail invitation containing the link to the online questionnaire, two e-mail reminders, and phone calls. All participants were promised a detailed report of the results, a chance to enter a lottery, and a donation to a charitable organization. In the end, 255 of 1,031 persons completed the questionnaire, yielding a very good response rate of 25% (Cycyota & Harrison, 2006; Hambrick et al., 1993; Simsek et al., 2010).

D.4.2 Measures and data analysis

I measured all independent variables and dependent variable in line with prior research and used existing measures. For the German questionnaire, two researchers separately translated the items into German and discussed their translations to reach consensus. Subsequently, a native speaker of both German and English back-translated the items into English and compared these to the original items to ensure that their meaning remained unchanged. In this vein, I followed established procedures (Felfe, 2006).

As the independent and dependent variables were measured by one survey, I had to address the issue of common method variance (Podsakoff & Organ, 1986). I conducted Harman's one-factor test to check for a common factor. This test yielded five factors with eigenvalues above one. The first factor explained 37% of the variance. Given my five constructs, I considered these results to be sufficient to conclude that common variance bias was not a significant issue.

Management control systems (MCS) use – I measured MCS use by the top management team using 17 items in my survey – each reported on a 7-point Likert scale. They cover all aspects of

the levers of control framework by Simons (1994). The first 11 items address the use of PMS. These items cover aspects related to the use of the PMS as diagnostic and interactive control systems by the top management team. I took these items from Henri (2006), who based his items on the work of Vandebosch (1999). A rotated factor analysis yielded two factors, which I labeled *diagnostic use* and *interactive use*. The first factor, diagnostic use, covers all items related to monitoring results and comparison to expected outcomes or “score-keeping” (Henri, 2006, p. 540). The second factor, interactive use, contains all items related to discussion or “attention focusing” (Henri, 2006, p. 540). The results of the factor analysis are shown in Table G-2 in the appendix. I excluded all items that either have no factor loading > 0.6 or load onto two factors with loadings > 0.5 . Hence, I excluded one item from diagnostic use due to cross-loading. Factor loadings for the three remaining items range from 0.72 to 0.89. Cronbach’s alpha for diagnostic use is 0.84, Composite Reliability (CR) is 0.85, and Average Variance Extracted (AVE) is 0.65. According to Fornell and Larcker (1981), the Average Variance Extracted (AVE) should be higher than the squared correlation coefficients for all other constructs. This is clearly the case for diagnostic use. Due to cross-loading, I excluded three of the remaining seven items that load on the interactive use factor. Factor loadings for the four items for interactive use range between 0.61 and 0.83, Cronbach’s alpha is 0.81, Composite Reliability (CR) is 0.81, and Average Variance Extracted (AVE) is 0.52. In this case, the Fornell/Larcker criterion is not met, as the AVE is smaller than the squared correlation coefficient between interactive use and diagnostic use. However, as the factor analysis yielded better results using the two-factor structure, I used this structure in my analysis. In case of constructs where shared variance due to theoretical similarity can be expected, this is not unprecedented (e.g. Anatolevena Anisimova, 2007).

With regard to cultural control systems, I used eight items from Widener (2007). The first four questions address the company's mission statement and the communication of core values and relate to the use of beliefs systems in the MCS framework. The other four questions relate to the use of boundary systems and cover codes of conduct and risks to be avoided. The factor analysis clearly showed that the intended two-factor structure emerged, and four items loaded on each factor. Hence, I labeled the two factors *beliefs* and *boundary*. The results of the factor analysis are shown in Table G-3 in the appendix. The factor loadings for the beliefs factor range from 0.86 to 0.92, Cronbach's Alpha is 0.93, Composite Reliability is 0.94, and the Average Variance Extracted is 0.79. The four items for the boundary factor have factor loadings between 0.80 and 0.93, Cronbach's Alpha is 0.93, Composite Reliability is 0.93, and the Average Variance Extracted is 0.77. Both factors meet the Fornell/Larckner criterion.

Humility – To measure CEO humility, I used a scale developed recently by Owens et al. (2013). The measure contains nine items and has been tested for subordinate reports in an organizational context. I measured humility on a 5-point Likert scale. I slightly rephrased the items to account for my research setting. Overall, the items showed acceptable consistency, with Cronbach's Alpha of 0.92, factor loadings from 0.63 to 0.84, a composite reliability of 0.93, and an average variance extracted of 0.58. The results are shown in Table G-1 in the appendix.

Control variables – I used country-, industry-, company- and individual-level control variables. To control for industry and country effects, I included dummy variables for the country in which the headquarters was located and the main industry division in which the company was operating.

These factors influence the MCS in place and consequently MCS use (Merchant & Otley, 2007). The responses by country and industry are shown in Table D-1. Most of my responses came from Germany and from the manufacturing industry. At the company level, I controlled for company size, measured as the natural logarithm of the number of employees obtained from annual reports; company performance was measured as return on assets (ROA) obtained from *Compustat*. Furthermore, external party expectations (Bednar et al., 2013) and environmental uncertainty (Merchant & Otley, 2007) might influence the actions undertaken by a company; thus, I included these effects as the 5-year beta of the stock compared to the STOXX Europe 600 index from *Datastream*. Finally, at the individual level, I controlled for CEO age and tenure as well as average TMT tenure obtained from annual reports and company websites. CEO tenure was measured as positional tenure (i.e., the number of years the CEO had been in the office in the current company in that year).

Table D-1 Sample Split by Country and Industry - Research Question 3

Variables	Germany %	Austria %	Switzerland %	Total %
Manufacturing	44.9	7.7	9.0	61.5
Transportation, Communications, Electric, Gas, And Sanitary Services	10.3	0.0	5.1	15.4
Finance, Insurance, And Real Estate	12.8	0.0	1.3	14.1
Services	7.7	0.0	1.3	9.0
Other Industries	0.0	0.0	0.0	0.0
Total	75.6	7.7	16.7	100.0

Data analysis – To assess the validity of my analysis and results, I conducted several tests for potential bias. Both the test for nonresponse bias based on company revenues and the number of employees; neither the test for online versus paper-based questionnaire bias nor the test for early respondents versus late respondents bias revealed strong indications of bias from those potential sources. However, the test for non-response bias based on revenues was marginally significant.

I used standardized factor scores for the dependent and independent variables, which were estimated using the maximum likelihood method. To maximize the number of observations for my models, I included responses with sporadically missing values. To test my models and hypotheses, I used a cross-sectional model of seemingly unrelated regressions (SUR) as my independent variables – especially the error terms – might be correlated with each other. To do so, I used a generalized least-square algorithm in the Stata 12 software package.

Researchers have argued that CEOs initiate most of their changes within the first 3 years of their tenure (Gabarro, 1987; Hambrick & Fukutomi, 1991). Consequently, to capture these changes, I only included CEOs who had been appointed before mid-2009. Hence, all CEOs in the analysis had a minimum tenure of approximately 3 years when I measured MCS use in 2012. In terms of changes to the MCS Simons (1994) emphasized that Gabarro (1987) found that changes to control systems were actually initiated within the first 3 to 6 months. However, to ensure that the respective CEO had enough time to influence MCS use based on his or her preferences and to be noticed by subordinates I used the 3-year threshold as mentioned previously. This constraint limited the number of usable responses to 78 CEOs. However, a robustness check using CEOs appointed before mid-2010 revealed no major changes in the results.

D.5 Results

Descriptive statistics for all relevant variables are shown in Table D-2. The means and standard deviations of the variables measuring MCS use and CEO humility differ slightly from 0 and 1, respectively, because I used all responses to standardize these factor scores and applied the tenure constraint afterwards. Pairwise correlations are shown in Table D-3. As expected, the use

of different levers of control is positively correlated to each other, which is consistent with previous surveys (e.g., Henri, 2006; Widener, 2007). These results support the claim that these levers should be studied simultaneously. Furthermore, CEO humility and firm size are positively related to the use of management control systems. Interestingly, CEO tenure is negatively related to the use of MCS.

Table D-2 Descriptive Statistics - Research Question 3

Variables	Mean	Std. dev.	Min	Max
1. Diagnostic use	0.13	0.75	-2.94	1.28
2. Interactive use	0.19	0.90	-3.30	1.83
3. Beliefs systems	0.08	1.04	-2.51	1.63
4. Boundary systems	0.16	0.97	-2.00	1.32
5. CEO Humility	-0.11	1.03	-2.96	1.63
6. Industry D	0.62	0.49	0.00	1.00
7. Industry E	0.15	0.36	0.00	1.00
8. Industry I	0.14	0.35	0.00	1.00
9. Germany	0.76	0.43	0.00	1.00
10. Austria	0.08	0.27	0.00	1.00
11. Switzerland	0.17	0.38	0.00	1.00
12. Firm size	7.69	1.90	2.60	11.71
13. Firm performance	0.04	0.06	-0.20	0.21
14. Beta STOXX-Europe 600	0.91	0.46	0.15	2.33
15. CEO age	55.32	6.84	42.00	71.00
16. CEO tenure	10.91	7.68	3.50	36.50
17. Avg. TMT tenure	5.76	3.79	0.71	21.00

Table D-3 Bivariate Correlation - Research Question 3

Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
1. Diagnostic use	-																
2. Interactive use	0.79*	-															
3. Beliefs systems	0.3*	0.49*	-														
4. Boundary systems	0.29*	0.35*	0.56*	-													
5. CEO Humility	0.38*	0.39*	0.45*	0.38*	-												
6. Industry D	0.08	0.14	0.13	0.27*	0.08	-											
7. Industry E	-0.12	-0.09	-0.04	0.01	-0.05	-0.54*	-										
8. Industry I	0.05	0.04	-0.04	-0.25*	-0.05	-0.51*	-0.17	-									
9. Germany	-0.07	-0.04	-0.10	-0.17	-0.08	-0.08	-0.09	0.14	-								
10. Austria	0.21	0.10	-0.01	0.03	-0.12	0.23*	-0.12	-0.12	-0.51*	-							
11. Switzerland	-0.07	-0.03	0.13	0.18	0.18	-0.07	0.19	-0.08	-0.79*	-0.13	-						
12. Firm size	0.15	0.23*	0.22*	0.47*	0.19	0.15	0.16	-0.24*	-0.08	0.06	0.04	-					
13. Firm performance	-0.13	-0.05	0.06	0.08	-0.07	0.23*	-0.10	-0.13	-0.22	0.00	0.26*	0.25*	-				
14. Beta STOXX-Europe 600	-0.04	0.00	0.02	0.11	0.03	0.32*	-0.14	-0.23*	-0.14	0.18	0.04	0.22*	-0.08	-			
15. CEO age	-0.22	-0.20	-0.11	0.05	-0.15	-0.08	0.04	0.07	0.12	-0.10	-0.07	0.17	0.05	0.00	-		
16. CEO tenure	-0.48*	-0.49*	-0.43*	-0.46*	-0.5*	-0.15	-0.05	0.25*	0.14	-0.07	-0.11	-0.38*	0.08	0.00	0.31*	-	
17. Avg. TMT tenure	-0.14	-0.09	-0.14	0.02	-0.11	0.15	-0.11	0.02	-0.07	0.04	0.05	-0.11	0.16	-0.13	-0.02	0.24*	-

*: p-value significant at <0.05.

To test my hypothesized relation between CEO humility and top management's use of cybernetic and cultural control systems, I used two sets of seemingly unrelated regressions (SUR). For each lever of control, I used one regression with the control variables only and a second regression including the impact of CEO humility. Thus, I used a total of eight regressions. The results of both sets of regressions are shown in Table D-4. Regarding the regressions including only control variables, only firm size and CEO tenure were significantly related to the use of MCS. The adjusted R^2 ranges from 0.10 to 0.30. It is unsurprising that larger companies placed more emphasis on formal management control systems than did smaller companies, which might rely on informal interactions and control mechanisms (Chenhall, 2003; Davila & Foster, 2005). The negative effect of CEO tenure may be a consequence of several effects. For example, the negative association between tenure and strategic change (Rajagopalan & Spreitzer, 1997) might lead to less use of formal MCS, which is related to strategic change (Simons, 1994). Furthermore, as advice-seeking is also negatively correlated with CEO tenure (McDonald & Westphal, 2003), this effect

might limit internal discussions and interactions related to use of formal MCS by the top management team.

Adding CEO humility to the regressions clearly increases the adjusted R^2 of all models, which range from 0.16 to 0.30. Hence, the regressions including the level of CEO humility clearly explain more of the variance than the first set of regressions. Moreover, in all four regressions, CEO humility had a significant, positive impact on MCS use by the top management team. As the coefficients for diagnostic use ($b=0.16$, $p < 0.01$) and interactive use ($b=0.17$, $p < 0.1$) are both positive and significant, they support Hypothesis 1, that CEO humility is positively associated with top management use of cybernetic control systems. Regarding Hypothesis 2, I found positive and significant coefficients for the association between CEO humility and top management's use of cultural control systems both for beliefs systems ($b = 0.30$, $p < 0.01$) and boundary systems ($b = 0.17$, $p < 0.1$).

Table D-4 Regression CEO Humility and MCS Use

Variables	Cybernetic MCS use				Cultural MCS use			
	Diagnostic use		Interactive use		Beliefs systems		Boundary system	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Constant	1.03 (0.65)	0.96 (0.63)	0.64 (0.79)	0.57 (0.77)	0.16 (0.97)	0.04 (0.93)	-2.02* (0.81)	-2.08** (0.79)
Control variables								
Industry D	0.16 (0.26)	0.14 (0.25)	0.53† (0.32)	0.51† (0.31)	0.44 (0.39)	0.41 (0.37)	0.48 (0.32)	0.46 (0.32)
Industry E	-0.14 (0.3)	-0.09 (0.29)	0.19 (0.36)	0.24 (0.36)	0.11 (0.45)	0.19 (0.43)	0.1 (0.37)	0.15 (0.37)
Industry I	0.45 (0.3)	0.41 (0.29)	0.85* (0.36)	0.82* (0.36)	0.54 (0.45)	0.48 (0.43)	0.05 (0.37)	0.01 (0.36)
Austria	0.49† (0.27)	0.58* (0.27)	0.17 (0.33)	0.27 (0.33)	-0.17 (0.4)	0.01 (0.39)	-0.09 (0.33)	0.01 (0.33)
Switzerland	-0.05 (0.2)	-0.11 (0.2)	-0.06 (0.25)	-0.13 (0.25)	0.27 (0.3)	0.14 (0.3)	0.42 (0.25)	0.34 (0.25)
Firm size (ln employees)	0.04 (0.05)	0.03 (0.05)	0.06 (0.06)	0.06 (0.06)	0.04 (0.07)	0.03 (0.07)	0.16** (0.06)	0.15** (0.06)
Firm performance (RoA)	-1.5 (1.42)	-1.22 (1.39)	-0.97 (1.74)	-0.68 (1.71)	0.63 (2.14)	1.16 (2.06)	-1.48 (1.77)	-1.18 (1.75)
Beta STOXX-Europe 600	-0.23 (0.17)	-0.22 (0.17)	-0.17 (0.21)	-0.16 (0.21)	-0.11 (0.26)	-0.09 (0.25)	-0.1 (0.21)	-0.09 (0.21)
CEO age	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	0 (0.02)	0 (0.02)	0.02 (0.01)	0.02 (0.01)
CEO tenure	-0.04** (0.01)	-0.03** (0.01)	-0.05** (0.01)	-0.04** (0.02)	-0.05** (0.02)	-0.03† (0.02)	-0.04** (0.01)	-0.03* (0.02)
Avg. TMT tenure	-0.01 (0.02)	-0.01 (0.02)	0 (0.02)	0 (0.02)	-0.02 (0.03)	-0.02 (0.03)	0.03 (0.02)	0.03 (0.02)
Predictors/main effects								
CEO Humility		0.16* (0.08)		0.17† (0.1)		0.3** (0.12)		0.17† (0.1)
R-Squared	0.3382**	0.3703**	0.3273**	0.3522**	0.2264**	0.2889**	0.3895**	0.4118**
Adj. R-Squared	0.2279**	0.254**	0.2152**	0.2326**	0.0975**	0.1576**	0.2878**	0.3032**
N	78	78	78	78	78	78	78	78

a) Standard errors are in parentheses ** p < 0.01, * p < 0.05, † p < 0.1, two-tailed tests

D.6 Discussion

In this study, I researched the extent to which the humility level of the CEO impacts MCS use by the top management team of that company. Most prior research used an approach based on contingency theory to explain the fit between MCS and external or internal factors (Chenhall, 2007). Examples of internal factors include company structure, company size, and strategy; external factors include environmental uncertainty (Chenhall, 2003; Langfield-Smith, 1997). Even

the personality of a subordinate has been used as a contingency Hartmann (2000). These studies were mainly concerned with the drivers of effective MCS settings. However, studies on constructs such as the supervisory or leadership style of top managers (e.g., Abernethy et al., 2010; Hartmann et al., 2010; Hopwood, 1974) have acknowledged that individual differences between managers and their preferences impact the use of MCS. Thus, my aim was to advance the research on the antecedents of MCS use in a way that captured the effect of CEOs' preferences more directly. Including personality traits, which color perceptions or impact preferences in interactions, advances understanding of MCS use beyond contingency factors. Moreover, personality traits yield an advantage over the management styles of top managers in that the survey items used to measure personality traits are more different from those measuring the dependent variable addressing use-related constructs. Humility is particularly useful due to its associations with frequent interaction, openness to feedback, willingness to learn, and appreciation of others.

The main contribution of my research work is two-fold. The first contribution is theoretical and empirical support for the inclusion of powerful actors in research on MCS use. Second, I contribute to the body of research on humility among top managers and the consequences of this personality trait by researching its influence on MCS use. This study shows that individual differences among powerful actors within a company matter, as previously expressed in upper echelons theory (Hambrick & Mason, 1984). This influence is not limited to organizational outcomes but affects the context in which other managers operate (Finkelstein et al., 2009) and MCS (Naranjo-Gil et al., 2009). My results support the argument that personality – in my case, CEO humility – has an impact on the MCS use of the top management team. Different interpretations of stimuli (Carpenter et al., 2004; Hambrick & Mason, 1984), which can be internal or external to the company, by CEOs might lead to different MCS use.

As shown in my study, CEO humility is associated with increased use of cybernetic and cultural control systems by the top management team as a whole. It is not a contradiction that humility has a positive association with seemingly contradictory systems of control at the same time. First, this shows that CEO humility in general drives the importance of formal MCS and secondly that is in line with the original idea that management and companies need to balance all levers (Simons, 1995) – for example in their cluster analysis Kruis et al. (2016) found that most companies use all levers to a similar extent at the same time with differences mostly in the overall level of MCS use. In my research apparently, TMTs led by humble CEOs belong to the group of companies putting high emphasis on MCS across the board.

Humble CEOs translate their preferences for frequent and open interactions, organizational learning, and a culture of experimentation (Morris et al., 2005; Owens et al., 2013; Owens & Hekman, 2012; Vera & Rodriguez-Lopez, 2004) into the use of formal MCS; thus, MCS function as signals or catalysts (Simons, 1991). As humble CEOs value unbiased feedback (Owens et al., 2013; Tangney, 2000), cybernetic MCS play an important role in the management of the company. Both cybernetic levers of control provide a foundation for developmental feedback and interaction to learn about differing views on appropriate actions. In particular, inspiring levers of control – interactive use and beliefs systems – appeal to humble CEOs, as they fit their appreciation of others and their awareness of subordinates' strengths (Owens et al., 2011; Owens et al., 2013). Using MCS in an interactive way also matches their openness to new paradigms and their willingness to ask for advice. Moreover, humble CEOs acknowledge the contribution of others and are eager to learn from them to foster continuous change or adaptation (Owens et al., 2013); thus, they probably see beliefs systems, which inspire and motivate people to experiment and find novel solutions, as useful and thus emphasize them. However, the flipside of their awareness and acknowledgement

of humans' limitations is their emphasis on more constraining levers of control, such as diagnostic use and boundary systems. Humble CEOs are not as willing to make bold moves as are CEOs with high levels of narcissism (Chatterjee & Hambrick, 2007); this cautious tendency likely leads them to emphasize boundary systems. Moreover, the constraining use of MCS is necessary to balance their inspiring or enabling use (Mundy, 2010). Nevertheless, the results provide only partial support for the expectation that inspiring levers of control are used more intensively than are constraining levers of control. Overall, the results indicate that humble CEOs foster the use of MCS, as they probably value the information sharing and communication aspect related to both cybernetic and control systems.

This study is subject to several limitations. First, my results might be distorted by a common method variance, as I measured all constructs using a survey from one respondent. However, my test revealed that no single factor was responsible for the majority of the variance. Moreover, I assured all respondents that the data would remain strictly anonymous to minimize potential issues arising from leniency bias. Second, I did not include the influence of the humility level of the entire top management team as a control variable to isolate the effect of the CEO's humility level. However, prior studies have shown that the CEO was able to influence the decision making of the entire team. As the most elevated person on the top management team, the CEO is in a position to influence the strategic agenda and signals sent by the entire top management team; however, this might be contingent on the CEO's power. Third, I did not research the conditions or contingency factors under which the association between CEO humility and MCS use holds. To address this matter, I included a broad set of control variables to account for external and internal contingency factors that might alter the association between the constructs of interest. Fourth, I did not measure changes in MCS use, for example, by comparing current use to the predecessor's use. Thus, I was

unable to distinguish between a prevailing culture regarding the use of MCS and the effect of the current CEO. As I only included CEOs who had been in the office for at least 3 years, I feel confident that the respective CEOs had opportunities to change MCS use based on their preferences. Finally, I asked subordinates to rate the humility level of the CEO and MCS use by the top management team. Therefore, I could not distinguish between perceived and actual humility. However, as interactions are considered central to the conceptualization of humility (Davis et al., 2011; Owens et al., 2013), I consider this distinction to be acceptable. Moreover, self-reported humility is considered paradoxical (Davis et al., 2011; Owens et al., 2013) and, as mentioned before, I feel confident that the items for a rather stable personality trait, humility, do not interfere with perceived MCS use by the top management team.

Based on the existing findings of MCS and humility research as well as the results and limitations of my study, several starting points for future research presented themselves. In my opinion, studying the interactions of personality and contingency factor offers promising insights. As shown in the study of Naranjo-Gil et al. (2009), who combined demographic proxies and contingency variables, such scholarship might expand our knowledge of the antecedents of MCS use. Such research helps us understand the circumstances under which humble CEOs are able to influence MCS use more strongly and the circumstances under which they emphasize inspiring or constraining levers of control. In-depth studies of the techniques used might yield additional insights. Moreover, studies on the ways different levers of control are combined in different situations are needed (Malmi & Brown, 2008).

E Concluding Remarks

E.1 General conclusions

In this dissertation, I researched the relationships between CEO humility and different aspects of strategic choices and processes related to strategic decision making and strategic change. This research went well beyond theorizing and testing just the direct impact of CEO humility on such strategic choices. I focused on relationships between CEO humility and strategic choices by integrating CEO humility into different aspects of top executive decision making and shed further light on more complex mechanisms by integrating the TMT and MCS use. The research objectives covered different facets of strategic choices and organizational outcomes in the explicit choice to initiate strategic change, the implicit choice of how to implement strategic change, and the explicit choice of how to use management control systems in communicating the strategic agenda.

The first research objective examined whether CEO humility helped to better explain the mechanism behind a well-established relationship by disentangling the experience and personality of the CEO from those of the other members of the TMT and the impact of CEO humility on this interface. The second research objective attempted to better elucidate the mixed findings reported in existing research on subsequent financial success of strategic change. And finally, the third research objective introduced the main effect of CEO humility on MCS use, which had not yet been extensively studied. I drew on upper echelons theory to develop hypotheses regarding the impact of CEO humility on all these facets of strategic choices and organizational outcomes. I used matched data from a survey of executives in Germany, Austria, and Switzerland, and archival sources to test the hypotheses.

Overall, the results support the assumption that CEO personalities affect strategic choices, processes, and organizational outcomes. My research indicates that CEO personality is better able to explain important mechanisms of organizational behavior than contextual and demographic factors. While these factors have their merits in explicating conduct and are supported by my findings, integrating CEO humility helps assess the working mechanism to arrive at a more complete picture. I will discuss the results of sections B, C, and D, and their implications for each research objective in more detail below.

My focus on CEO humility and the initiation and effects of strategic change from the work of other researchers being part of this overall research project. While using the same upper echelons perspective and based their research on the same survey respondents, they focused on distinct aspects of CEO personality and their outcomes. For example Woloszczak (2015) focused on Core Self-Evaluation (CSE) and its effect on different aspects of strategic change, performance outcomes and MCS use. CSE is a personal trait that is distinctively different to humility (Owens et al., 2013) and follows a different literature stream. Menz (2018) meanwhile also relied on the personality trait of CEO but researched the how CEO humility affects the different configurations of MCS use. Thus, while sharing the same focus on CEO humility her work is less concerned with the preference of the elements of the LOC framework but rather with the interaction of these levers and she does not research the association with strategic change.

E.1.1 Research objective one: The effect of CEO humility on the CEO-TMT interface: The case of tenure and strategic change

The goals of the first research objective were to advance knowledge about the CEO-TMT interface and to test whether CEO humility acts as a boundary condition for the CEO-TMT interface and its relevance. This research refers to an important call made by Arendt et al. (2005) to research the conditions that determine the influence of what he called advisors have on the CEO. My study found significant effects of CEO humility on the interaction between CEO tenure, average TMT tenure, and strategic change, but the two-way interaction between CEO tenure and TMT tenure was not robust and significant. Only after the addition of CEO humility as a condition for the relevance of the CEO-TMT interface did the effect of TMT tenure become relevant.

As hypothesized, the inclination of a humble CEO toward interaction, joint decision making, and feedback allowed the preferences and experience of the entire TMT, as attributed to their average positional tenure, to become relevant to decisions about strategic change, as the CEO has the power to decide who takes part in the decision-making process (Jones & Cannella, 2011). The CEO's willingness to interact with the TMT and to attentively listen to its advice determines the relevance of the TMT to the outcome. This finding seems straightforward, but to date empirical research on the conditions that make the CEO-TMT interface relevant are sparse.

Extant research on the CEO-TMT interface has assumed that different modes of cooperation between the CEO and the TMT lead to differences in organizational outcomes, which can be explained by the characteristics of the CEO and the TMT. However, my results show that this cooperation and, consequently, the CEO-TMT interface were in fact dependent on the personality of the CEO. While non-humble CEOs might more often single-handedly make decisions about strategic change, humble CEOs move toward the setting described in the CEO-

Advisor model. That I found this effect in Germanic countries, where managerial discretion is lower than in the United States (Crossland & Hambrick, 2007, 2011), made this case even stronger. Furthermore as using dummy variables to control for industry effects is considered to underestimate the actual impact of CEOs on their company's performance (Hambrick & Quigley, 2014) I consider my results as being conservative estimates of the actual impact of CEO humility.

Studying the conditions that make the CEO-TMT interface relevant also sheds light on the more complex decision-making processes that underlies research on the CEO-TMT interface. In upper echelons research, the underlying mechanisms and processes have not been directly measured and remain within a "black box." From my research and the empirical support, I found support for my hypothesis that CEO humility affected the CEO-TMT interface, and thus can infer that the impact of the remaining TMT members depends on the CEO's personality. The actual psychological processes are hardly available for research, "However, we should not underestimate the value of reducing the surface area of the black box. Each new discovery about the executive team helps researchers to gain insights that previously were unknown" (Carpenter, 2011, p. 30).

The main effect of tenure on strategic change has been well-established in research: a negative association exists between CEO tenure and strategic change (e.g., Boeker, 1997; Finkelstein & Hambrick, 1990; Miller & Shamsie, 2001; Wiersema & Bantel, 1992); a correlation I also found support for. Thus, I expect my interpretation of the three-way interaction effect to be valid. Finally, my research supports parts the hypothesis of Wiersema and Bantel (1992) that tenure heterogeneity within the TMT causes higher levels of strategic change as the combination of a low CEO tenure and high average TMT tenure – which would lead to TMT tenure heterogeneity when the CEO is included – leads to high levels of strategic change. Thus, the complementary nature of CEO and TMT tenure becomes apparent. A newly appointed CEO sets a new strategic agenda, and

the knowledgeable TMT helps align internal stakeholders and adapt existing internal policies and processes. Notably, complementary CEO and TMT tenure with a seasoned CEO and a newly appointed TMT only leads to average levels of strategic change, as the overall impact of TMT tenure fades with increasing CEO tenure, regardless of CEO humility or TMT tenure.

E.1.2 Research objective two: The moderating role of CEO humility on strategic change and company performance

Scholars have found mixed results with regard to the performance impact of strategic change. Assuming a direct relationship between strategic change and performance seems very simplistic; thus, studying the intervening factors is especially relevant. Scholars have focused on the contingency factors and the disruptiveness of strategic change to find associations with performance. While these angles appear reasonable, it is puzzling that the person in charge not only of the initiation but also the implementation of strategic change has received so little attention as a moderator of this relationship. Studies that test the impact of the CEO on implementation are sparse. The studies of Geletkanycz and Hambrick (1997) on the external ties and networks of top managers, of Zhang and Rajagopalan (2010) on the influence of internal or external CEO promotion, of Herrmann and Nadkarni (2014) on the five-factor model, and of Waldman et al. (2004) on CEO charisma are notable exceptions. Thus, further contributing to the understanding of the CEO's influence by opening the black box of personality traits was the main goal of this research.

First, I consider my results confirmation of the claim that no significant, distinct, direct effect of strategic change on the financial success of the company is identifiable, as this relationship

is rather complex. The significant main effect of CEO humility on company performance supports the implicit hypothesis that, under certain circumstances, CEO humility affects important organizational outcomes. Apparently, they ultimately influence the financial success of strategic change. This result is in line with qualitative research that has highlighted the roles of top executives (e.g., Gioia & Chittipeddi, 1991). However, when interpreting the main effect of a model that includes an interaction effect, one should bear in mind that these coefficients differ from those in a regression model without interaction terms; this coefficient can only be interpreted as being under the condition of average strategic change (Hartmann & Moers, 1999). Thus, the relationship between CEO humility and company performance is very likely more complicated.

The significant interaction term between CEO humility and strategic change reveals the intricate nature of the relationship. The results supported the explicit hypothesis that CEO humility has an impact on the financial success of strategic change. However, the effect of CEO humility on implementing strategic change depends on the level of strategic change. The degree of CEO humility must fit the level of strategic change: while humble CEOs seem to perform best in situations of adaptive, and thus low levels of strategic change, the opposite is true in situations of disruptive change. In the latter cases, strong visions are needed and have been found to have stronger associations with non-humble CEOs, from whom subordinates seek stabilization CEOs (Owens & Hekman, 2012). Hence, in combination with the results for the first research question, one can see the likely shortcomings of CEO humility. Despite humility being considered a virtue that has proven valuable for companies (Vera & Rodriguez-Lopez, 2004), the insights from the first two research questions indicate that there are limits to the ability of humble CEOs to either initiate strategic change or successfully implement high levels of strategic change. The preference for joint decision making and openness to feedback of humble CEOs likely limits a company's

ability to react to disruptive environmental change appropriately and successfully. Future research on the relationship between CEO humility and decisiveness might shed more light on this aspect. Interestingly, the capabilities of humble and non-humble CEOs to implement strategic change seem to fit to their respective preferences. Prior research has found that humble CEOs tend to prefer adaptive levels of strategic change to disruptive change; hence, both humble and non-humble CEOs can successfully implement the levels of strategic change that they prefer (Owens et al., 2013; Owens & Hekman, 2012).

E.1.3 Research objective three: CEO humility and MCS use by the TMT

Research on management control systems has mostly assumed that the MCS in place and corresponding MCS use are based on the context. Hence, scholars have focused on environmental and company factors to explain MCS settings (Chenhall, 2007). I followed the “non-rational design school” of MCS research (Baxter & Chua, 2003), a school of thought that emphasizes the cognitive limitations of the main corporate actors and, thus, shares a foundation with upper echelons theory. It is misleadingly called “non-rational,” as the approach may be rational from the viewpoint of subgroups (Baxter & Chua, 2003), such as CEOs with specific preferences.

My research is in line with scholars focusing on the impacts of individuals. Although the significant coefficients of firm size and industry dummies support research findings that environmental and firm factors influenced MCS use, the results of the research presented in section D indicate that beyond the contingency factors used as control variables, CEOs and their personalities have significant impacts on top managements’ MCS use. CEOs appeared able to influence the MCS use of the TMT based on their own preferences. TMTs led by CEOs with higher

levels of humility emphasized the use of cybernetic and cultural control systems. Thus, these TMTs likely used MCS more actively to communicate their strategic agenda.

The positive associations between CEO humility and diagnostic and interactive use of performance measurement systems and beliefs systems fit a preference for interaction, feedback, and shared decision-making processes (Owens et al., 2013; Owens & Hekman, 2012; Vera & Rodriguez-Lopez, 2004). Meanwhile, the comparably low level of emphasis placed on the use of boundary systems is in line with research associating humility with creating an environment that fosters experimentation (Owens & Hekman, 2012).

E.2 General contribution

This work contributes to the research community in three distinct ways. First, I support claims that differences in CEO humility, as the most powerful actors of their companies, help explain organizational choices, processes, and outcomes. Second, I add to research on the CEO-TMT interface by examining the conditions under which the interface is relevant. Third, I contribute to the growing literature on the outcomes and consequences of humility as well as to general research on humility, by validating the humility scale developed by Owens et al. (2013).

With regard to the first contribution, the existing research has shown that CEOs affect a multitude of organizational choices (see Carpenter et al., 2004; Finkelstein et al., 2009 for a review). While the impact of the CEO on the initiation of strategic change has been well-established in the literature, the body of research on the impact on the financial success of strategic change and on the use of MCS in communicating the strategic agenda is sparse. The results of sections C and D supported the hypothesis that CEOs have a distinct and significant influence on the

implementation and communication of strategy and strategic change. With regard to the performance effect of strategic change, the influence of environmental and company factors remains unrefuted by my research, and the arguments and research in favor of a curvilinear relationship appear to be valid. Researchers have previously acknowledged the roles and impacts of leadership and of the CEO in implementing strategic change (e.g., Gioia & Chittipeddi, 1991; Zhang & Rajagopalan, 2010). By finding support for my hypothesis that differences in CEO humility levels explain the outcomes of strategic change, I contribute to this research and establish the important impact of the CEO. Furthermore, my research shows that this relationship holds true in countries with less managerial discretion than in the United States (Crossland & Hambrick, 2007). Additionally, previous MCS research has recognized the effects of individuals and their characteristics in determining the MCS setting and use. However, only recently have top executives been the focus of such research; hence, I contribute further evidence that the CEO serves as an important antecedent of MCS use within the company.

I found support for my hypothesis that not only do CEOs matter with regard to strategic choices and organizational outcomes but also that humility in CEOs provides a more complete assessment of the CEO's impact on such choices and outcomes. I answered calls from researchers to include richer personality variables instead of demographic proxies (e.g., Marcóczy, 1997; Priem et al., 1999; Resick et al., 2009) and showed that CEO humility is associated with a distinct profile of initiating and implementing strategic change. Regarding the MCS research in which the CEO is less established, this work advances our knowledge in that both the CEO and the CEO humility level matter. With respect to all three research questions, I found that the humility level of the CEO adds more facets to the existing research and the established picture. It shows that our previous

knowledge mostly holds true; however, the true relationship is more complex than indicated in the established body of scholarship and depends on the CEO's personality.

My second contribution is to the research on the CEO-TMT interface. I introduced CEO humility as a condition that determines whether the interface itself is relevant and whether the characteristics of the TMT can be attributed to the organizational outcome. Thus, such research sought to determine whether the CEO matters alone or whether the CEO and the TMT matter jointly. A core premise of upper echelons theory is that studying teams often leads to better results than studying individuals (Hambrick, 2007) while respecting the distinct position of the CEO (Hambrick, 1994). In general, decision making involves multiples person in different roles that cannot be studied as a group (Arendt et al., 2005). Thus, research must account for their distinctive roles in the process, such as being in charge of operations, being the person ultimately responsible for the decision, and serving as an advisor (Hambrick, 1994; Jones & Cannella, 2011). The CEO-Advisor model, which provided the conceptual basis for my research on the CEO-TMT interface, does account for these distinct roles but raises the question of which conditions strengthen the inclusion of advisors in the decision-making process and which conditions allow the CEO to make decisions single-handedly. By studying the impact of CEO humility on the joint effect of CEO tenure and average TMT tenure, I could show that there is only a significant association when CEO humility is high. Thus, the relevance of the CEO-TMT interface is contingent upon CEO humility and, consequently, on the CEO. As a result, different research streams in upper echelons theory either advocating for research on the CEO alone or on the TMT as a whole both have merits, depending on the setting.

I also improved the general knowledge about the CEO-TMT interface, as my research shows that the CEO and average TMT tenure are complementary regarding their impact on

strategic change. Under the condition of high CEO humility, low CEO tenure and high TMT tenure lead to considerably higher levels of strategic change compared to other combinations of top management team characteristics.

The third contribution of my research is to the growing body of knowledge on the outcomes and consequences of humility among top executives. Most of the existing research has been speculative and lacking in empirical support (Oc et al., 2015; Owens & Hekman, 2012; Rego et al., 2017). While anecdotal and exploratory findings suggest that CEO humility is associated with strategic change, my research is among the first to establish this relationship empirically and put my hypothesis to a stringent test. Furthermore, this research adds to a growing body of knowledge examining different aspects of the impact of CEO humility on the processes of strategic change within companies. I studied the amount, consequences, and one of the means of implementation of strategic change. Finally, my research helps validate the applicability of the humility scale developed by Owens et al. (2013) for subordinate reports in research on CEO humility.

E.3 General limitations

My research was subject to some limitations. As I measured CEO humility using a survey completed by a subordinate, this assessment could be subject to errors if the respondents were biased or ill-informed. However, I assured them of strict confidentiality, and I expected senior finance managers to have enough exposure to the CEO to be able to rate the humility level of their CEO. This assumption is backed by research stressing the increasing importance of the finance function to the company (Zorn, 2004). Self-reported humility is believed to be a less reliable measure (Morris et al., 2005; Owens et al., 2013; Rego et al., 2017), and ratings on personality

provided by subordinates are considered more suitable than those provided by supervisors (Blair et al., 2008; Sosik et al., 2012). However, due to the subordinate-reported measure, I cannot account for potential discrepancies between the actual humility level of the CEO and the humility level perceived by the senior finance manager.

This research accounted for neither the humility level of the whole top management team nor differences from predecessor, both of which might affect the initiation and implementation of strategic change in a company. However, for my purposes, the CEO is considered the most powerful top manager. Moreover, in my research, I assumed that CEO humility levels remain constant over the 4-year time-span relevant for this research. Despite a lack of evidence that humility is constant, this assumption has been supported by theorists claiming that humility is a stable trait (Owens & Hekman, 2012).

Regarding my research setting, using a cross-sectional design for the survey allowed more generalizable results but might also alter the results and findings due to industry differences. I controlled for this potential source of bias using the companies' industry codes. Moreover, the study period chosen might be subject to disturbances due to global financial crisis. Finally, common method variance might have distorted the research presented in section D, as I measured all constructs using a survey from one respondent. However, tests for common method variance revealed no worrying results.

E.4 Future research

Several fruitful avenues could extend my research, as my findings should be confirmed by more detailed research on the mechanisms that contribute to the overall process of decision making. I used existing and established findings on the tendencies and preferences of humble executives to

infer that, through their inclinations for communication, interaction, feedback, and learning, they impact the initiation and implementation of strategic change. However, future research could dive into these processes and examine whether quality and quantity of interactions affect these decisions and processes. Another potential intervening factor is the behavioral integration of the top management team, which is supported by CEO humility (Ou et al., 2014) and is believed to foster high-quality information exchange between managers (Ling et al., 2008).

I studied CEO humility as one condition for the relevance of the CEO-TMT interface due to humility's apparent associations with interaction and exchange. However, other CEO personality traits and leadership styles might explain more of the variance regarding the relevance of the interface. Further, I studied the personality of the CEO as the most elevated member of the management team, leaving the personalities of the remaining TMT members unexplored. It would be constructive to research which TMT member personality traits make interaction and exchange more fruitful and enjoyable for the CEO. Furthermore, more research is needed on the general conditions and circumstances that help humble CEOs successfully implement strategic change. I studied the use of MCS as one important, formal means of setting the strategic agenda, but humble CEOs might use more informal means in interactions and discussions to guide the company based on their agenda. The composition of the TMT and members' personalities are also likely to impact the financial success of the implementation of strategic change. Finally, I studied the short-term impacts of strategic change. It is worth researching the long-term effects of strategic change and examining whether humble CEOs show more or less persistence in pursuing their strategic decisions.

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G Appendices

Appendix A: Factor loadings and Cronsbach's Alpha

Table G-1 Factor loadings and Cronbach's Alpha - Humility

<i>Humility</i>		
Variables	Factor	CFA loadings
1. He / she actively seeks feedback, even if it is critical.	0.63	0.64
2. He / she admits it when they don't know how to do something.	0.67	0.67
3. He / she acknowledges when others have more knowledge and skills than him / her.	0.82	0.83
4. He /she takes notice of others' strengths.	0.84	0.85
5. He / she often compliments others on their strengths.	0.67	0.66
6. He / she shows appreciation for the unique contributions of others.	0.80	0.79
7. He / she is willing to learn from others.	0.82	0.81
8. He / she is open to the ideas of others.	0.78	0.79
9. He / she is open to the advice of others.	0.82	0.82
Cronbach's Alpha	0.92	
Composite reliability (CR)	0.93	
Average variance extracted (AVE)	0.58	

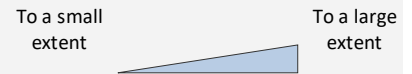
Table G-2 Factor Loadings and Cronbach's Alpha - Cybernetic Control

<i>Cybernetic control</i>	Factor 1	Factor 2
	Diagnostic use	Interactive use
Variables		
Please rate the extent to which your top management team currently relies on performance measures (PM), or performance measurement systems (PMS) to ...		
1. ...track progress towards goals	0.72	
2. ...monitor results	0.84	
3. ...compare outcomes to expectations	0.89	
4. ...review key measures	0.57	0.44
5. ...enable discussions in meetings of superiors, subordinates and peers	0.57	0.46
6. ...enable continual challenge and debate of underlying data, assumptions, and action plans	0.58	0.51
7. ...provide a common view of the corporation	0.45	0.65
8. ...tie the corporation together		0.80
9. ...enable the corporation to focus on common issues	0.50	0.61
10. ...enable the corporation to focus on critical success factors	0.57	0.52
11. ...develop a common vocabulary in the corporation		0.83
Cronbach's Alpha	0.84	0.81
Composite reliability (CR)	0.85	0.81
Average variance extracted (AVE)	0.65	0.52

Table G-3 Factor Loadings and Cronbach's Alpha - Cultural Control

<i>Cultural control</i>	Factor 1	Factor 2
Variables	Beliefs system	Boundary system
	0.87	
1. Our mission statement clearly communicates the corporation's core values to the workforce	0.92	
2. Top managers communicate the core values of our corporation to the workforce	0.92	
3. The workforce is aware of our corporation's core values	0.86	
4. Our mission statement inspires the workforce		0.91
5. Our corporation relies on a code of business conduct to define appropriate behavior for the workforce		0.93
6. Our code of business conduct informs the workforce about behaviors that are off-limits		0.80
7. Our corporation has a system that communicates to the workforce risks that should be avoided		0.89
8. The workforce is aware of our corporation's code of business conduct		
Cronbach's Alpha	0.93	0.93
Composite reliability (CR)	0.94	0.93
Average variance extracted (AVE)	0.79	0.77

05. Please indicate the extent to which the following statements apply to your corporation:



1 2 3 4 5 6 7

- Top management pays little day-to-day attention on the PMS. 1 2 3 4 5 6 7
- Top management relies heavily on staff specialists in preparing and interpreting information from the PMS. 1 2 3 4 5 6 7
- Operating managers are involved on an exception basis with the PMS. 1 2 3 4 5 6 7
- Top management routinely pays attention to the PMS. 1 2 3 4 5 6 7
- Top management interprets information from the PMS. 1 2 3 4 5 6 7
- Operating managers frequently deal with the PMS. 1 2 3 4 5 6 7

06. Please indicate the extent to which the following items describe your corporation:



To a small extent 1 2 3 4 5 6 7 To a large extent


BELIEFS SYSTEM

- Our corporation relies on a mission statement to define the corporation's core values. 1 2 3 4 5 6 7
- Our mission statement clearly communicates the corporation's core values to the workforce. 1 2 3 4 5 6 7
- Top managers communicate the core values of our corporation to the workforce. 1 2 3 4 5 6 7
- The workforce is aware of our corporation's core values. 1 2 3 4 5 6 7
- Our mission statement inspires the workforce. 1 2 3 4 5 6 7

BOUNDARY SYSTEM

- Our corporation relies on a code of business conduct to define appropriate behavior for the workforce. 1 2 3 4 5 6 7
- Our code of business conduct informs the workforce about behaviors that are off-limits. 1 2 3 4 5 6 7
- Our corporation has a system that communicates to the workforce risks that should be avoided. 1 2 3 4 5 6 7
- The workforce is aware of our corporation's code of business conduct. 1 2 3 4 5 6 7

09. To what extent does it apply to the environment of your corporation that ...

To a small extent  To a large extent

1 2 3 4 5 6 7

- corporations cannot enter your industry easily? 1 2 3 4 5 6 7
- it is difficult for a customer to leave your corporation and begin a relationship with a new corporation in your industry? 1 2 3 4 5 6 7
- your competition is fragmented (i.e., fragmented is one in which many corporations hold small relative market share)? 1 2 3 4 5 6 7
- it is difficult for your corporation to leave one supplier and begin a relationship with another supplier? 1 2 3 4 5 6 7
- your corporation is concerned about the threat of substitute products? 1 2 3 4 5 6 7

Before moving on we would like to have some information about yourself and your corporation.

10. How old are you?

11. For how many years have you been employed for your current corporation?


12. For how many years have you been working in your current position within your current corporation?

Part 3: Leadership style of the CEO

In this part of the questionnaire we would like to know how you would describe the leadership style of the CEO of your corporation towards subordinates/other executives based on your experience and interactions.

If your corporation does not have a distinct CEO, please describe the executive board member with the longest board tenure. Please answer without hesitation and trust your spontaneous judgment.

13. Below are statements to characterize your CEO. Please judge how frequently each statement fits the person you are describing.

Not at all  Frequently, if not always

THE CEO I AM RATING ...	1	2	3	4	5
▪ instills pride in me for being associated with him.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
▪ goes beyond self-interest for the good of the group.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
▪ acts in ways that builds my respect.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
▪ displays a sense of power and confidence.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
▪ talks about his most important values and beliefs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
▪ specifies the importance of having a strong sense of purpose.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
▪ considers the moral and ethical consequences of decisions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
▪ emphasizes the importance of having a collective sense of mission.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
▪ talks optimistically about the future.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
▪ expresses confidence that goals will be achieved.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
▪ talks enthusiastically about what needs to be accomplished.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
▪ articulates a compelling vision of the future.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>


- re-examines critical assumptions to question whether they are appropriate.
- seeks differing perspectives when solving problems.
- suggests new ways of looking at how to complete assignments.
- gets others to look at problems from many different angles.

- considers different needs, abilities, and aspirations of others.
- helps others to develop their strengths.

- spends time teaching and coaching.
- treats others as an individual rather than just as a member of a group.

- makes clear what one can expect to receive when performance goals are achieved.
- provides others with assistance in exchange for their efforts.
- expresses satisfaction when others meet the expectations.
- discusses in specific terms who is responsible for achieving performance targets.

14. Below are some more statements about your CEO. Please indicate the extent that you agree or disagree:

Totally disagree  Totally agree

- | | 1 | 2 | 3 | 4 | 5 |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| ▪ He actively seeks feedback, even if it is critical. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ▪ He admits it when they don't know how to do something. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ▪ He acknowledges when others have more knowledge and skills than him. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ▪ He takes notice of others' strengths. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ▪ He often compliments others on their strengths. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ▪ He shows appreciation for the unique contributions of others. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ▪ He is willing to learn from others. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ▪ He is open to the ideas of others. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ▪ He is open to the advice of others. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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- | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| ▪ He is confident to get the success he deserves in life. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ▪ He feels that he is a person of worth, on an equal basis with others. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ▪ When he tries, he generally succeeds. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ▪ He feels that he has a number of good qualities. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ▪ He completes tasks successfully. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ▪ What happens to him is of his own doing. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ▪ Overall, he is satisfied with himself. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ▪ He is filled with doubts about his competence. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ▪ He determines what will happen in his life. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ▪ He feels in control of his success in his career. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ▪ He is capable of coping with most of his problems. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ▪ He has felt hopeful about the future. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |