Article I: Top Management Team Structure: A Review and Research Agenda

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Abstract: The top management team (TMT) structure, which comprises the size, role structure, and hierarchy of a TMT, has received increasing attention of late. However, despite the literature’s potential to complement research on strategic leadership (in particular, TMT composition and the heterogeneity of TMT members’ experiences and psychological characteristics), the fragmented insights have complicated the task of assessing this promising research area. The purpose of this article is to review the empirical research on TMT structure and to identify gaps, patterns, and future research opportunities. Based on our review, we synthesize the research on the TMT structure into a framework and propose avenues for future research in the following areas: (1) studying TMT structures jointly, (2) exploring new dimensions of the TMT structure, (3) applying new perspectives and approaches, (4) understanding the antecedents, and (5) combining the TMT structure with other strategic leadership research.

Keywords: Upper echelons; top management teams; TMT structure; TMT composition; TMT size; TMT hierarchy; strategic leadership; review
Introduction

“I have long thought that there needs to be much more attention paid to the ‘structure’ of TMTs, to complement – and improve – our understanding of TMT composition and processes.” Hambrick (2007, p. 337)

Since Hambrick and Mason’s (1984) seminal article introduced the upper echelons perspective of organizations 36 years ago, research on top management teams (TMTs) has developed into one of the most prominent areas of the management field. The main strand of this research involves TMT composition and posits that the heterogeneity of TMT members’ experiences and psychological characteristics affects TMT processes, such as social integration, consensus, and organizational outcomes (Finkelstein, Hambrick, & Cannella, 2009; Hambrick & Mason, 1984). However, studies in this vein, particularly those that use aggregate measures of individual TMT members’ observable demographic characteristics (e.g., age, tenure, education, and functional background), have produced mixed results (for reviews of this strand see Carpenter, Geletkanycz, & Sanders, 2004; Finkelstein et al., 2009). To answer the many open questions raised by previous studies and to complement research on TMT composition, scholars have recently devoted more attention to understanding the role of the TMT structure. Unlike the study of TMT composition, which concerns the (aggregate) characteristics of individuals, research on the TMT structure concerned with the antecedents and outcomes of (1) TMT size (e.g. Certo, Lester, Dalton, & Dalton, 2006; Guadalupe, Li, & Wulf, 2014; Henderson & Fredrickson, 1996), (2) TMT role structure, including the presence and interdependence of TMT member roles (e.g., Hambrick & Cannella, 2004; Hambrick, Humphrey, & Gupta, 2015; Menz & Scheef, 2014), and (3) the hierarchy within the TMT (e.g., Halebian & Finkelstein, 1993; Keck, 1997; Ling, Simsek, Lubatkin, & Veiga, 2008). Decisions about the structure of a TMT reflect key organizational design choices. TMT structures and their relationship to one another vary just as organizational structures do (Beckman & Burton, 2011).

Although the studies in this relatively nascent research area share the central idea that TMT structure choices may affect TMT processes and organizational outcomes either directly or indirectly (via their interplay with TMT composition (Hambrick et al., 2015), for example, through the selection of individual executives for specific roles), the contributions are disconnected. Indeed, perhaps because most studies focus on one structural TMT feature (e.g., TMT size), they often fail to consider existing knowledge on other features, such as role structures. As a result, not only a wide variety of TMT structure phenomena but also different theoretical perspectives and methodological approaches have been studied. Particularly in light
of this area’s enormous potential, as well as its various unresolved and unexplored research issues, there is a need to integrate dispersed insights and approaches, which future studies can build on. A thorough understanding of the TMT structure is particularly warranted now since TMTs have changed, including the increase in TMT size (Guadalupe et al., 2014) and the rise in new functional TMT member roles (Menz, 2012), which affects the functioning of the TMT. Beckman and Burton (2011) highlight the need to give more prominence to the TMT structure within the TMT literature. We heed this call for research and hope that our review will prompt more research in this field.

Given these shortcomings and opportunities, this article has three main purposes. First, we make a clear distinction between TMT composition and structure, which will alleviate the inconsistent and inadequate usage of the two terms in the past. Second, following a description of our review’s approach, we provide an in-depth review of the research on the three structural features of a TMT: TMT size, TMT role structure, and TMT hierarchical structure. Specifically, we organize the themes and dominant relationships into a conceptual framework of the TMT structure’s role in TMT research and summarize the approaches and findings in each of the three sub-streams. Third, based on an overall synthesis of the literature, we identify critical gaps within and across the different sub-streams and suggest research avenues that encourage scholars to benefit from cross-fertilization and promise to contribute to the study of the TMT, as well as the related research areas such as CEO, TMT composition, and strategic leadership literature.

**Definitions and scope of the review**

Before defining the scope of this review, we distinguish between the concepts of TMT composition and the TMT structure. This distinction is important to avoid confusion between TMT structure and TMT composition and encourage using the terms consistently in future research. While some studies have not distinguished between TMT structure and composition, three studies have made the distinction clear (Beckman & Burton, 2008; Beckman & Burton, 2011; Ferguson, Cohen, Burton, & Beckman, 2015). The study of TMT composition is concerned with the demographic characteristics of individual executives or groups of individuals (age, education background, functional experience, gender, etc.). Studies of TMT demographical composition usually treat executives’ demographical characteristics as a proxy “for underlying individual and group cognitions and behaviors” (Carpenter et al., 2004 p. 749). An important difference is that TMT composition studies often focus on the TMT’s functional
(background) heterogeneity, which is linked to the individual’s functional experience, whereas TMT structure studies are interested in the heterogeneity of functional roles within a TMT.

The study of the TMT structure examines top management team roles independently of individual characteristics. Our definition of TMT structures takes into account 1) TMT size, 2) TMT role structures, and 3) TMT hierarchies. Previous research has defined the TMT structure as “the structure of a top group [referring] to the roles of members and the relationships among those roles” (Hambrick, 1994, p. 178). We expand this definition by including TMT size because the latter is a key structural element often directly linked to the role structure (e.g., functional vs. divisional, presence of a certain role) and the relationship between roles (e.g., role interdependence). For example, the decision to add a functional role can directly affect the size of the top team if all the other roles remain and possibly also the number of hierarchical levels.

Method

For a systematic, comprehensive and contemporary review of the TMT structure literature, we followed the structured approach by Webster and Watson (2002), other editors’ advice on literature reviews (Cropanzano, 2009; Short, 2009), as well as best practice examples (Carpenter et al., 2004; Krause, Semadeni, & Cannella, 2014; Kunisch, Menz, & Ambos, 2015; Menz, 2012; Nielsen, 2009). First, we searched the leading journals in the field: Academy of Management Journal, Strategic Management Journal, Journal of Management, Journal of Management Studies, Administrative Science Quarterly, Organization Science, and Management Science. Second, using the Boolean search engine of the SSCI (Social Science Citation Index), we searched title keywords and article abstracts with the following terms “top management team*,” “TMT*,” “upper echelon*,” “UE,” “top management group*,” “TMG,” “c-suite,” “executive suite,” “top executive*,” “corporate elite*,” “top team*,” “dominant coalition*,” “top manage*,” “senior executive*,” “strategic leader*,” “top group*,” “corporate executive*,” “executive manage*,” “inner circle,” and “managerial elite.” Third, we set 1984 – the year in which the seminal upper echelons article was published (Hambrick & Mason, 1984) – as the starting point and triggered the vast literature in TMTs up until the end of 2018. Fourth, we manually screened the resulting 614 TMT articles that had been identified. We reviewed the articles focused on a structural TMT feature as a key construct, which also meant excluding studies that use the TMT structure merely as a control variable. Fifth, we examined the

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1 The big difference between the number of identified articles and our final sample can be explained by our broad definition of keywords to ensure that we identified all TMT structure articles.
references in the identified studies to find further studies that the keyword search may not have yielded. We excluded all articles that did not study TMT structures as a main variable. This approach produced 34 studies in total.

Building on the analysis of the existing literature, we organized the review according to the three distinct features of the TMT structure: *TMT size* (15 articles), *TMT role structure* (15 articles), and *TMT hierarchy* (8 articles)\(^2\). For each of the three sub-streams, we conducted a descriptive data synthesis (Kunisch, Menz, Bartunek, Cardinal, & Denyer, 2018) offering a review of the studies’ theories, methodological approaches, and findings, as well as a discussion of their contributions. All articles are chronologically summarized in Tables 1 to 3 at the end of this article. As illustrated in Figure 1, the studies in the three sub-streams inform our knowledge about the antecedents (context of CEO, TMT, firm, and environment) and the outcomes of the TMT structure, both on a TMT/individual level and an organizational level. Subsequently, based on the descriptive data analysis and identification of gaps, we developed a framework for future research opportunities.

\[\text{Figure 1: TMT structure research}\]

**TMT size**

The size of top management teams varies substantially from one firm to another. It is considered to be a fundamental aspect of the TMT structure (Keck and Merton as cited in Finkelstein et al., 2009). While the size varies depending on the definition applied and the setting of different studies, prior research informs us that TMT size is a structural element that has changed significantly since the mid-1980s, since when the size of the group reporting

\(^2\) Note that three articles study two TMT structure aspects jointly.
directly to the CEO has doubled (Guadalupe et al., 2014). Within the TMT literature, the size of TMTs has mainly been regarded as a control variable when relating TMTs to strategy (Bantel & Jackson, 1989; Sanders & Carpenter, 1998). In our sample of empirical studies, 15 papers study TMT size as either an antecedent or an outcome. The average TMT size of all the studies varies from 1.22 to 19.11 top management team members (see Table 1: TMT size).

**TMT size definitions**

Scholars define TMT size in different ways depending on the research question, method, and context. In smaller and survey studies, for instance, CEOs define their TMT members (e.g. Amason & Sapienza, 1997; Barrick, Bradley, Kristof-Brown, & Colbert, 2007; Iaquinto & Fredrickson, 1997; Ling et al., 2008; Simsek, Veiga, Lubatkin, & Dino, 2005; Smith et al., 1994). TMT compensation studies commonly define TMT size as “the five highest-paid executives” (e.g. Dunn, 2004; Patel & Cooper, 2014; Ridge, 2015), while other studies include everyone who reports directly to the CEO in their definition of the TMT (e.g. Boeker, 1997; Guadalupe et al., 2014). Most TMT studies define TMTs as all executives with the title of vice president or above as reported in the firm’s form 10-K (Beckman & Burton, 2008; Cannella & Hambrick, 1993; Ferguson et al., 2015; Hambrick et al., 2015; Keck, 1997; Virany, Tushman, & Romanelli, 1992). Other studies use even broader definitions, for example, all officers (Sanders & Carpenter, 1998). An overview of TMT size definitions can be found in Table 1, 2, and 3. Interestingly, none of the studies define TMT size based on the number of roles within the TMT, although one person can have one or more roles within the TMT, such as a vice president of marketing and technology. We will return to this point in the future research section.

**Antecedents of TMT size**

Two studies explore the determinants of TMT size empirically, both from an information-processing perspective. Sanders and Carpenter (1998) study 258 S&P 500 firms in 1992 and apply two different TMT size operationalizations: (1) the total number of officers in the firm, with an average of 18.3, and (2) the number of executives who were in the top two tiers of the executive management, with an average TMT size of 6.47. With both operationalizations, they find support for the argument that large firms cope with complexity resulting from internationalization by having larger TMTs and longer-term CEO pay and often by separating the chairperson and CEO positions.
The study by Guadalupe et al. (2014) looks at 300 large U.S. firms over a span of 20 years (1986–2006). They observe that, between the 1980s and mid-2000s, the size of the TMT doubled from an average TMT size of five to 10, which they mainly attribute to an increase in functional managers and less to an increase in the number of general managers. Their explanation for the expanding TMTs and the growing number of functional executives is grounded in information-processing theory. Overall, they find a positive relationship between unrelatedly diversified firms and TMT size but not a significant relationship between IT investments and a TMT’s size.

**Outcomes of TMT size**

Most papers on TMT size have focused on its effects. One group of studies explores the TMT processes and behavior that affect strategic decision making, and a second group focuses on the effects of TMT size on organizational outcomes. A common theme among scholars exploring the effects of TMT size is the positive and negative consequences for TMT (decision-making) processes.

First, several scholars studying TMT processes argue for a negative relationship between TMT size and social integration and informal communication (Smith et al., 1994), TMT agreement (Iaquinto & Fredrickson, 1997), and TMT behavioral integration (Simsek et al., 2005). Based on a study of 53 single-business, high-technology firms, including CEO interviews, TMT questionnaires, and archival data, Smith et al. (1994) find empirical evidence that TMT size has a negative relationship with social integration and informal communication and, thus, indirectly harms firm performance. They also suggest that “there is value in keeping the team size relatively small, to enhance informal communication and social integration” (Smith et al., 1994, p. 434). In a similar vein, Iaquinto and Fredrickson (1997) explore the effect of TMT size on agreement within the TMT. They argue that teams with more diversity of opinion, which may not be heard, may break into subgroups, which, in turn, decreases the functionality of the team. Using samples from two industries – one highly unstable and one stable – from the 1980s, they do not find a significant relationship between TMT size and TMT agreement.

One of the most cited articles in this domain comes from Amason and Sapienza (1997), who study the effects of TMT size on cognitive conflict, defined as “task-oriented disagreement arising from differences in perspective” (p. 495) and affective conflict, defined as “individual-oriented disagreement arising from personal disaffection” (ibid.). Based on a survey of 48 TMTs in the food processing industry, they find a positive relationship between TMT size and
both cognitive and affective conflict. These findings lead to a practical dilemma as larger teams with more cognitive conflict facilitate the exchange of information within the TMT, while affective conflict associated with larger teams is detrimental to decision making due to suspicion, distrust, and hostility among TMT members (Amason & Sapienza, 1997). Amason and Sapienza (1997) see managing the different conflicts as the solution to this dilemma, but they also highlight the need for further research to understand the double-edged effects of TMT size. Simsek et al. (2005) surveyed 402 firms to explore the association between TMT size and behavioral integration, a meta-construct “capturing three key interrelated and reinforcing elements of TMT process” (p. 69). In line with prior research, they find a negative relationship between TMT size and behavioral integration. To increase behavioral integration, they suggest that firms “structure larger TMTs in ways that minimize the negative impact of size on behavioral integration” (p. 80). Plambeck and Weber (2010) studied ambivalent issue interpretation, which has been argued to be important for mindfulness, creativity, and strategic change and, thus, for strategic decision-making processes involving the CEO and TMT. In a survey of 220 German CEOs regarding the enlargement of the European Union, they find no support for the hypothesis that the interpretation of strategic issues would be positively associated with larger TMTs.

Second, some studies explore strategic outcomes. For example, by conducting interviews with the CEOs of 98 U.S. semiconductor firms (1978–1985), Eisenhardt and Schoonhoven (1996) explore why organizations form strategic alliances. Taking a resource-based view, they extend theory with their findings that firms form alliances when they are in strategic need and have social opportunities. Social opportunities specifically mean that firms with larger founding TMTs, whose members had previously worked for many semiconductor firms in high management positions, have significantly higher rates of alliance formation. In a study of 67 semiconductor producers from Silicon Valley over 18 years (1976–1993), Boeker (1997) examines the effects of executive migration across organizations and the effect on strategic change, specifically product-market entry. Interestingly, he finds that smaller TMTs and teams with shorter tenures demonstrate a stronger relationship between executive migration and strategic change.

Another meta-study, conducted to find the drivers of firm multinationality, also considers TMT size (Kirca, Hult, Deligonul, Perry, & Cavusgil, 2012). This study aggregates 145 studies and the empirical findings from 154 independent samples. Overall, the findings of this meta-analysis strongly support upper echelons theory as executives’ characteristics prove to be major determinants of firm multinationality. Concerning TMT size, it shows to be one of
the drivers of firm multinationality but only before the inclusion of TMT international experience in the model.

One TMT size study sticks out among those exploring the effects on TMT processes or organizational outcomes as it investigates the effects on CEO compensation. Studying 189 firms from four industries (1985–1990), Henderson and Fredrickson (1996) take an information-processing perspective to argue that larger TMTs are better able to process information, which is “critical to organizational functioning and performance” (p. 576). They study the information-processing demands as determinants of CEO compensation and hypothesize that TMT size has a negative effect on CEO compensation because more TMT members reduce the amount of information processed by the CEO. While they find no significant effect of TMT size on CEO compensation in general, the TMT size in conglomerate diversifiers has a positive relationship with CEO compensation.

Lastly, several scholars have explored the consequences of TMT size on firm performance. For example, Eisenhardt and Schoonhoven’s (1990) study founding TMT’s characteristics and organizational growth (sales) in technology-based ventures and is based on interviews in 92 U.S. semiconductor firms (1978–1985), along with archival data. Their argument that larger teams are better equipped to process diverse information and are, therefore, associated with higher growth is supported. The positive effect of TMT size on organizational growth has increased even more over time. In line with Eisenhardt and Schoonhoven (1990), Certo et al. (2006) study TMT characteristics and performance outcomes in the context of a comprehensive meta-analysis of 27 empirical studies, as well as 150 Fortune 500 firms in 2002. They find a positive and significant relationship between TMT size and sales growth; however, with regard to financial performance, they find no evidence of a significant, positive population correlation for TMT size and either ROA or ROE. Taking an information-processing perspective, Halebian and Finkelstein (1993) look at 47 firms (1978–1982) from two industries: computer (unstable environment) and natural gas distribution (stable environment). They find that large TMTs are more profitable in a turbulent environment, which allows the CEO higher discretion than in a stable (low-discretion) environment. Recognizing that TMT size is an important feature of failing firms, Hambrick and D'Aveni (1992) study TMT size among other TMT characteristics and its relationship with failing or surviving firms in an exploratory study of 57 large bankruptcies and matched survivors. They find that in year one, the TMT size of the failing firms was abruptly smaller than the survivor firms and continued to shrink in the final years of their existence.
Discussion of TMT size studies

Collectively, research on TMT size informs us mainly about the effects of TMT size on TMT processes, as well as a variety of organizational outcomes. Overall, we know relatively little about the determinants of TMT size. We only know that TMT size is influenced by the degree of internationalization (Sanders & Carpenter, 1998) and by functional centralization (Guadalupe et al., 2014), which helps explain why TMTs have been growing substantially since the 1980s. In the TMT process studies, it is noticeable that several scholars argue from a theoretical perspective that, for TMT (decision-making) processes, larger TMTs have positive consequences due to better information processing and more resources being available. However, the empirical data shows that TMT size is negatively associated with social integration, informal communication (Smith et al., 1994), and behavioral integration (Simsek et al., 2005), and positively with cognitive and affective conflict (Amason & Sapienza, 1997). Thus, while larger TMTs have advantages in resources and information-processing capabilities, they bring with them the disadvantage of increased conflict and integration. Turning to organizational outcomes, larger TMTs are associated with growth (Eisenhardt & Schoonhoven, 1990), alliance formations (Eisenhardt & Schoonhoven, 1996), and firm multinationality (Kirca et al., 2012), while smaller TMTs are associated with strategic change. Failing firms also have smaller TMTs. Overall, TMT size is not generally positively associated with better firm performance (Certo et al., 2006; Halebian & Finkelstein, 1993) but dependent on the context. As expected, results for TMT size relationships differ depending on the environmental context (Halebian & Finkelstein, 1993) and might be different from industry to industry (Henderson & Fredrickson, 1996). Altogether, comparing results of the reviewed studies has certain limitations due to the variety of different TMT size definitions and conceptualization. Despite the valuable insights in this domain, certain shortcomings need to be addressed by future research. These will be elaborated on and synthesized with opportunities to study TMT role structure and hierarchical structure after reviewing them.

TMT role structure

In recent years, there has been an increasing interest in TMT role structure. Role structure refers to the different roles that comprise a TMT and how they are structured. Deciding on the role structure at the top leaves one with many options: Which functional roles should be included in the team? Is it, for example, beneficial to have a chief operating officer (COO) or chief strategy officer (CSO)? Should the TMT include more functional or more general manager roles? The latter decision influences the interdependency of roles because functionally
structured TMTs are generally more interdependent than those comprising general managers who lead a more autonomous business unit (Finkelstein et al., 2009). Decisions about the role structure reflect important organizational design choices made by top managers and founders (Beckman & Burton, 2011). Practical examples show that TMT role structures vary significantly from firm to firm, and they are not constant. For example, companies may decide to add new roles, like Amerisource Bergen in 2012, who added the CSO role responsible “for enhancing the Company’s long-term strategic plan, identifying new market opportunities, and managing enterprise-wide risk” (BusinessWire, 2012). Other examples show that firms may change their TMT role structure with regard to functional and divisional roles. For instance, in 2012, Procter & Gamble expanded its entirely functionally structured TMT of 10 executives by adding 10 general managers and another functional executive (Procter&Gamble, 2013).

The different types of role structures studied can be clustered into four groups. First, among TMT role structure studies, one group of researchers studies what leads to the (increased) presence of certain roles and its effects on organizational outcomes. In concrete terms, these scholars study the presence of the COO (Hambrick & Cannella, 2004; Marcel, 2009) and CSO roles (Menz & Scheef, 2014), the creation of roles such as supply chain and operations management executive (SCOME) roles (Hendricks, Hora, & Singhal, 2015), structural elaboration through the creation of new roles (Ferguson et al., 2015), and the increased presence of functional roles (Guadalupe et al., 2014). Second, another group explores the role of TMT interdependence as a moderator of TMT characteristics and different outcome variables (Barrick et al., 2007; Hambrick et al., 2015; Wei & Wu, 2013). Third, scholars study the antecedents and outcomes of subgroups and different types of roles (Beckman & Burton, 2008; Eesley, Hsu, & Roberts, 2014; Ma & Seidl, 2018; Virany et al., 1992). Fourth, one study introduces the concept of TMT colocation, that is, TMT roles in the same location (Cannella, Park, & Lee, 2008). While the TMT role structures can be summarized in these four groups, we will review the 15 papers from our sample in terms of antecedents, outcomes, and moderator. An overview is also provided in Table 2: TMT role structure.

**Antecedents of TMT role structure**

The antecedents of TMT role structure that have been studied are on the TMT, firm, and environment/industry level. On the TMT level, Beckman and Burton (2008) study 1,485 executives in 167 high-technology entrepreneurial firms in Silicon Valley (1994 – 1996). They take a path dependency perspective and argue that a founding team’s initial functional experience will also influence the initial functional team structure; however, they only find
weak support for this hypothesis. They further argue that the founding team’s functional structure influences the breadth and depth of both 1) the subsequent functional structure and 2) the subsequent functional experience. A firm has a broad functional team when it has defined executive-level positions in each of the following six functional areas: sales and marketing, general administration (including human resources), science/R&D/engineering, operations, business development/strategic planning, and finance/accounting. The higher the number of executive positions in one of these areas, the deeper the functional structure/experience. The study demonstrates that firms beginning with a range of functional structures are more likely to develop more complete functional structures. However, contrary to their expectations, initial functional structures do not serve as placeholders to attract executives with relevant functional experience later on. Ferguson et al. (2015) also explore antecedents on the TMT level in their study of the concept of TMT misfit. Their sample includes 1,918 TMT roles and 1,452 executives in 167 high-technology entrepreneurial firms over several years. TMT misfit refers to overqualification and underqualification according to discrepancies between the role structure and composition, and the authors study it in the context of developmental milestones (venture capital financing and initial public offerings). Their study finds that overqualified TMTs elaborate their TMT structure without hiring new executives, while underqualified TMTs reinforce their existing expertise by employing new executives without elaborating the role structure. Furthermore, they find that firms that have not reached developmental milestones are less likely to make changes to the TMT, even if they face a misfit. This means that TMTs need to develop their TMT composition and structure but may be constrained by their (in)ability to change. These two studies demonstrate the importance of jointly studying TMT composition and TMT structure, as well as the potential for gaining new insights by doing so.

Two studies examine the presence of certain functional roles on the TMT. First, Hambrick and Cannella (2004) examine the contingencies of COO presence in 404 firms in 21 industries (1987–1996). They find that CEOs who lack experience in operational activities and in managing the focal firm, as well as those who are also the chairperson of the board, are relatively likely to have COOs. Also from a contingency perspective, Menz and Scheef (2014) explore the drivers of the presence of the CSO role in TMTs in a sample of 147 S&P 500 firms over five years (2004–2008). Their results indicate that diversification, acquisition activity, and TMT role interdependence are positively associated with CSO presence.

Lastly, the previously discussed study by Guadalupe et al. (2014) explores the antecedent side of an increased number of functional roles, which they term “functional centralization.” They differentiate between functional roles that are further from the product
(administrative functions like finance, law, and human resources) and those that are closer to the product (e.g., marketing and R&D). The increased presence of functional roles is attributed to IT investments (for administrative functions) and firms becoming less diversified (for product functions).

**Outcomes of TMT role structure**

Several studies are interested in the performance effects of TMT role structures. Only two studies consider the outcomes of TMT structures on the TMT level. The first is the aforementioned study by Beckman and Burton (2008), who examine the breadth and depth of functional structures as an outcome on the TMT level. The second study, by Ma & Seidl (2018), takes a new perspective: CEO–TMT interface and CEO–adviser perspective. With a comparative case study, they explore how new CEOs build their group of immediate collaborators, which they call “strategic leadership constellation” (p. 606). While they find that all new CEOs face constraints in forming this group, they observe that CEOs in companies with a functional structure face relational and structural constraints in making changes to the TMT more frequently than CEOs in companies with a divisional structure. Ma & Seidl (2018) suppose that functionally structured TMTs are more interdependent (Hambrick et al., 2015); thus, CEOs are confronted with more constraints when they try to change the role relationships among TMT members.

Four studies analyze the outcomes of TMT roles like COO, CSO, and SCOME. First, Hambrick and Cannella (2004) take a contingency perspective to analyze the presence and performance effects of COOs over 10 years across 21 industries (1987–1996). They find that CEOs with COOs demonstrate lower organizational performance than those without a COO. Second, a subsequent study by Marcel (2009) of COOs’ performance effects in a sample of 153 firms from five industrial sectors in 1998 reveals some benefits of COO presence. Taking an information-processing perspective, Marcel finds that COOs are positively associated with firm performance, especially for firms with relatively older TMT members. For TMTs with low levels of functional diversity, partial support was found for the benefits of having a COO. No support was found for the performance benefits of COO presence in a TMT with low levels of tenure heterogeneity. As this study shows, taking the moderating role of the TMT context into account is crucial to understanding the benefits of certain roles. Third, Menz and Scheef (2014) find that the structural choice of having a CSO does not significantly influence a firm’s financial performance. Fourth, Hendricks et al. (2015) conducted an empirical study of 681 publicly announced SCOME appointments (2001–2011). This study finds positive stock market
reactions to SCOME appointments. Differentiating between insiders and outsiders, as well as existing and newly created SCOME roles, they observe the strongest positive reaction for outsiders hired for a newly created SCOME role. These studies show that simply studying the presence of a specific role is unlikely to produce performance results/stock market reactions, whereas taking TMT composition characteristics (e.g., functional diversity, age heterogeneity, insider vs. outsider) into account can be essential in explaining the benefits of having certain roles.

Two studies differentiate between the subgroups of TMT roles and examine their performance effects. In the context of entrepreneurial firms, Eesley et al. (2014) study the effects of the founding TMT’s structure on venture performance under the contingencies of the venture’s strategy and business environment. They explore the TMT structure in terms of technically focused roles and differentiate between teams that were entirely comprised of technical roles at the company’s founding and those that included other roles such as marketing, sales, finance, management, etc. With survey and archival data on 2,067 firms founded between 1931 and 2003, Eesley et al. (2014) conclude that ventures cannot ignore founding team roles and expect a later professionalization of their TMTs to align them with their strategy and environment. Together with the above-mentioned finding by Beckman and Burton (2008), the literature seems to suggest that the initial TMT structure matters.

Bermiss and Murmann (2014) conducted a longitudinal study with observations of 111,899 executives working in 3,288 advertising agencies over 19 observation periods and 8,537 firm years in New York City (1924–1996). From an upper echelons and executive mobility perspective, Bermiss and Murmann (2014) study the question of whether certain top managers matter more than others and how it influences organizational failure. They argue that losing top executives to competing firms is detrimental and that firms will benefit from getting top executives from their competitors. Furthermore, they introduce a new distinction for functional roles: those that govern internal firm routines and those that govern external firm exchanges. The study shows it is generally detrimental to lose top executives. It also finds that losing a top executive whose functional role focuses on internal firm processes is more detrimental to firm survival than losing a top executive whose functional role focuses on managing external exchange relationships.

With respect to firm performance, another interesting element of TMT role structure is TMT colocation. Cannella et al. (2008) study how TMT colocation – the physical proximity of TMT members – affects firm performance, as well as its moderating role for the TMT functional diversity–performance relationship. The results of their study of 207 firms (1990–1996) in 11
industries indicate that TMT colocation is positively associated with firm performance. Furthermore, the effects of TMT functional diversity on firm performance become more positive as the proportion of TMT members with offices in the same location increases. These results underline the importance of structuring TMTs geographically in such a way that the benefits of functional diversity can be realized through interaction in one location. Again, TMT composition characteristics (functional diversity) help explain the benefits of a TMT structural setup.

**TMT role structure as a moderator**

Five studies explore the moderating role of different structural TMT setups for a variety of relationships. First, Virany et al. (1992) argue that, in turbulent environments, executive succession coupled with strategic reorientation should improve the organization’s ability to adapt and, therefore, also the organization’s performance. The measure of strategic reorientation includes one element of interest for this review: the change in the distribution of executive team members’ titles, which they coded as functional, product divisional, market divisional, geographical divisional, or hybrid. Concerning the TMT role structure, firms performed a strategic reorientation when they changed from a functional to a divisional structure. The results of their study of 59 minicomputer firms founded between 1968 and 1971 show that executive succession positively influences organization performance, which is accentuated when strategic reorientation (= change in the TMT structure) takes place as well.

Second, the moderating role of TMT interdependence is considered by three studies. Barrick et al. (2007) introduced the concept of TMT interdependence to the TMT literature. They explore the contingencies of TMT interdependence by replicating and extending findings of small group research. The results of a survey of 94 TMTs show that TMT interdependence is an important moderator of the relationships between team mechanisms and outcomes. The most effective TMTs are those that match high interdependence with a high level of team mechanisms or match low interdependence with a low level of team mechanism. Based on the findings of their study, Barrick et al. (2007) conclude that team interdependence and team mechanisms should be treated separately, and one should be cautious using the meta-construct of behavioral integration if not separating TMT processes from TMT interdependence.

The second study, by Wei and Wu (2013), applies an information–social categorization framework to explore the moderating role of TMT interdependence on TMT cognitive diversity and firm performance relationship. Their study, based on a multi-sourced survey of top managers from 118 Chinese firms, finds that TMT interdependence and TMT cohesion
moderate the relationship between TMT cognitive diversity and the elaboration of task-related information. Furthermore, they find that the elaboration of task-related information mediates the interactive effects of TMT cognitive diversity and team interdependence on firm performance, as well as the interactive effects of TMT cognitive diversity and team cohesion on firm performance.

The third study, which investigates TMT interdependence and was carried out by Hambrick et al. (2015), argues that the conflicting results of the TMT composition–organizational outcome relationships may be resolved by considering the interdependence of different structural TMT setups. They introduce and differentiate between three types of structural TMT interdependence: a) horizontal interdependence – the degree to which members’ tasks and responsibilities depend on each other; b) vertical interdependence – the degree to which members are hierarchical peers (TMTs include members of varying ranks); and c) reward interdependence – the degree to which members receive payoffs collectively. Using data collected on 109 firms in the software and hardware industry (2002–2006), they find that the three facets of structural interdependence are important moderators of two relationships: TMT tenure heterogeneity’s effect on both turnover and performance. They conclude that horizontal, vertical, and reward interdependence, which are all elements of structural interdependence, each with distinct characteristics, need to be considered separately. According to the study by Cannella et al. (2008), which explores the moderating role of TMT colocation on the TMT functional diversity–performance relationship, TMT colocation accentuates the positive effects of TMT intrapersonal functional and TMT dominant functional diversity.

Discussion of TMT role structure studies

In summarizing our findings from above, we see several contributions and opportunities for further research. Prior research informs us about the antecedents of some TMT role structures, for example, those of the CSO role (Menz & Scheef, 2014) and COO presence (Hambrick & Cannella, 2004), functional centralization (Guadalupe et al., 2014), and changing the TMT (role and composition) (Ma & Seidl, 2018). On the outcome side, most studies explore organizational performance (Bermiss & Murmann, 2014; Cannella et al., 2008; Eesley et al., 2014; Hambrick & Cannella, 2004; Hendricks et al., 2015; Marcel, 2009; Menz & Scheef, 2014). The main insights from reviewing the TMT role structure literature are: First, TMT composition and structure are interrelated, and previous studies show the benefits of studying TMT structure and composition together. Studies by Beckman and Burton (2008) and Ferguson et al. (2015) demonstrate that simultaneously studying TMT structure and TMT composition
advances our knowledge of TMTs’ evolution in new firms. Second, studying TMT structural interdependence as a moderator of relationships between a) TMT mechanism (Barrick et al., 2007) and b) TMT composition (Hambrick et al., 2015) and organizational outcomes is key. Third, dividing roles into subgroups is essential for TMT structure studies. The division into subgroups such as product vs. functional roles (Guadalupe et al., 2014), technically focused vs. diverse functional roles (Eesley et al., 2014), and internally vs. externally focused functional roles (Bermiss & Murmann, 2014) has generated significant insights that would be overlooked if all TMT roles were only studied as one group. We will discuss avenues for future research related to those insights in the discussion section.

TMT role hierarchies

As with TMT size and TMT role structure, the hierarchical setup of TMTs can vary greatly. Different hierarchical TMT setups range from “flat” TMTs with only a few hierarchical levels to those that have five and more levels. For example, Emerson Electric’s TMT consisted of seven TMT members on five hierarchical levels in 2008 (Emerson Emerson Electric, 2008), whereas Starwood Hotels & Resorts with a TMT of the same size had only two hierarchical levels in the TMT in 2009 (Starwood Hotels & Resorts Worldwide & 2009). It is interesting not only to study the reasons why TMTs differ in their hierarchical structure but also to understand the consequences of this as TMT roles on different hierarchical levels may be an indication of the power of the function or business unit within the organization (Beckman & Burton, 2011). The study of TMT role hierarchies includes TMT roles on higher vs. lower ranks (Walsh, 1988), the departure of more- or less-senior executive roles (Cannella & Hambrick, 1993), power distribution within TMTs (Haleblian & Finkelstein, 1993), stratification defined as the number of levels and the relative size of each level (Keck, 1997), structural power and ownership power (Dunn, 2004), vertical interdependence and reward interdependence (Hambrick et al., 2015), structural power equality (Patel & Cooper, 2015), and CEO and TMT power (measured in titles and ownership) (Ridge et al., 2015).

In our sample of papers, eight studies examine role hierarchies in TMTs as either an outcome or a moderator; no studies have yet explored the antecedent side. The first paper addressing hierarchical role structures in TMTs was published in 1988, and in recent years the interest in TMT hierarchies has increased, as indicated by the number of articles. An overview is provided in Table 3: TMT hierarchical structure.
Outcomes of TMT hierarchical structures

Studies concerned with the effect of TMT role hierarchies explore outcomes at the TMT and the firm level. TMT level outcomes are studied by Walsh (1988), who explores the effects of a merger and acquisition on an acquired firm’s TMT – specifically, on TMT turnover. For our review, the relevant aspect of this study is that the study distinguishes between higher- and lower-ranking TMT members. Based on a survey of 55 parent companies of acquisitions (1975–1979) and archival data, the study finds that executives in higher-ranking roles are the first to turn over following an acquisition.

On the firm level, several studies explore the effects of TMT role hierarchies on firm performance. Taking the results of Walsh a step further, Cannella and Hambrick (1993) study the effects of executive departures on the subsequent performance of 96 acquired firms (1980–1984). Adapting an agency and executive succession theory perspective, they find that the negative effect of executives leaving acquired firms is more severe for the highest-ranking executives (e.g., CEO, president, chairperson). Based on these findings, they suggest that better post-acquisition performance can be achieved by providing one or more executives with TMT status in the new firm. Keck (1997) takes a group theory perspective to explore the relationship between the TMT structure and firm performance in different (stable and unstable) contexts. The study refers to the TMT structure while mostly studying demographical characteristics. However, she explores one element of TMT hierarchical structure, which is stratification: the number of ranks and the relative size of each rank. The results of studying TMTs in 56 cement (1919–1984) and 18 minicomputer firms (1969–1980) show that firm performance increases in stable contexts with greater team stratification. In turbulent contexts, lower stratification precedes higher performance. The study concludes that financially successful firms are the ones that gradually match their team structures to the environmental context.

Patel and Cooper (2014) integrate upper echelons and power theory with family firm literature to study the concept of structural power equality and its effects on interaction in the TMTs of family firms and overall firm performance. They argue that balanced structural power between two subgroups, family and non-family TMT members, increases firm performance in family firms. Their longitudinal study of 231 S&P 1500 (2001–2010) firms finds support for this. More specifically, the study finds that structural power equality between family and non-family TMT members lowers the turnover of non-family members, increases the range of a firm’s strategic actions, and improves overall firm performance. As another firm-level outcome, Dunn (2004) studies illegal corporate behavior and how it is influenced by TMT duality and power. Dunn argues that firms with a concentration of a) structural power and b) ownership
power in the TMT are more likely to engage in fraudulent financial reporting. The example of 103 firms (1992–1996) shows that firms are more likely to issue fraudulent financial statements when there is a higher concentration of power among insiders, that is, those roles that simultaneously hold a TMT and board of directors position.

**TMT hierarchical structures as moderator**

Two studies explore the moderating role of different TMT hierarchical structures. The previously discussed study by Hambrick et al. (2015) empirically shows the importance of the moderating effect of three types of structural independence on the relationship between TMT tenure heterogeneity and TMT turnover and firm performance. One of these types of interdependence is connected TMT hierarchical structures: vertical interdependence, which is the degree to which members are hierarchical peers (TMTs include members of varying ranks). As discussed before, this study underlines the importance of structural interdependence for relationships that might otherwise not be significant.

Integrating economic and behavioral theories, a study by Ridge (2015) explores how CEO power (the distance between the CEO and TMT members in terms of both ownership and titles) moderates the relationship between pay disparity and firm performance. The results of studying 227 Fortune 500 firms (2003–2006) demonstrate a curvilinear relationship between pay disparity and firm performance. More specifically, it shows that high levels of firm performance will be found around either meaningfully low or meaningfully high levels of pay disparity. These effects can be explained by using tournament theory (economic theory) and social comparison theory (behavioral theory): High levels of pay disparity incite tournaments, while low levels of pay disparity do not initiate social comparison. In the relationship between pay disparity and firm performance, tournament effects are inhibited by CEO power. This suggests that firms with large pay disparity patterns may benefit from forgoing powerful CEOs.

**Discussion of TMT hierarchical structure studies**

In summary, our main insights are: First, while prior research informs us about different outcomes of varying TMT hierarchical structures (e.g. Cannella & Hambrick, 1993; Dunn, 2004; Halebian & Finkelstein, 1993; Keck, 1997) and their moderating role (Hambrick et al., 2015), the antecedent side remains unexplored. Prior research does not inform us why TMTs are hierarchically structured the way they are. Second, we know that TMT hierarchies matter for TMT turnover (Walsh, 1988), but we do not know how different hierarchical setups
influence other TMT level processes, such as behavioral integration. Third, as two studies show, it is important to consider the environment (stable vs. unstable) when studying TMT hierarchical structures (Haleblian & Finkelstein, 1993; Keck, 1997). Financially successful firms match the TMT’s hierarchical structure with its environment (Keck, 1997). Overall, our knowledge of TMT hierarchies is less advanced than that of TMT size and TMT role structures. This offers promising opportunities for further research, which will be discussed in more detail below.

**Overall synthesis and directions for future research**

The growing body of research on the TMT structure has the potential to become a new focus area for the study of TMTs and upper echelons research in general. Each sub-stream advances scholars’ understanding of the TMT structure and its effects. However, the joint impact has been limited since each sub-stream has been studied separately (a few exceptions are mentioned above). For TMT structure research to become a focus area and grow its potential, scholars need to direct their attention to the most pressing and promising research topics. In addition, scholars need to build on existing knowledge from the other sub-streams. While research on the three TMT structure aspects is in different development stages, the relatively limited, partly contradictory findings in the sub-streams call for studies that enable us to understand and resolve these issues and will extend the boundaries of this research. Furthermore, we encourage scholars to draw on the cumulative knowledge of the three research sub-streams and to benefit from cross-fertilization. Building on a synthesis of the findings from the review, we identify the major gaps and present a future research agenda.
Based on our review, we have developed a framework for future TMT structure research (Figure 2), which we present before enumerating the possible research opportunities. The framework offers an overview of prior research and highlights future research opportunities. The framework intends to visualize new areas of exploration and stimulate future research. In the center of the framework is the TMT structure with its three sub-streams. The first research opportunity incorporates the (1) integration of these sub-streams. The second research opportunity suggests the study of (2) new dimensions of the TMT structure. The third research opportunity captures the application of (3) novel perspectives, context, and approaches to the study of the TMT structure. The fourth research opportunity advocates extending the study of the TMT structure to (4) antecedents that have not been studied before (e.g., board of directors) and antecedents that have only been explored within single sub-streams. The fifth research opportunity encourages the connection between the TMT structure and other areas of (5) strategic leadership, such as TMT composition, the CEO, and the board of directors. The dotted lines highlight the areas that have not been studied and/or where we see more potential for

Figure 2 – Framework for future TMT structure research
future research, while the unbroken arrows represent relationships that have been studied before.

**Research opportunity 1 – Integration of TMT structures**

Our review revealed that structural features of TMTs have largely been studied apart from other structural features. However, three studies (Guadalupe et al., 2014; Halebian & Finkelstein, 1993; Hambrick et al., 2015) have integrated more than one structural feature. Since these studies have contributed significantly to our understanding of TMT structures and there are clearly causal relationships between the various TMT structural features, we encourage scholars to study TMT structures jointly.

In this vein, researchers have enriched our understanding of individual roles like the SCOME, COO, and CSO (Hendricks et al., 2015; Marcel, 2009; Menz & Scheef, 2014). Since the performance benefits of these roles are ambiguous, it would be enriching to integrate different structural features that could shed more light on the role structures and their benefits. For instance, exploring combinations of roles could show us whether certain role combinations have performance effects rather than individual roles; roles may complement or substitute each other. We also encourage researchers to study roles and role combinations in different structural contexts (e.g., structural interdependence, power constellations) as this could benefit our understanding of when certain roles are more beneficial to firms and when not. For example, as we know from TMT hierarchy research (Keck, 1997), financially successful firms match the TMT hierarchical structure with the environment. Thus, we suggest that, when studying particular roles, both the environmental context and the hierarchical setup of the TMT be considered. The benefit of having certain roles in the TMT may depend on the context and the hierarchical position these roles have to make use of their resources.

The study by Guadalupe et al. (2014) is an insightful example of studying TMT subgroups – divisional manager roles and different functional roles – and how they influence the change in TMT size. We see interesting research opportunities in studying different subgroups of TMT roles in relation to TMT size and TMT hierarchical structures. For instance, exploring the ability to influence and the potential power differences of subgroups (e.g., divisional vs. functional roles) is a promising avenue for further research.

Another important topic for future research concerns TMT size, TMT hierarchical structures, and TMT processes. We know that large and small TMTs may have negative and positive consequences. Amason and Sapienza (1997) called for enhancing our understanding of how different TMT sizes and the resulting conflicts can be managed to limit the negative
effects and unleash the positive ones. Given the power of TMT hierarchical structures to shed light on classical TMT–performance relationships (Hambrick et al., 2015; Ridge, 2015), we find it promising to explore how different TMT structures may influence the advantages and disadvantages of larger TMT sizes. Therefore, we encourage researchers to follow this promising track and study TMT size and TMT processes in the context of different hierarchical setups and with different role structures. Prior research on hierarchical structures informs us mainly of its importance for firm performance (Cannella & Hambrick, 1993; Halebian & Finkelstein, 1993; Keck, 1997). Complementing this research by exploring more immediate outcomes such as TMT processes is needed. Since TMTs have increased significantly in size and it is necessary to maximize the advantages of larger teams, we believe this topic is highly relevant for practitioners.

Studying TMT structures jointly is not limited to the avenues mentioned above. We see potential in exploring TMT structures jointly for a variety of outcomes and in relation to other factors such as TMT composition, which will be elaborated on in Research opportunity 5.

**Research opportunity 2 – New dimensions of the TMT structure**

The field of TMT structure research is still in its infancy. Therefore, we encourage future studies to explore new dimensions of the TMT structure. Our review shows that studying new dimensions of the TMT structure has helped to illuminate previously unclear relationships, for example, TMT interdependence by Hambrick et al. (2015) and colocation by Cannella et al. (2008). By building on the work of Cannella et al. (2008) and the concept of colocation, scholars might investigate the geographical structure of TMTs and the effects of geographical TMT subgroups on TMT processes and firm outcomes. For example, whether certain roles or subgroups are located at the corporate headquarters or a subsidiary appears to be central to TMT processes because strategic leadership is a shared activity (Hambrick, 2007). Regarding geographically dispersed TMT roles, an interesting question would be which role do digitization and virtual communication play in overcoming the challenges of not being in one physical location.

Along these lines and informed by the boundary-spanning literature (Aldrich & Herker, 1977; Tushman & Scanlan, 1981), scholars may explore dimensions of boundary-spanning roles in the TMT. The boundary-spanning literature focuses on individuals and roles that span from inside the organization to the environment, treating them as the critical link between the environment and the organizational structure (Aldrich & Herker, 1977). Scholars could explore which roles are boundary spanning and how the TMT structure of boundary spanning roles
needs to match the environment of the organization. While the boundary-spanning literature focuses on boundaries between the firm and the environment, scholars could also explore roles that span units geographically as mentioned above (from headquarters to subsidiaries) or horizontally (across functions and/or business units). In light of firms becoming more international and having complex organizational structures, we believe this avenue for research is relevant to practice.

As the definitions of TMT size have revealed, TMT research generally focuses on studying the number of individuals and their primary role within a team. In reality, however, TMT members often hold multiple roles at the same time. For example, one executive may have two or more roles, like Julie Bushman at 3M Co, who leads both business transformation and information technology (3M, 2020), or Frank D’Amelio at Pfizer Inc., who is both CFO and head of global supply and business operations (Pfizer, 2020). Therefore, we call for studies to account for multiple roles when studying the TMT structure. For instance, by building on power theories (Finkelstein, 1992), researchers could explore potential power differences between executives who hold one or multiple roles and the effect on TMT processes and outcomes.

**Research opportunity 3 – Novel perspectives, contexts, and approaches**

Our review of the literature reveals that most studies of the TMT structure are rather homogenous with regard to the theoretical perspectives applied (see Table 4), types of firms, geography studied, and methods used. Therefore, we encourage scholars to bring more heterogeneity of theories, empirical contexts, and methods into TMT structure research as we believe this will enable new insights.

Not surprisingly, most studies from our review are housed in the upper echelons literature and the two most frequently applied perspectives are information-processing and contingency. It would be enriching to apply other theories and perspectives besides the two most obvious ones. For example, when studying TMT role structures, role theory could be used to explain the strategic decisions and behavior of executives according to their and others’ expectations of the role. The resource-based perspective is applied by one study to predict higher rates of alliance formation (Eisenhardt & Schoonhoven, 1996). We call for more studies to explore the resource-based view. The number of executives on the TMT determines the resources available (Hambrick & D'Aveni, 1992); however, the number of TMT members alone does not necessarily lead to a competitive advantage. It would be worth exploring who brings unique resources to the TMT and whether certain TMT structures enhance or hinder the
potential of these resources. Thus, we consider this perspective to be promising. As our review shows, TMT structures’ evolution over time is a highly relevant and little-researched topic (Beckman & Burton, 2008; Guadalupe et al., 2014). We agree with Beckman and Burton (2008) that taking an evolutionary perspective (Aldrich, 1999) would benefit our understanding of how TMT structures have changed and evolved. The emerging CEO–TMT interface perspective (Bromiley & Rau, 2016; Ma & Seidl, 2018), which has not yet been applied to TMT structure studies, also has the potential to explore and explain previously undiscovered relationships. This perspective may help to understand how CEOs and TMTs collaborate in structuring the TMT.

Next, our examination of the literature shows that most studies reviewed here study firms that are mostly larger, older, well-established firms (e.g., S&P 500, see Tables 1–3). Not only in our sample of studies but also in general, there is a trend of studying larger and older firms in the upper echelons literature. Beckman and Burton (2008), who are pioneers in the field of TMT structure research, and Ferguson et al. (2015) are notable exceptions because they study younger and smaller firms. Lubatkin, Simsek, Ling, and Veiga (2006) were the first to note that the focus on large firms is a gap in upper echelons literature. It would be interesting to explore the differences in TMT structures between younger and older, smaller and larger firms. Next, researchers could explore how TMT structures in different firm types may influence TMT processes differently. We call for more studies of younger and smaller firms to broaden the horizon of the field and its applicability for practitioners. Also, there is a clear geographical focus on mostly U.S. firms, except for Wei and Wu (2013), who studied top managers in China, and Plambeck and Weber (2010), who surveyed German CEOs. Today, it is widely known that “culture matters” (Hoppe, 2004, p. 73), and we expect that it matters for TMT structure studies as well. Crossland and Hambrick (2007) find empirical evidence that CEOs in various countries – United States, Germany, and Japan – have different degrees of latitude of action and constraints to affect firm performance. Following this research, we encourage scholars to apply this theory to TMT structures in different countries and explore the role that national values, ownership structures, and board governance play for TMT structures. This is a promising avenue for future research because we expect that, based on the typology by Hofstede (2001), national values such as power distance and acceptance of unequal power distribution play a role in the hierarchical structure of TMTs. Ownership structures and board governance differ widely between countries (Crossland & Hambrick, 2007) and may play a role in the way TMTs are structured (elaborated in Research opportunity 5). We encourage
researchers to conduct replication studies in different cultural contexts, as well as cross-national studies.

We see potential in studying TMT structures with different and novel methods to explore the questions presented above and below. Our review shows that most studies use quantitative methods. Qualitative studies are needed to supplement quantitative studies that have advanced the field of TMT studies. For instance, qualitative studies have the potential to increase our understanding of who decides about TMT structures and which factors influence the TMT structure and go beyond the proxies that we often rely on. Methods other than regression analysis, such as configurational studies, could advance our understanding of TMT structures, especially for the research questions about roles complementing or substituting each other.

Another important area of future research is TMT structure and time. Three studies demonstrate the importance of considering TMT size and time. We know that TMT size has doubled over the past few decades (Guadalupe et al., 2014), that the effects of TMT size may gradually increase (Eisenhardt & Schoonhoven, 1990), and that the TMT size of failing firms decreases over time. While TMT size has changed, Marcel (2009) notes that TMT structures appear to be rather stable. Exploring whether, when, and how TMT structures (all three sub-streams) change through longitudinal studies is a promising avenue for future research. Following Guadalupe et al. (2014), it would be interesting to discover trends in changing TMT role structures. For instance, such research may examine whether the presence of rather new TMT roles (e.g., CSO) occurs first in the United States and later in other countries. Longitudinal studies could shed light on changes in the divisional and functional structures of TMTs. Moreover, longitudinal studies would allow us to understand whether and how TMT hierarchical structures have changed and what the reasons and performance effects might be.

Including heterogenous TMT size definitions – multiple, established, and new ones – is critical to our understanding of TMT structures. For example, the conflicting results about the performance effects of TMT size are a strong motivation to conduct replication studies that incorporate multiple TMT conceptualizations. As we can see from the tables (see Table 1: TMT size, Table 2: TMT role structure, and Table 3: TMT hierarchical structure), TMTs are defined in different ways, and sometimes no definitions are given, for example, when the focus is on one role (Cannella & Hambrick, 1993; Hambrick & Cannella, 2004; Marcel, 2009; Menz & Scheef, 2014). Clearly, different TMT definitions lead to different TMT size counts and, therefore, might lead to different results. We call on all TMT researchers to report TMT size in the future. Generally, TMT size is conceptualized as the count of TMT members while it could
be worthwhile to study different conceptualizations of TMTs, like the total costs of TMT members (e.g., amount of compensation for a TMT). Considering the remarkable cost of each TMT role, it would be interesting to have a better understanding of the added value of additional roles. Also, different TMT definitions may be needed depending on the phenomena in focus, for example, studies focused on roles may define TMT size based on the number of roles.

**Research opportunity 4 – Antecedents of the TMT structure**

To substantiate our knowledge of TMT structures, scholars need to expand studies on TMT structure determinants. Pettigrew already pointed out the need for treating TMT characteristics as a dependent variable and understanding “why [...] teams look the way they do” (Pettigrew, 1992, p. 176). Bromiley and Rau (2016) stress that “the structure of the top management team depends on purposeful choices” (p. 198) and call on researchers to explore these choices. As our review shows, research on TMT structure antecedents is in different developmental stages. We know much more about the drivers of TMT structural roles than we do about TMT size, and even less about TMT hierarchy antecedents.

First, there is limited empirical research and development of theory on the antecedents of TMT size, with two exceptions (Guadalupe et al., 2014; Sanders & Carpenter, 1998). Prior research informs us that TMTs have grown significantly over the past 30 years; however, we know relatively little about what drives TMT size. To gain a more accurate understanding of what determines TMT size, future studies may consider drivers on multiple levels, such as environmental (e.g., environmental instability, growth, and competitive environment), organizational (e.g., size, growth, diversification), CEO (e.g., power variables), as well as ownership structures and board governance.

We know more about the antecedents of role structures, specifically about those of COOs (Hambrick & Cannella, 2004), CSOs (Menz & Scheef, 2014), and how young firms arrive at more complete functional TMT structures, that is, a broad range of functional roles (Beckman & Burton, 2008). It would be worth exploring what determines the role structures of older, larger, and more-established firms (e.g., S&P 500) and what leads to more complete role structures in this organizational context. Furthermore, Ferguson et al. (2015) observe changes in TMT structures due to TMT misfit, which is TMT over- and underqualification. The concept of misfit shows the overarching effects on changes that it has on the TMT structure, but as Ferguson et al. (2015) remark, it does not explore the influences in an isolated way (e.g., need vs. opportunity vs. resources). Exploring how and why TMT structures are changed with a focus
on need, opportunities, and the resources available would substantially enhance our understanding of TMT structures.

Regarding TMT hierarchical setups, no study has yet explored the antecedents of TMT hierarchical structures. Considering how important hierarchical structures are (i.e., influencing different outcomes and solving previously conflicting findings as a moderator (Hambrick et al., 2015)), it is essential to understand what influences different hierarchical setups.

Overall, the question of who decides about TMT structures and how these decisions are made is seldom investigated. Exploring a broader set of possible antecedents and with different methods, as mentioned above, could advance our understanding of this important question, for example, through more qualitative research and/or mixed methods (e.g., interviews, content analysis of press releases of new TMT member announcements). This kind of research could also shed light on the issue of the two-way causality between TMT structures and other variables (e.g., environment, firm, CEO), which is also largely unresolved in TMT composition research (Nielsen, 2009).

Research opportunity 5 – TMT structure and strategic leadership

Our review and the previously outlined research avenues reveal that we need to deepen our understanding of the TMT structure as it relates to other dimensions of strategic leadership (see Figure 2). Strategic leadership involves TMTs, CEOs, and boards of directors (Samimi, Cortes, Anderson, & Herrmann, 2020). Promising research opportunities exist in exploring the relationships between the TMT structure and research on TMT composition, CEOs, and boards of directors.

First, turning to TMT structure and composition, we know that controlling for TMT size has become a standard practice for most TMT composition studies (Bantel & Jackson, 1989). However, only a few recent studies have addressed how the TMT’s structural and compositional factors interrelate, co-evolve over time, and affect outcomes (Beckman & Burton, 2008; Ferguson et al., 2015; Hambrick et al., 2015; Marcel, 2009). These studies have contributed significantly to our understanding; therefore, we encourage more research in this direction. For instance, while Beckman and Burton (2008) find some support for the notion that the founding team members’ experience shapes the initial functional structure of a startup’s TMT, there is great potential for studies to explore how TMT structure and composition interrelate. One such study explores the idea of TMT misfit, that is, TMT over- and underqualification in the context of entrepreneurial firms. We do not know how TMT structures and TMT compositions co-evolve in more mature firms. Important questions include: What are the effects of misalignment
of TMT roles and TMT composition for TMT processes and eventually firm performance? How are decisions about changes in TMT roles and TMT composition made? And are roles created because of the firm’s need or because of the reshuffling of existing executives (Ferguson et al., 2015)?

The importance of jointly studying TMT composition and structure is demonstrated by Hambrick et al. (2015): TMT structural interdependence sheds light on the previously equivocal relationship between TMT heterogeneity (composition) and firm performance. Future researchers are further encouraged to consider the structural setup of TMTs when studying TMT composition and its effect on TMT processes and performance (Hambrick et al., 2015) and vice versa, including TMT composition in the study of the TMT structure.

Second, our knowledge about the interplay between the CEO and the TMT structures is limited, and we encourage scholars to explore this important field in greater depth. Only one study (Hambrick & Cannella, 2004) has examined how CEO characteristics might influence decisions about TMT structures and finds support for the position that CEOs who lack experience in operational activities are more likely to have a COO. Also informed by the CEO–TMT interface perspective (Bromiley & Rau, 2016; Ma & Seidl, 2018), which focuses on the role of the CEO in configuring the TMT, we see many opportunities in studying such relationships. Researchers could focus on questions like: Why do CEOs opt for certain role structures? What is the CEO’s role in deciding about role structures? What makes a CEO more powerful in such decisions? And how do certain TMT structures benefit the CEO and his/her performance?

Third, to our surprise, no prior research has studied the role that boards of directors play in decisions about the TMT structure. In their study, Westphal and Fredrickson (2001) show that boards of directors, which are powerful, have influence over CEO succession and selection and indirectly influence strategy and TMT characteristics. Therefore, it seems promising to investigate the role these boards play when it comes to TMT structures.

Finally, future studies should seek to contribute to the debate on whether the organization is a reflection of the TMT, as Hambrick and Mason (1984) and numerous studies on TMT composition suggest, or whether organizational characteristics determine the TMT setup, as the executive selection literature and TMT structure studies often conclude.

Conclusion

The goal of this article was to review and synthesize the emerging topic of the TMT structure and suggest avenues for future research. The three sub-streams – size, role structure,
and hierarchical structures – have mostly been studied separately in the past. However, this review shows the importance of studying them together and in the context of strategic leadership research. We highlight the largely untapped potential of joint study to resolve previously conflicting results in the upper echelons literature. We encourage studying new dimensions of TMT structures, bringing more heterogeneity to TMT structure studies, and further exploring why TMTs are structured the way they are. We hope this review motivates scholars to pursue those research opportunities and enhance our understanding of TMT structures within the broader context of strategic leadership.
References


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## APPENDIX

### Table 1: TMT size

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<tr>
<th>Study (author/s, year)</th>
<th>Theoretical perspective/ literature stream</th>
<th>Empirical context</th>
<th>TMT definition</th>
<th>TMT average size (SD)</th>
<th>Key findings related to TMT size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eisenhardt and Schoonhoven (1990)</td>
<td>Founding team literature, chaos theory, organizational growth</td>
<td>Interviews, 92 firms from U.S. semiconductor or industry founded 1978–1985, data from 10-K forms and annual reports.</td>
<td>Individuals designated by the company respondents as founders, who worked full-time for the firm in executive positions at its inception.</td>
<td>n/a</td>
<td>Larger teams are better equipped to process diverse information and are, therefore, associated with higher growth in new firms. The positive effect of TMT size on growth increases over time.</td>
</tr>
<tr>
<td>Hambrick and D'Aveni (1992)</td>
<td>Corporate failure, upper echelons</td>
<td>Archival data on 57 large bankruptcies and 57 matched survivors.</td>
<td>Officers (vice presidents and higher).</td>
<td>10 (n/a)</td>
<td>In year one of the study, the TMT size of the failing firms was much smaller than the survivor firms and continued to shrink in the final years of their existence.</td>
</tr>
<tr>
<td>Haleblian and Finkelstein (1993)</td>
<td>Information processing, social psychology</td>
<td>47 firms (26 computer and 21 natural gas distribution companies), 1978–1982.</td>
<td>All corporate officers who were also board members.</td>
<td>3.39 (1.46)</td>
<td>Large teams and teams with less dominant CEOs were more profitable in a turbulent environment (the computer industry) than in a stable environment (natural gas distribution).</td>
</tr>
<tr>
<td>Smith et al. (1994)</td>
<td>Upper echelons theory, social psychology</td>
<td>Interviews with 53 CEOs from high-velocity firms, 230 surveys of CEOs and TMTs, archival data.</td>
<td>Identified by the CEO.</td>
<td>5.19 (2.1)</td>
<td>TMT size has a negative relationship with social integration and informal communication. Team size indirectly detracts from performance through negative effects on informal communication and social integration.</td>
</tr>
<tr>
<td>Eisenhardt and Schoonhoven (1996)</td>
<td>Resource-based view, alliance formation</td>
<td>Interviews with CEOs of 98 U.S. semiconductor or firms, founded 1978–1985.</td>
<td>Individuals who were designated by the company respondent in the structured interview as members of top management.</td>
<td>3 (n/a)</td>
<td>Firms with larger founding TMTs, whose members had previously worked for many semiconductor firms in high management positions, have significantly higher rates of alliance formation.</td>
</tr>
<tr>
<td>Henderson and Fredrickson (1996)</td>
<td>Information processing</td>
<td>Archival data on 189 firms from four industries: chemicals, high-tech equipment, natural resources, conglomerate s; 1985 and 1990.</td>
<td>Corporate officers.</td>
<td>19.11 (12.17)</td>
<td>No significant effect of TMT size on CEO compensation, but in conglomerate diversifiers, TMT size has a positive relationship with CEO compensation. The industry group-by-TMT-size interaction was negative and significant for both cash and total compensation for each of the related-diversifier categories.</td>
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<td>Sample Size/Methodology</td>
<td>Results/Findings</td>
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<tr>
<td>Amason and Sapienza (1997)</td>
<td>Cognitive conflict, social judgment theory, social identity theory</td>
<td>Survey of 48 TMTs from the food processing industry.</td>
<td>3.44 (n/a) TMT size is positively related to both cognitive and affective conflict.</td>
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<tr>
<td>Iaquinto and Fredrickson (1997)</td>
<td>Uncertainty reduction theory, TMT agreement</td>
<td>TMT was defined through discussions with the CEO.</td>
<td>TMT size is inversely related to TMT agreement about comprehensiveness. TMT size was significantly correlated with firm size.</td>
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<tr>
<td>Sanders and Carpenter (1998)</td>
<td>Information-processing and agency theory</td>
<td>258 S&amp;P 500 firms in 1992.</td>
<td>The degree of internationalization was positively and significantly associated with TMT size with both broad (number of officers) and narrow (number of officers of the top two tiers of management) TMT measurement.</td>
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<tr>
<td>Simsek et al. (2005)</td>
<td>Upper echelons, TMT behavioral integration</td>
<td>Survey data, 402 firms.</td>
<td>4.75 (1.68) TMT size is negatively related with to behavioral integration. Even though average TMT size was relatively small (4.75), TMT size still mattered.</td>
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<td>Certo et al. (2006)</td>
<td>Upper echelons, strategic leadership, information processing</td>
<td>Meta-analysis of 27 empirical studies and 150 Fortune 500 firms, 2002.</td>
<td>2.88 (1.32) Four TMT size variables: 1) top tier, 2) top two tiers; 3) top three tiers; 4) executives who are also inside directors. No significant relationship between TMT size and ROA or ROE. Positive significant relationship between TMT size and sales growth, firm diversification, R&amp;D, and internationalization. Different TMT size definitions may account for mixed results in TMT literature.</td>
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<td>Plambeck and Weber (2010)</td>
<td>Ambidexterity, strategic sensemaking</td>
<td>Survey of 220 CEOs and secondary data.</td>
<td>Larger TMTs were not positively associated with ambivalent issue evaluation by the CEO.</td>
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<tr>
<td>Kirca et al. (2012)</td>
<td>Upper echelons theory, interaction paradigm</td>
<td>Meta-analysis of 154 independent samples reported in 145 studies.</td>
<td>A positive effect of TMT size on firm multinationality was found. TMT size was not significant after the inclusion of TMT international experience in the model.</td>
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<tr>
<td>Guadalupe et al. (2014)</td>
<td>Information-processing theory, theories of centralization</td>
<td>Direct reports to the CEO.</td>
<td>From the mid-1980s to mid-2000s, TMT size doubled from five to 10, with approximately three-quarters of the increase attributed to functional managers rather than general managers.</td>
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## Table 2: TMT role structure

<table>
<thead>
<tr>
<th>Study (author/s, year)</th>
<th>Theoretical perspective/literature stream</th>
<th>Empirical context</th>
<th>TMT definition</th>
<th>TMT average size (SD)</th>
<th>Construct of interest</th>
<th>Key findings related to TMT role structure</th>
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</thead>
<tbody>
<tr>
<td>Virany et al. (1992)</td>
<td>Executive succession, organizational learning</td>
<td>Archival data on 59 minicomputer firms founded between 1968 and 1971.</td>
<td>All executives down through the vice-presidential level included as members of the executive team.</td>
<td>n/a</td>
<td>Strategic reorientations (change in strategy, TMT structure, power distributions, and control practices)</td>
<td>Strategic reorientations have a significantly positive association with subsequent organization performance in turbulent environments.</td>
</tr>
<tr>
<td>Hambrick and Cannella (2004)</td>
<td>Contingency theory</td>
<td>404 firms in 21 industries, 1987–1996, 3,168 firm years.</td>
<td>No definition.</td>
<td>n/a</td>
<td>COO presence</td>
<td>CEOs who lack experience in operational activities and in managing the focal firm are relatively likely to have COOs. No support found for the contingency view in explaining when COOs are most beneficial. CEOs with COOs show lower organizational performance than those without a COO.</td>
</tr>
<tr>
<td>Barrick et al. (2007)</td>
<td>Contingency theory</td>
<td>Survey of 94 TMTs from credit union industry.</td>
<td>CEOs identified TMT members.</td>
<td>6.39 (1.91)</td>
<td>TMT interdependence</td>
<td>TMT interdependence is an important moderator of the relationships between team mechanisms and outcomes. The most effective TMTs are those that match either high interdependence with a high level of team mechanisms or low interdependence with a low level of team mechanism.</td>
</tr>
<tr>
<td>Beckman and Burton (2008)</td>
<td>Life cycle theory and path-dependent theory, homophily</td>
<td>1,485 executives in 167 firms holding 1,940 positions from entrepreneurs high-technology firms in Silicon Valley, 1994–1996.</td>
<td>Individuals ranked as a vice president or higher (e.g., senior vice president, CFO, CIO, COO).</td>
<td>4.42 (n/a)</td>
<td>Functional role structure</td>
<td>Firms starting with a limited range of functional positions are less likely to develop complete functional structures. Important milestones are reached faster by firms with broadly experienced founding teams that build an early team with a full range of functional positions. Functional structure and functional experience are not interchangeable.</td>
</tr>
<tr>
<td>Cannella et al. (2008)</td>
<td>Upper echelons, TMT diversity</td>
<td>207 firms in 11 industries from Ward's 50,000 Largest Corporations, Compustat, and Dun &amp; Bradstreet's Reference Book of Corporate Management, 1990–1996.</td>
<td>All executives with titles above the rank of vice president or serving on the firm’s board of directors.</td>
<td>5.41 (2.65)</td>
<td>TMT member colocation</td>
<td>They introduce the concept of TMT colocation. The effects of TMT functional diversity on firm performance become more positive as the proportion of TMT members with offices in the same location increases.</td>
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<td>Study</td>
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<td>Findings</td>
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<tr>
<td>Marcel (2009)</td>
<td>Information processing, contingency, upper echelons</td>
<td>Sample of 153 firms with sales greater than $500 million from five industrial sectors in 1998. CEO, n/a COO presence. The presence of a COO is positively related to subsequent firm performance, especially for those firms with relatively older TMT members. For TMTs with low levels of functional diversity, partial support was found for the benefit of having a COO. No support was found for performance benefits of COO presence in a TMT with low levels of tenure heterogeneity.</td>
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<tr>
<td>Wei and Wu (2013)</td>
<td>Information processing, TMT diversity</td>
<td>Multi-sourced survey of top managers from 118 Chinese firms. No definition. 6.95 (1.23) TMT interdependence. Team interdependence and team cohesion moderate the relationship between TMT cognitive diversity and elaboration of task-related information. The elaboration of task-related information mediates the interactive effects of TMT cognitive diversity and team interdependence on firm performance, as well as the interactive effects of TMT cognitive diversity and team cohesion on firm performance.</td>
<td>In general, diverse teams are positively associated with venture performance but less beneficial when pursuing an innovator strategy. In case of an innovation strategy, technically focused teams are positively associated with performance. Technically focused teams are aligned with a cooperative commercialization environment and when using an innovation strategy, while diverse teams perform better in a competitive commercialization environment.</td>
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<tr>
<td>Eesley et al. (2014)</td>
<td>Contingency theory, founder imprinting, upper echelons</td>
<td>Survey of 2,067 ventures founded 1931–2003, matched with complementarity data sources through 2006 via archival data. The first founding team. 1.22 (1.35) Diverse functional roles and technically focused roles.</td>
<td>The TMT size doubled (mid-1980s to mid-2000s), and approximately three-quarters of the increase are attributable to functional managers rather than general managers. Firms that become less diversified centralize product functions but not administrative functions. Firms that invest more in IT centralize administrative functions, but they only centralize product functions if they operate in related businesses.</td>
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<tr>
<td>Guadalupe et al. (2014)</td>
<td>Information-processing theory, theories of centralization</td>
<td>300 large U.S. firms, 1987–2006. Direct reports to the CEO. 1987: 4.98  2006: 10 Functional vs. general management roles.</td>
<td>The TMT size doubled (mid-1980s to mid-2000s), and approximately three-quarters of the increase are attributable to functional managers rather than general managers. Firms that become less diversified centralize product functions but not administrative functions. Firms that invest more in IT centralize administrative functions, but they only centralize product functions if they operate in related businesses.</td>
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<tr>
<td>Menz and Scheef (2014)</td>
<td>Contingency theory</td>
<td>147 S&amp;P 500 firms, 2004–2008. Executives identified by their firms as strategically important and included in the firm’s Form 10-Ks. n/a CSO presence.</td>
<td>Diversification, acquisition activity, and TMT role interdependence are positively associated with CSO presence. The structural choice of having a CSO in the TMT does not significantly affect a firm’s financial performance.</td>
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<tr>
<td>Hambrick et al. (2015)</td>
<td>Upper echelons, TMT interdependence</td>
<td>109 firms from the software and hardware industries, 365 firm years, 2002–2006.</td>
<td>Executives who are senior vice presidents or higher. TMT horizontal interdependence</td>
<td>Three facets of structural interdependence are important moderators of two classic predictions: the positive association between TMT heterogeneity and member departures and between TMT heterogeneity and firm performance. Horizontal, vertical, and reward interdependence, which are all elements of structural interdependence, have distinct characteristics and each kind of interdependence needs to be considered separately.</td>
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<tr>
<td>Bermiss and Murmann (2014)</td>
<td>Upper echelons, executive mobility</td>
<td>Data on 111,899 executives working in 3,288 advertising agencies over 19 observation periods and 8,537 firm years in New York City, 1924–1996, as listed in “The Red Books.”</td>
<td>Top executives as listed in an industry directory. Functional roles focused on external vs. internal processes</td>
<td>While it is generally damaging to lose any top executive, the loss of a top executive whose functional role focuses on internal processes is more detrimental to firm survival than losing a top executive whose functional role focuses on managing external exchange relationships.</td>
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<tr>
<td>Hendricks et al. (2015)</td>
<td>No explicit theory</td>
<td>681 public announcements of SCOME appointments, 2001–2011. Database with 1,452 executives holding and 1,918 TMT roles in 167 high-technology entrepreneurial firms in a single region. Longitudinal</td>
<td>No definition. New TMT roles (i.e., structural elaboration)</td>
<td>The stock market reacts positively to newly created SCOME roles. The strongest positive reactions are observed for outsiders hired in a newly created SCOME role.</td>
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<tr>
<td>Ferguson et al. (2015)</td>
<td>Entrepreneurship, organizational role structures, and upper echelons theory</td>
<td>Database with 1,452 executives holding and 1,918 TMT roles in 167 high-technology entrepreneurial firms in a single region. Longitudinal</td>
<td>Vice president or higher. New TMT roles (i.e., structural elaboration)</td>
<td>TMT misfits (TMT overqualification or underqualification, according to discrepancies between composition and role structure) catalyze role changes and changes of people. The effects depend upon the type of misfit and the level of firm development. Overqualified TMTs elaborate their role structure when developmental milestones are hit, while underqualified TMTs hire new people. While all CEOs face constraints in making changes to the TMT, those with a functional structure faced them more frequently than CEOs in companies with a divisional structure.</td>
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<tr>
<td>Ma and Seidl (2018)</td>
<td>Upper echelons, CEO–TMT interface perspective, CEO–adviser perspective</td>
<td>Longitudinal qualitative study of eight firms with newly appointed CEOs, archival data, informal interviews.</td>
<td>Vice president or higher. TMT configuration, new TMT roles</td>
<td>While all CEOs face constraints in making changes to the TMT, those with a functional structure faced them more frequently than CEOs in companies with a divisional structure.</td>
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<td>Key findings related to TMT hierarchical structure</td>
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<tr>
<td>Walsh (1988)</td>
<td>No explicit theory; M&amp;A, TMT turnover literature</td>
<td>Survey of parent companies of 55 acquisitions, 1975–1979, archival data.</td>
<td>10-K or proxy statement.</td>
<td>8.93 (3.11)</td>
<td>TMT members with higher rank vs. TMT members with lower rank</td>
<td>The authors examine the effects of a merger or an acquisition on an acquired company’s TMT and find that the turnover in acquired TMTs is significantly higher than regular turnover rates. TMT members with president titles left sooner than those with the title of vice president, showing that very senior executives are the first to leave following an acquisition.</td>
</tr>
<tr>
<td>Cannella and Hambrick (1993)</td>
<td>Agency theory, executive succession</td>
<td>96 very large acquisitions made in the 1980–1984 interval.</td>
<td>Officers of the acquired firm, title above vice president, inside directors, or both.</td>
<td>n/a</td>
<td>Departure of more-senior (chairman, vice-chairman, president, CEO, and COO) and less-senior (remainder) executives</td>
<td>The study finds that the departure of executives from acquired firms has negative effects on post-acquisition performance. Executive departures are more harmful to the highest-ranking executives (such as CEOs, presidents, and chairpersons). Providing one or more executives with TMT status in the newly combined firm leads to better post-acquisition performance.</td>
</tr>
<tr>
<td>Haleblian and Finkelstein (1993)</td>
<td>Information processing, social psychology</td>
<td>47 firms (26 computer and 21 natural gas distribution companies), 1978–1982.</td>
<td>All corporate officers who were also board members.</td>
<td>3.39 (1.46)</td>
<td>CEO dominance/distribution of power within TMT</td>
<td>CEO dominance (= high concentration of power within the TMT) is an important information-processing variable, as it influences firm profitability depending on the stability (low discretion) or turbulence (high discretion) of the environment. In stable contexts, ROA growth increases with greater team stratification. In turbulent contexts, lower stratification leads to higher performance. Financially successful firms are the ones that gradually match their team structures to the environmental context.</td>
</tr>
<tr>
<td>Keck (1997)</td>
<td>Group theory, social psychology</td>
<td>Sample of TMTs in 56 cement (1919–1984) and 18 minicomputer firms (1969–1980).</td>
<td>Executives with the title of vice president or higher.</td>
<td>5.27 (3.6)</td>
<td>Stratification (the number of ranks and relative size of each rank)</td>
<td>In stable contexts, ROA growth increases with greater team stratification. In turbulent contexts, lower stratification leads to higher performance. Financially successful firms are the ones that gradually match their team structures to the environmental context.</td>
</tr>
<tr>
<td>Dunn (2004)</td>
<td>Power theory, agency theory, TMT duality</td>
<td>103 firms that were convicted of issuing fraudulent financial statements in the period from 1992–1996.</td>
<td>Five highest-paid executives.</td>
<td>6.88 (4.18)</td>
<td>Structural power and ownership power</td>
<td>Illegal corporate behavior is more likely to occur when there is a concentration of power in the hands of insiders. Insiders who occupy a large percentage of the board seats have small TMTs.</td>
</tr>
<tr>
<td>Hambrick et al. (2015)</td>
<td>Upper echelons, TMT interdependence</td>
<td>109 firms from the software and hardware industry, 365 firm years, 2002–2006.</td>
<td>Executives who are senior vice presidents or higher.</td>
<td>8.58 (3.88)</td>
<td>Vertical interdependence; reward interdependence</td>
<td>Three facets of structural interdependence are important moderators of two classic predictions: the positive association between TMT heterogeneity and member departures and between TMT heterogeneity and firm performance. Horizontal, vertical, and reward interdependence, which are all elements of structural interdependence, have distinct characteristics and each kind of interdependence needs to be considered separately.</td>
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<tr>
<td>Source</td>
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<td>Sample Size</td>
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<tr>
<td>Patel and Cooper (2014)</td>
<td>Upper echelons, power theory, family firm literature</td>
<td>Archival data, 231 S&amp;P 1500 firms, 2001–2010.</td>
<td>Top five n/a executives reported in ExecuComp.</td>
<td>Structural power equality</td>
<td>Balanced structural power between family and non-family TMT members improves interaction processes in family firm TMTs. It lowers the turnover of non-family members, increases the range of the firm’s strategic actions, and improves overall firm performance.</td>
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<tr>
<td>Ridge (2015)</td>
<td>Behavioral and economic perspectives, tournament and social comparison theories</td>
<td>Archival data, 227 Fortune 500 firms, 2003–2006.</td>
<td>Five n/a highest-paid executives.</td>
<td>CEO and TMT power (measured in titles and ownership)</td>
<td>High levels of firm performance are found around either meaningfully low or meaningfully high levels of pay disparity. This relationship is moderated by CEO power such that CEO power inhibits tournament effects. This finding suggests that firms with large pay disparity patterns may benefit from forgoing powerful CEOs.</td>
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Table 4: Theoretical lenses applied

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<td>CEO–TMT interface perspective</td>
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<td>Homophily</td>
<td>1</td>
<td>CEO–adviser perspective</td>
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<tr>
<td>Interaction paradigm</td>
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Note: Count data are not mutually exclusive as articles may concurrently use more than one theoretical lens. Some articles did not mention a particular theory and, therefore, are not included here.