Journal of Management & Organization (2024), **30**, 1–17
doi:10.1017/jmo.2020.24

RESEARCH ARTICLE

Entrepreneurial orientation and the interaction of top management team background characteristics

J. Ruben Boling and Mariangela Vecchiarini*

The University of North Georgia, Mike Cottrell College of Business, 82 College Cir, Dahlonega, GA 30597, USA
*Corresponding author. E-mail: mvecchiarinipiazza@ung.edu

(Received 8 May 2020; revised 10 September 2020; accepted 22 September 2020)

Abstract

The current study draws on the upper echelons theory to examine the nature of the relationship between top management team (TMT) tenure and a firm's level of entrepreneurial orientation (EO). We find evidence of an inverted-U relationship between TMT tenure and EO using data from firms across three industries with varied industry dynamics. We further introduce a contingency element by demonstrating that TMT industry background heterogeneity moderates the relationship between TMT tenure and EO, where the inverted U-shaped relationship will be more pronounced when the heterogeneity is low and will flatten when the heterogeneity is high. The findings demonstrate the complexity CEOs and governing bodies face while shaping a diverse TMT that can affect EO.

Keywords: Entrepreneurial orientation; industry background heterogeneity; top management team characteristics; top management team tenure; upper echelons theory

Introduction

Entrepreneurial orientation (*hereafter* EO) allows some firms to be ahead of the competition because their behaviors and managerial philosophies are innovative, proactive and risk-taking (Covin & Slevin, 1989; Miller, 1983, 2011). However, much is still to be understood about how a firm adopts and enhances an EO. Recent research efforts into EO have begun to focus beyond the extensively studied EO and performance relationship to the predictors and drivers of EO (Miller, 2011; Rauch, Wiklund, Lumpkin, & Frese, 2009). Given that EO is a firm-level construct that is strictly connected with the strategic management of the firm (Anderson, Kreiser, Kuratko, Hornsby, & Eshima, 2015; Richard, Barnett, Dwyer, & Chadwick, 2004) and concerns the 'methods, practices, and decision-making styles managers use' (Lumpkin & Dess, 1996: 136), it is surprising that relatively little attention has been given to the attributes of a firm's top management team (*hereafter* TMT) and the relationship with an entrepreneurial strategic orientation (Hambrick, Cho, & Ming-Jer, 1996; Hambrick & Mason, 1984; Rauch et al., 2009; Richard, Wu, & Chadwick, 2009). Furthermore, there is an absence of understanding of how various TMT background characteristics interact to strengthen or weaken the relationship (Richard, Wu, & Chadwick, 2009; Yang & Wang, 2014).

TMT refers to the group of top executives that have 'a direct influence on the formulation of a firm's strategy' (Nielsen, 2010: 305), and usually includes the CEO and his or her direct reports (Finkelstein, Hambrick, & Cannella, 2009; Jeong & Harrison, 2017).

This study fills a gap in current knowledge by employing upper echelons theory in evaluating how TMT tenure is related to a firm's level of EO and, furthermore, how TMT industry background heterogeneity might interact with TMT tenure resulting in a change in that relationship. Upper echelons research suggests that TMTs' characteristics, such as tenure and industry

background, greatly influence the team's views and evaluations of business situations and strategic choices (Certo, Lester, Dalton, & Dalton, 2006; Hambrick & Mason, 1984; Li, 2017).

However, the interactive relationship of TMT tenure and industry background heterogeneity with EO is uncertain.

TMT tenure refers to the average number of years that the CEO and top executives from a certain team spent in that firm (Williams, Fadil, & Armstrong, 2005). According to the upper echelons theory, TMT tenure affects executives' commitment to the status quo, their access to information, the adoption of new strategies, and attitude toward risk (Finkelstein & Hambrick, 1990) and, therefore, is likely to be an antecedent of EO (Boling, Pieper, & Covin, 2016).

Shorter-tenured teams provide new and fresh views influenced by their external network and previous experiences, resulting in an environment of healthy debate and consideration for more innovative, risky and proactive initiatives (Keck, 1997). On the other hand, a short-tenured TMT could result in lower levels of EO, as team members do not know each other and how to work and communicate effectively as a team (Boerner, Linkohr, & Kiefer, 2011; Carpenter, 2002).

While it is unclear how the relationship of TMT tenure with EO evolves over time, it has been found that as tenure increases, TMTs communicate less with executives outside their company and industry (Zenger & Lawrence, 1989), their knowledge from previous experiences becomes stale and less effective (Hambrick & Fukutomi, 1991; Miller, 1991) and in general, they become less flexible and receptive to new ideas (Katz, 1982; Merton, 1968). In addition, team members become more familiar with each other and may begin to break into different social alliances resulting in increased social conflict and decreased task conflict (Xie, Ji, Luan, & Zhao, 2018). While task conflict enables productive debate leading to entrepreneurial action (Boeker, 1997b), social conflict may potentially frustrate the entrepreneurial decision-making of the team (Amason, 1996; Jehn, 1995, 1997; Jehn & Mannix, 2001). As this condition intensifies, the strength of the relationship of TMT tenure and EO lessens as path dependency and inertia take hold resulting in decisions that do not face the same level of discussion and become less entrepreneurial (Carpenter, 2002; Carpenter, Geletkanycz, & Sanders, 2004; Hambrick, Cho, & Ming-Jer, 1996).

The present research intends to advance this debate and explore if and how TMT tenure affects a firm's EO. Drawing on the upper echelons theory, it is proposed that as TMT tenure increases, entrepreneurial decisions and actions resulting in higher levels of EO will increase and then decrease in an inverted U-shaped manner in which EO is less during low and high levels of TMT tenure and higher during moderate levels of TMT tenure.

Building on previous research showing how CEO and top executives' background affects strategic behaviors and entrepreneurial activity (e.g., Boeker, 1997a, 1997b; Li, Wei, & Lin, 2016; Miller, Burke, & Glick, 1998; Talke, Salomo, & Kock, 2011), we also analyze the moderating effect of industry background heterogeneity on the relationship between TMT tenure and EO. Industry background heterogeneity refers to the diversity of industries in which TMT members were employed and gained work experience prior to joining the current firm.

When the members of the team have heterogeneous backgrounds, such as working in varied industries, they can provide different views of the world and initiate more constructive task-oriented conflicts, which in turn stimulate innovative thinking, problem solving and entrepreneurial activity (Li, Wei, & Lin, 2016; Simons, Pelled, & Smith, 1999; Talke, Salomo, & Kock, 2011). On the other hand, extreme levels of background heterogeneity can be detrimental, as information overload can result in inconsistent and incoherent decisions (Miller, Burke, & Glick, 1998), cause social conflicts (Jehn, 1995), reduce strategic consensus, and generate disagreement (Hambrick, Cho, & Chen, 1996). Contrarily, TMTs with homogenous industry backgrounds may be less entrepreneurial due to limited access to external networks and associated information flow (Child, 1997; Hannan & Freeman, 1984).

This study contributes to the literature in several ways. First, we add to the conversation on how TMT's characteristics influence firms' strategic decisions by examining the relationship of TMT tenure with EO. Furthermore, we introduce new insights to the TMT characteristics

https://doi.org/10.1017/jmo.2020.24 Published online by Cambridge University Press

literature by exploring the interaction effect that TMT Industry Background Heterogeneity has on the TMT tenure and EO relationship. Our results offer guidance for the management and governance of the firm in relation to team structure, as we show that a properly diversified team can promote and sustain EO through the identification of entrepreneurial opportunities and the ability to evaluate and implement them successfully.

Theoretical framework and hypotheses

TMT tenure and EO

EO has been a phenomenon of interest to management scholars for over 30 years (Kreiser, Marino, & Weaver, 2002). Extensive research of the effect of EO on firm performance has predominantly found a positive relationship (Covin & Slevin, 1991; Rauch et al., 2009) in which entrepreneurially oriented firms innovate more, take on higher levels of risk, and proactively compete in existing and new markets (Bouncken, Plüschke, Pesch, & Kraus, 2016; Covin & Slevin, 1989, 1991; Miller, 1983; Rauch et al., 2009).

EO is generally described as a strategic posture of a firm in which decisions and approaches of top managers tend toward organizational-level entrepreneurial endeavors (Covin & Slevin, 1989; Lumpkin & Dess, 1996). A considerable amount of research has been conducted on the top managers of the firm and, more specifically, on how they influence the strategic orientation of the firm (Boling, Pieper, & Covin, 2016; Hambrick, 2007; Miller, 2011; Simsek, Heavey, & Veiga, 2010; Van Doorn, Heyden, & Volberda, 2017). Many of these studies have employed upper echelons theory when exploring the TMT's influence on the performance and strategic choices of an organization (Carpenter, 2002; Hambrick, Cho, & Ming-Jer, 1996). The core premise of upper echelons is that the values, experiences, and personalities of top executives influence their interpretations of business situations and strategic decision-making (Hambrick, 2007; Hambrick & Mason, 1984). Therefore, EO is considered grounded in the decision-making styles and philosophies of top executives who are impacted by their background characteristics (Child, 1972, 1997; Covin & Slevin, 1989, 1991).

TMT tenure is a characteristic that might influence entrepreneurial strategic decisions and thus contribute to a firm's EO (Certo et al., 2006; Hambrick & Mason, 1984; Kauer, zu Waldeck, & Schäffer, 2007). Prior research has shown that the relationship of TMT tenure and firm performance may change as the longevity or tenure of the TMT increases (Boerner, Linkohr, & Kiefer, 2011; Carpenter, 2002). The results have been significant, but somewhat conflicting and inconsistent with the shape of the relationship presenting both negative and inverted-U findings (Boerner, Linkohr, & Kiefer, 2011; Carpenter, 2002; Pelled, Eisenhardt, & Xin, 1999; Wiersema & Bantel, 1992). Even though the literature on CEO and top executives' backgrounds and EO has been growing, there is an absence in understanding how TMT tenure influences a firm's EO. This would seem a critical consideration given that previous studies have found that the longer an executive's tenure at a firm, the more he or she loses touch with the external environment in which the firm operates and the network from which the executive brought in new ideas and approaches (Boling, Pieper, & Covin, 2016; Hambrick & Fukutomi, 1991; Miller, 1991). Initially, short-tenured teams will need some time to define internal roles, develop cohesion, establish group processes (Keck, 1997), and understand how to work together and communicate effectively (Gabarro, 1987). As the team develops a greater understanding of each member's strengths and communication methods, the team may become stronger and decision-making increasingly innovative, proactive, and risk-taking (Boerner, Linkohr, & Kiefer, 2011; Carpenter, 2002).

On the contrary, research has shown that longer-tenured TMTs tend to avoid risky strategic decisions (Barker & Mueller, 2002) and to emphasize stability (Chen, Hsu, & Huang, 2010; Kor, 2006). The longer the team is together, the more individual team members begin to disassociate with their external networks; they become less flexible and reluctant to innovate and

https://doi.org/10.1017/jmo.2020.24 Published online by Cambridge University Press

change such that their perspectives become more strongly aligned with the team and the firm (Katz, 1982, Merton, 1968).

Furthermore, the longer TMT members work together, the more the social dynamics change as members get familiar with each other and may begin to debate issues on a personal rather than a task basis (Katz, 1982; Papadakis & Barwise, 2002). Higher levels of interpersonal conflict lead to arguments that divert the discussion from identifying and implementing more risky and innovative opportunities that may benefit the firm to less beneficial personal objectives (Papadakis & Barwise, 2002; Carpenter, 2002). Even if longer-tenured teams may appear more efficient and faster in making decisions, these decisions tend to be poorer due to increased group-think resulting from path dependence in which the team holds to the status quo avoiding new innovative and higher risk initiatives, which are critical elements of EO. Thus, EO may decline in firms in which TMT tenure is in the later stage (Carpenter, 2002).

Taken together, the effect of TMT tenure on EO is increasingly positive in the early stage and tends to become negative as tenure increases. Thus, the following hypothesis is presented:

Hypothesis 1: An inverted U-shaped relationship exists between TMT tenure and EO, with the highest EO occurring at an intermediate level of tenure.

Moderating role of TMT industry background heterogeneity

Executives' mindset and the way they make decisions are greatly affected by their prior industry experience (Nielsen, 2009). For instance, researchers have found TMT industry heterogeneity related with several firm performance and organizational outcomes, but the findings have been mixed (Certo et al., 2006; Chen, Kang, & Butler, 2019; Hambrick & Mason, 1984; Heyden, Van Doorn, Reimer, Van Den Bosch, & Volberda, 2013) resulting in both positive and negative results (Cai, Liu, & Yu, 2013).

According to the upper echelons theory, TMT members with heterogeneous backgrounds can be beneficial in terms of providing broader strategic options, but also detrimental when it comes to team cohesion, communication, and effective cooperation (Hambrick, Cho, & Ming-Jer, 1996; Hambrick & Mason, 1984). A more heterogeneous team can benefit from a richer variety of technical and managerial skills (Li, Wei, & Lin, 2016; Simons, Pelled, and Smith, 1999) and increased information flow through a broader network that enhances the opportunity-seeking actions of the team (Van Doorn & Volberda, 2009; Williams & O'Reilly, 1998). TMTs with varied background knowledge and perspectives have been found to be more effective when solving complex, non-routine problems typically faced when adopting an EO (Bantel & Jackson, 1989).

On the other hand, very heterogeneous teams may experience information overload due to their networks and prospects being too broad and diverse, resulting in inconsistent and incoherent decisions (Miller, Burke, & Glick, 1998), reduced strategic consensus and disagreement (Hambrick, Cho, & Chen, 1996). Heterogeneous teams may experience more conflict than homogeneous teams because of a greater variety of experiences and backgrounds and thus limit consensus in innovative and entrepreneurial decision making (Eisenhardt, Kahwajy, & Bourgeois, 1997). Task and interpersonal conflicts in TMTs are fundamental in defining the quality of group decision-making (Amason, 1996; Jehn, 1997; Schweiger, Sandberg, & Ragan, 1986). The knowledge diversity that characterizes heterogeneous teams is considered a trigger of task conflict leading to constructive debate and criticism about how a certain task should be executed (Bouncken, 2004; Jehn, 1995; Sciascia, Mazzola, & Chirico, 2013).

Although conflict may seem an unwanted dynamic within a team because it is commonly associated with dysfunctional behavior, scholars have generally found that task conflict results in better team decisions (Amason, 1996; Certo et al., 2006; Jehn, 1995, 1997; Jehn & Mannix, 2001; Pelled, Eisenhardt, & Xin, 1999). For instance, it has been found that heterogeneous

https://doi.org/10.1017/jmo.2020.24 Published online by Cambridge University Press

teams with high levels of task conflict lead the highest performing firms, whereas homogeneous teams with less conflict tended to not consider key issues resulting in poorer strategic choices (Eisenhardt, Kahwajy, & Bourgeois, 1997). When there is heated discussion as a result of task conflict, strategic options, including entrepreneurial opportunities, are explored more deeply and a stronger consensus gained (Amason, 1996; Certo et al., 2006; Jehn, 1995, 1997). A strong consensus is especially necessary for teams engaged in entrepreneurial initiatives that require resource allocations to more innovative and risky endeavors that are not immediately successful.

Notably, the opposite effect occurs when the conflict is interpersonal. Interpersonal conflict is often dysfunctional and hinders effective decision-making (Amason, 1996; Certo et al., 2006; Jehn, 1995, 1997). Interestingly, studies have also found interpersonal conflict to be more prevalent in TMTs that are too heterogeneous (Amason, 1996; Eisenhardt, Kahwajy, & Bourgeois, 1997; Schweiger, Sandberg, & Ragan, 1986).

Based on previous literature, it is hypothesized that shorter-tenured teams could benefit from a higher background heterogeneity through broader experiences and networks from which entrepreneurial opportunities can be identified, evaluated and exploited (Heavey, Simsek, Roche, & Kelly, 2009; Miller, 1983; Wiersema & Bantel, 1992). At the same time, extreme levels of background heterogeneity in a less tenured team could result in lower EO because the diversity is so vast it generates dysfunctional conflict, impedes communication and thwarts joint decision-making (Miller, Burke, & Glick, 1998).

Conversely, TMTs with less industry background diversity may experience fewer entrepreneurial opportunities and successes due to a more limited network and associated information flow (Child, 1997; Hannan & Freeman, 1984). Shorter-tenured teams with little or no heterogeneity may exhibit lower EO due to potential groupthink and a limited access to a variety of networks and experiences (Hambrick & Mason, 1984; Knight et al., 1999; Williams & O'Reilly, 1998). At the same time, more homogeneous teams can experience less social categorization and increase their consideration of more entrepreneurial initiatives because they are more confident in their decisions (Knapp, Dalziel, & Lewis, 2011; Nielsen, 2009).

Building on previous research, the current study proposes that TMTs with shorter tenures and low industry heterogeneity will experience lower EO because of the combination of low information flow and a lack of understanding of the resources and capabilities of the firm (Hambrick & Mason, 1984; Knight et al., 1999; Williams & O'Reilly, 1998). As tenure increases, TMTs with lower levels of heterogeneity will experience greater EO as the team develops clear roles and communication channels. On the other hand, TMTs with high levels of industry background heterogeneity will be constrained by social categorization even though the knowledge of the firm increases. Thus, it is proposed that TMTs with high industry background heterogeneity will be highly conflicted and unable to obtain agreement to move forward with innovative, risky and proactive efforts (Miller, Burke, & Glick, 1998).

The observations presented above suggest that TMTs with moderate levels of industry background heterogeneity will exhibit more innovative, risk-taking and proactive decision-making than TMTs with low and high levels of heterogeneity, which leads to the following hypothesis:

Hypothesis 2: Industry background heterogeneity of the TMT will moderate the inverse-U relationship between TMT tenure and EO such that the inverted-U shape will be more pronounced among firms whose TMTs exhibit lower levels of industry background heterogeneity and less pronounced among firms whose TMTs exhibit higher levels of industry background heterogeneity.

Methods

Data collection

Sample data for the current study were collected from various secondary databases for publicly traded companies listed in U.S. stock exchanges from three diverse industries that were expected

https://doi.org/10.1017/jmo.2020.24 Published online by Cambridge University Press

to experience varying levels of EO, including air transportation, semiconductors, and pharmaceuticals. Furthermore, only publicly listed firms were included in this study because EO was operationalized using content analysis of annual reports that are readily available for publicly traded firms (Short, Broberg, Cogliser, & Brigham, 2010). Moreover, the demographic information of TMT members is more readily available in publicly traded companies versus private firms where information is limited and often inconsistent (Li, 2017). Additionally, the sample industries rated at mixed levels of managerial discretion (based on the industry growth rate, regulatory environment, product development, and capital intensity) according to Hambrich and Abrahamson's (1995) managerial discretion list (Boling, Pieper, and Covin, 2016). Data collected for the year 2009 resulted in 190 observations.

Dependent variable

Entrepreneurial orientation

EO is operationalized consistent with Miller (1983), and Covin and Slevin (1991) as a unidimensional construct comprised of the elements innovativeness, risk-taking and proactiveness. The study focuses on the evaluation of the overall EO of the firm and therefore, the EO construct is measured by the additive value of the three components. Moreover, although other conceptualizations have been used in research efforts (e.g., Lumpkin & Dess, 1996), the unidimensional three-component conceptualization has been the most predominant (Covin & Wales, 2012; Rauch et al., 2009). Additionally, different conceptualizations of EO using five or more dimensions provide a lower level of abstraction and could lead to different results compared to the original EO construct (George & Marino, 2011).

EO is measured through content analysis of 10-K annual reports for the year 2009 (Short et al., 2010). We relied on 10-K annual reports instead of letters to the shareholders (Short et al., 2010) because our sample includes companies outside the Fortune 500 that commonly do not publish letters to the shareholders. A company's 10-K annual report typically includes discussions of past and future strategies and anticipated performance targets (Boling, Pieper, & Covin, 2016). The content analysis of corporate texts such as shareholder letters, press releases, 10-Ks and annual reports is increasingly used by organizational scholars because of its numerous benefits, for example its unobtrusive nature (Short et al., 2010). Content analysis is a combination qualitative and quantitative method that provides for a rigorous process of gathering data that are otherwise difficult to obtain for management studies. The primary assumption behind the content analysis method is that it recognizes that through the language used one can develop an understanding of the cognitive schemas of management (Duriau, Reger, & Pfarrer, 2007).

Consistent with the procedure outlined by Short et al. (2010), the current study uses computer-aided text analysis (CATA) to process annual reports of the sample companies. LIWC 2007, a widely used CATA software package, is used to process the 10-K text files and obtain a count of the words that match the custom dictionary developed and tested by Short et al. (2010) specifically for the purpose of determining EO. The standardized values for all three dimensions of innovativeness, risk-taking and proactiveness were summed to create a measure of the firm's EO score. Higher scores indicate more EO and lower scores a more conservative orientation.

Independent variable

TMT tenure

We measured TMT tenure by dividing the total tenure of the team by the number of members (Carpenter, Geletkanycz, & Sanders, 2004).

There has been considerable debate as to the definition of the TMT and yet there does not seem to be any significant agreement among researchers. In this study, we looked at the executive

https://doi.org/10.1017/jmo.2020.24 Published online by Cambridge University Press

team listed in the firms' annual reports to identify the TMT members of our sample companies, an approach that has been consistently adopted in recent studies (e.g., Li, 2017; Nielsen and Nielsen, 2013; Tanikawa and Jung, 2016). We use a sample of publicly traded companies and thus follow the recent trends in data collection and look at the executives listed in the company 10-K to define the TMT (Carpenter, Geletkanycz, & Sanders, 2004).

Additionally, we included the CEO in our definition of TMT, as it's been shown that the presence of the CEO can improve the prediction of organizational outcomes (Finkelstein et al., 2009). Moreover, this type of operational definition can be observed in several prominent publications (e.g., Boone, Lokshin, Guenter, & Belderbos, 2019; Finkelstein & Hambrick, 1996; Hambrick, Humphrey, & Gupta, 2015; Henderson & Fredrickson, 2001).

Moderator variable

TMT industry background heterogeneity

Biographical data for each TMT member was collected from various business databases and publications, as well as company websites and annual reports. TMT industry background data were determined by examining each firm's TMT member's experience and coding the executive's industry background(s) based on a wide range of industry classifications including Academic, Airlines, Automotive, Chemical, Communications, Construction, Consumer, Distribution, Electronics, Financial Services, Food Services, Government, Healthcare, Industrial, Law, Military, Mixed, Retailing, Professional Services, Software, Telecommunications, Transportation, Utilities.

While the coding of data may result in bias due to different rater backgrounds and abilities, especially when multiple raters are employed (Hair, Black, Babin, & Anderson, 2010), in this study, the coding of the backgrounds required very little interpretation and was a straight-forward categorization because the biographies of the executives typically included the specific dates of their employment by the company. In addition, there was a single rater enabling consistency of the coding. The codes were used to calculate the level of heterogeneity in industry background for each team using Blau's (1977) index of heterogeneity (Hambrick, Cho, & Ming-Jer, 1996; Naranjo-Gil, Hartmann, & Maas, 2008; Wiersema & Bantel, 1992).

Control variables

Industry

Industry dummy variables are used to control for unobserved effects among the represented industries (Ling & Kellermanns, 2010).

Firm size

Firm size is measured using the natural log of the total number of employees at the time of the study (Casillas, Moreno, & Barbero, 2010; Covin, Green, & Slevin, 2006). It has been argued that larger firms have more resource availability to pursue entrepreneurial opportunities (Bantel & Jackson, 1989). However, it has also been argued that smaller firms are more agile and can move quicker and more successfully in pursuing entrepreneurial initiatives and are thus more entrepreneurial (Rauch et al., 2009). Including firm size as a control variable addresses the divergent views (Harms, Reschke, Kraus, & Fink, 2010).

Firm age

Firm age is operationalized as the life of the firm based on its recorded establishment date (Casillas, Moreno, & Barbero, 2010; Covin, Green, & Slevin, 2006). During the life of an organization, the make-up and level of EO may change (Miller & Friesen, 1984). Controlling for the age of the firm is necessary to ensure that this study is measuring the effects of the TMT background characteristics and not the effects of age.

https://doi.org/10.1017/jmo.2020.24 Published online by Cambridge University Press

TMT average age

TMT average age is included as a control for potential bias due to differences in the interpretation of strategic alternatives presented from internal and external sources (Carpenter, Geletkanycz, & Sanders, 2004). According to the upper echelons theory, age can be considered a proxy of psychological factors affecting the executives' strategic choices (Hambrick, Humphrey, & Gupta, 2015), as TMT members of different ages are likely to interpret events based on different cognitive styles (Olson, Parayitam, & Twigg, 2006).

TMT size

TMT size is operationalized as the total number of team members. Not controlling for size may confound the results, making it difficult to discern whether the results should be attributed to heterogeneity or team size (Carpenter & Fredrickson, 2001; Carpenter, Geletkanycz, & Sanders, 2004).

Environmental dynamism

Environmental dynamism was operationalized using the elements of industry growth and industry stability. Industry growth was calculated as the median rate of sales growth between $t-2$ and t. Industry stability, an indicator of unpredictable growth or shrinkage in the industry, was measured as the absolute difference in the industry growth rate from $t-2$ to $t-1$ versus $t-1$ to t. The measures of the two elements were summed for an overall environmental dynamism measure (Hambrick & Cannella, 2004). EO is likely to be greater in dynamic environments (Miles, Covin, & Heeley, 2000).

Analytical method

The research question in the current study seeks to understand whether TMT tenure is positively related to the organization's EO. It further explores the moderating influence that TMT industry background heterogeneity might have on the TMT tenure–EO relationship. The analytical model consists of one dependent variable, one independent variable, one moderator, and multiple control variables making regression the most appropriate option for analysis (Hair et al., 2010).

Results

The means, standard deviations, and correlations of the model variables are shown in Table 1. Multicollinearity was tested by evaluating the variance inflation factor (VIF) within each model. VIF readings were below the threshold level of ten, indicating multicollinearity is not a problem (Hair et al., 2010). Centering was applied to the interaction terms.

Hypotheses tests

The hypotheses were tested via multiple regression analyses in three different models. The results are shown in Table 2. Model 1 tests the control variables. Model 2 tests the predictability of the main-effect variable with EO. Model 3 tests the interaction of the predictor variable with TMT industry background heterogeneity. All regression findings shown in the following discussion are from Model 3. Durbin–Wu–Hausman test was conducted to test for possible endogeneity in the current model and based on the findings, endogeneity is not a concern.

Control variables

Firm size was found to have a negative relationship with EO ($\beta = -.25$, $p < .01$), indicating the larger the company, the less entrepreneurial the firm. The findings are consistent with

https://doi.org/10.1017/jmo.2020.24 Published online by Cambridge University Press

Table 1. Descriptive statistics and correlations

Variable	Mean	S.D.	1	2	3	4	5	6	7	8
1. Firm Size	6.83	1.96								
2. Firm Age	26.55	23.72	.46**							
3. Company Tenure	8.85	4.52	.37**	.40**						
4. TMT Average Age	50.53	3.85	−.04	.23**	.27**					
5. TMT Size	7.06	2.96	.36**	.30**	.20**	.05				
6. Industry Dynamism	.57	.34	−.41**	.02	.11**	.13**	.05			
7. TMT Tenure	.32	.22	.02	.07	.70**	.34**	−.11**	−.03		
8. Industry Background Heterogeneity	6.16	2.88	−.01	.08*	−.17**	.00	−.00	.12**	−.12**	
9. EO	.73	.18	−.37**	−.07	−.08*	.12**	.00	.36**	−.01	.06

*$p < .05$; **$p < .01$.

Table 2. Hypothesis testing regression results

	Model 1 Control β	Model 2 H1&2 β	Model 3 H3&4 β
Control variables			
Firm size	−.26**	−.27**	−.25**
Firm age	−.20†	−.22†	−.21†
Firm age squared	.23*	.26*	.24*
TMT average age	−.01	−.02	−.03
TMT size	.03	.03	.03
Industry dynamism	−.06	−.09	−.07
Independent variables			
TMT tenure		.16*	.17*
TMT tenure squared		−.13†	−.13†
Moderation variables			
TMT industry background heterogeneity			−.22**
TMT industry background heterogeneity × TMT average tenure			−.07
TMT industry background heterogeneity × TMT average tenure squared			.22*
R^2/Adjusted R^2	.40/.38	.42/.39	.45/.41
ρR^2/ρAdjusted R^2		.02/.01	.03/.02

†$p < .1$; *$p < .05$; **$p < .01$; ***$p < .001$.
Standardized Coefficients.

entrepreneurial researchers that claim smaller is better when it comes to a firm being more entrepreneurial (Rauch et al., 2009). Interestingly, the findings of firm age presented a U-shaped curvilinear relationship ($\beta = -.21$, $p < .1$; β of the squared term = .24, $p < .05$), signifying that early and later stages of the firms in the current sample are more entrepreneurially oriented than middle-aged firms. All other variables, except industry dummy 1, were not significant.

Hypothesis 1

Model 2 tests Hypothesis 1 (H1). H1 hypothesized TMT tenure to have an inverted U-shaped relationship with EO. The coefficient signs ($\beta = .16$, $p < .05$ and the squared term $\beta = -.13$, $p < .1$) indicate an inverted-U relationship in which firms with low TMT tenure have slightly less EO and firms with high TMT tenure will be considerably less entrepreneurially oriented (see Figure 1). The findings of H1 were significant and indicated a curvilinear relationship. While the shape of the curvilinear relationship was not symmetrical, it did present an inverted U-shaped form as hypothesized. Therefore, H1 is supported.

Hypothesis 2

Next, the moderating effect of TMT background heterogeneity was tested in Model 3, consistent with Baron and Kenny's (1986) approach for testing moderation. Hypothesis 2 (H2) proposes a moderating effect of TMT industry background heterogeneity such that with high TMT industry background heterogeneity, the inverted-U shape would be flatter and less positive, while with low heterogeneity, it would become more pronounced and more positive.

The relationships shown in Table 2 confirm a significant interaction of industry background heterogeneity and TMT tenure ($\beta = -.07$, ns and β of the squared term = .22, $p < .1$). The plot in

https://doi.org/10.1017/jmo.2020.24 Published online by Cambridge University Press

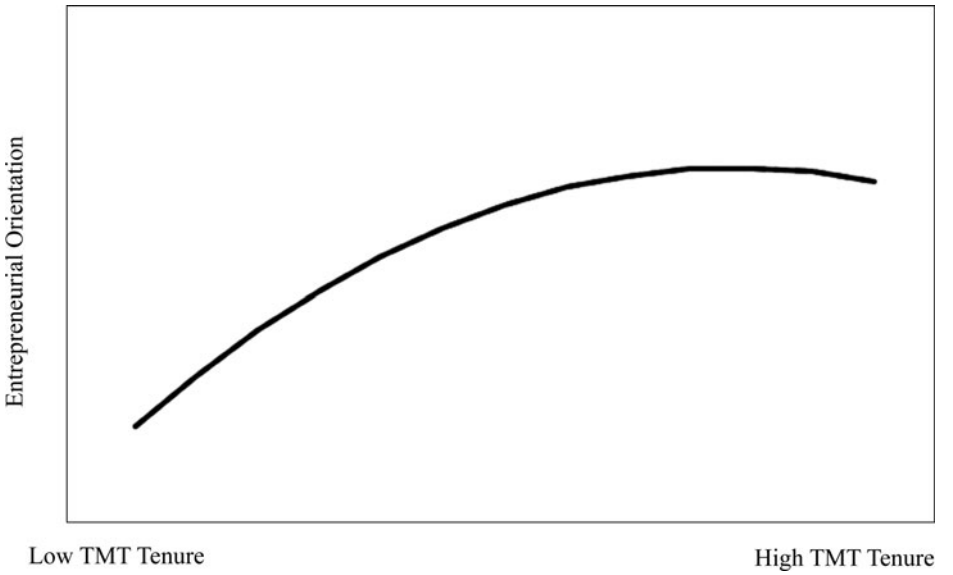

Fig. 1. The relationship of TMT tenure with EO.

Figure 2 shows that TMTs with short and long tenures and high levels of industry background heterogeneity present an almost flat level of EO, with long-tenured TMTs displaying a slightly higher EO.

The interaction of a low TMT background heterogeneity with TMT tenure instead resulted in a more U-shaped relationship with EO (Haans, Pieters, & He, 2016). Although the relationship was significant, the shape of the relationship for TMT high background heterogeneity did not match the hypothesized shape and therefore, H2 is only partially supported.

Discussion

Theoretical narrative and implications

In this study, we sought to investigate the curvilinear relationship between TMT tenure and EO, and clarify the moderating effect of TMT background heterogeneity.

According to the upper echelons theory (Hambrick & Mason, 1984), top executives' background characteristics shape their cognitive base, which, in turn, influences their strategic management of the firm (Boling et al., 2016). Research has shown that tenure is one of the TMT characteristics that affect the most executives' strategic orientation since long-tenured teams tend to adopt persistent and unchanging strategies (Finkelstein & Hambrick, 1990), avoid risky strategic decisions (Barker & Mueller, 2002), and emphasize stability (Kor, 2006; Chen, Hsu, & Huang, 2010). During the course of their tenure, CEOs and top executives usually experience two main trends (Henderson, Miller, & Hambrick, 2006), characterized by the initial increase and the following decrease of organizational outcomes like innovation (Wu, Levitas, & Priem, 2005), adoption of new strategies and attitude toward risk (Finkelstein & Hambrick, 1990), and market expansion (Souder, Simsek, & Johnson, 2012). Because EO has been described as a strategic posture in which a firm 'engages in product-market innovation, undertakes somewhat risky ventures, and is the first to come up with 'proactive' innovations' (Miller, 1983: 771), the curvilinear relationship described by the above-mentioned upward and the downward trend can be predicted also for TMT tenure and EO (Boling et al., 2016).

https://doi.org/10.1017/jmo.2020.24 Published online by Cambridge University Press

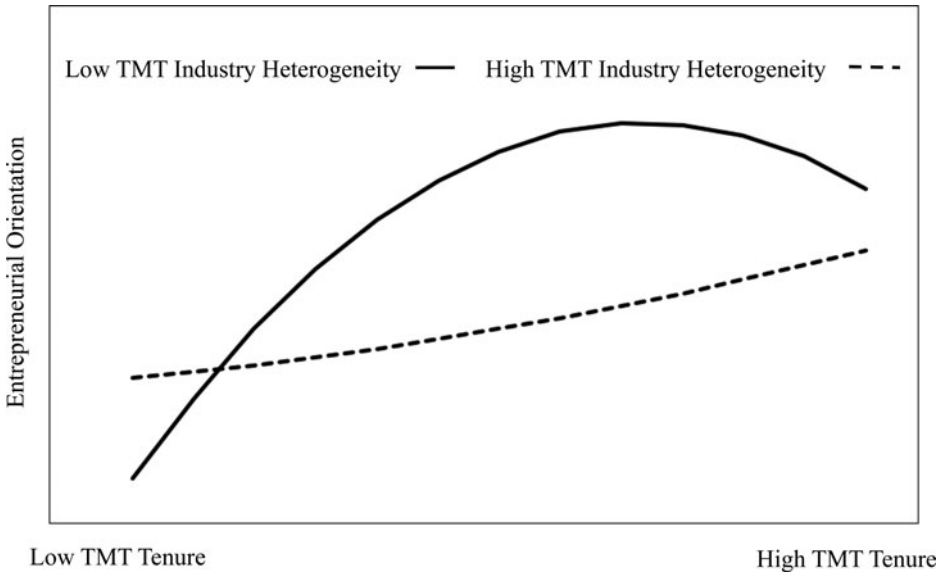

Fig. 2. The relationship of TMT tenure with EO moderated by TMT industry heterogeneity.

As expected, our study found that TMT tenure is related to EO in an inverse-U shaped relationship. As shown in Figure 1, EO increases slightly in the beginning years of tenure, reaches a turning point at approximately three years of tenure and becomes increasingly negative for longer-tenured TMTs. The result is supported by previous literature. In a study examining a sample of American and European managers from a variety of industries, Gabarro (1987) observed that it takes up to six months for new members to acquire a deep knowledge of the organization, understand internal roles and become productive. In addition, several studies found that while teams' cohesion, communication and decision-making mechanisms tend to improve over time (Boerner, Linkohr, & Kiefer, 2011; Carpenter, 2002; Keck, 1997), scanning activities decrease as relationships with external networks deteriorate (Zenger & Lawrence, 1989) and TMTs become prone to avoiding risky strategic decisions (Barker & Mueller, 2002) and follow more familiar path-dependent patterns (Chen, Hsu, and Huang, 2010; Kor 2003).

This is an important outcome given that the majority of the research of EO and performance has supported that entrepreneurially oriented firms perform better (Covin & Slevin, 1991; Rauch et al., 2009). Thus, this study provides some guidance on how firms may build or strengthen an EO and thus improve firm performance. In addition, the findings draw attention to the need to manage various executive background characteristics, such as industry background heterogeneity, to offset the negative effects of tenure on EO. Furthermore, the finding from the interaction of TMT tenure and industry background heterogeneity provides CEOs and other governing bodies guidance on building a TMT that would best be able to meet the needs of the organization and maximize its EO potential. TMT industry background heterogeneity was found to moderate the relationship of TMT tenure with EO. As shown in Figure 2, the negative effect of tenure on EO is reduced when there is less industry heterogeneity, where TMTs with long tenure and lower industry background heterogeneity experience higher levels of EO. This finding goes against some of the theoretical discussions indicating that longer-tenured teams have less entrepreneurial members who lose touch with external networks and information sources, as well as experience increasing groupthink. Moreover, low levels of TMT industry background heterogeneity were argued to result in less entrepreneurial opportunities due to lack of diversification (Van Doorn & Volberda, 2009; Williams & O'Reilly,

https://doi.org/10.1017/jmo.2020.24 Published online by Cambridge University Press

1998). A potential driver of the finding is that TMTs with less industry background heterogeneity share the same perception of the competitive environment and are less likely to engage in conflict when it comes to strategic decisions (Chi, Huang, & Lin, 2009), which in turn increases their consideration and support for entrepreneurial initiatives (Chi, Huang, & Lin, 2009; Jarzabkowski & Searle, 2004). However, the beneficial effect of low industry heterogeneity in longer-tenured teams seems to last only up to a certain point, when it starts declining as the TMT becomes disconnected from the external environment. On the other hand, TMTs with short and long tenures and high levels of industry background heterogeneity present an almost flat level of EO, indicating that high levels of industry background heterogeneity may cancel out the negative influence of longer average TMT tenure.

The implication of our findings is that hiring and other practices directed at managing diversification of the TMT to build or increase an EO is more complicated than it may seem. The TMTs characteristics analyzed in this study are a double-edged sword (Jarzabkowski & Searle, 2004) and building and managing a TMT, capable of being entrepreneurial can be extremely complex and difficult.

Many scholars have explored TMT's composition and how TMT characteristics affect different organizational performance. The upper echelons theory has been invoked in many of these studies with the focus of primarily maximizing performance by leveraging those background characteristics separately. While understanding how a particular TMT background demographic, such as tenure, may be a partial driver of EO, it is critical to also investigate how various other background variables interact to strengthen or weaken the relationship with EO. The strategy of lowering the average tenure of the team may be thwarted by increased background heterogeneity of the executives. Each piece of the puzzle must be placed carefully to maximize EO and thus, performance. The findings of this study clearly show how the two selected characteristics interact to change the nature of the team and its ability to influence the EO of the firm. For instance, if a CEO prefers his or her team to stay together for longer tenures, he or she might benefit from mixing in different backgrounds to avoid or at least minimize any reduction in the intended strategic posture.

Limitations and suggestions for future research

There are limitations in this study that should be considered when interpreting the results. First, the generalizability of the study is limited due to only three industries being included. The industries were chosen because they are considered to be more or less entrepreneurial (Hambrick & Abrahamson, 1995). In addition, the sample for the current study is U.S.-centric. The relationships may be different in other countries. Future studies should consider a sample across a broader selection of industries and geographic areas.

Second, the content analysis method used to determine EO is a relatively new approach (see Short et al., 2010). CATA measurement technique is beneficial because it enables executive attitudes, beliefs, and decision-making to be assessed in an unobtrusive manner (Boling, Pieper, & Covin, 2016). Future researchers should consider alternative and potentially corroborating methods for measuring the EO construct using secondary data (see Miller, 2011).

Beyond future research to eliminate limitations, researchers should continue to examine the complexities of the TMT background heterogeneities and how they may interact to strengthen or weaken a relationship with EO and firm performance. Better understanding the effects of these relationships and how they change when paired together will aid CEOs and governance boards to build more effective teams. Also, further examination of the inverted-U relationship of TMT tenure to EO is necessary to better understand the timing of the negative nature of the relationship and how to potentially extend the peak to later years. In addition, similar relationships may exist when seeking other strategic orientations. Future researchers should explore how interactions found in the current study may result in a similar change.

https://doi.org/10.1017/jmo.2020.24 Published online by Cambridge University Press

Conclusion

This study adds to the EO and upper echelons conversations by answering the question of how TMTs drive the strategic orientation of the firm in different ways.

Our findings show that an inverted U-shaped relationship exists between TMT tenure and EO, with the highest levels of EO reached approximately three years of tenure. We also shed light on the moderating effect of TMT industry background heterogeneity on this relationship. According to our results, a lower heterogeneity can reduce the negative effect of tenure on EO, where TMTs with long tenure and lower industry background heterogeneity experience higher levels of EO. As tenure increases, the beneficial effect of low heterogeneity seems to decrease as the TMT becomes more disconnected from the external environment. On the contrary, higher levels of industry background heterogeneity seem to reduce the negative influence of longer-tenured teams on EO.

While this study includes only one predictor variable of the many elements that influence the EO of the firm, it provides a good start to a fuller understanding of how a firm might develop and sustain such orientation. The findings show that over the tenure of the TMT, the influence on EO changes. In addition, we observed that the TMT industry background heterogeneity would interact with tenure to modify the shape of the relationship. Hence, the results provide some guidance for the management and governance of the firm in relation to team structure. Based on the findings, a properly diversified team will enable the maintenance and enhancement of an EO through the identification of a steady flow of entrepreneurial opportunities, ability to evaluate the opportunities, and skills and knowledge to implement them successfully.

References

Amason, A. C. (1996). Distinguishing the effects of functional and dysfunctional conflict on strategic decision making: Resolving a paradox for top management teams. *Academy of Management Journal*, *39*(1), 123–148.

Anderson, B. S., Kreiser, P. M., Kuratko, D. F., Hornsby, J. S., & Eshima, Y. (2015). Reconceptualizing entrepreneurial orientation. *Strategic management journal*, *36*(10), 1579–1596.

Bantel, K. A., & Jackson, S. E. (1989). Top management and innovations in banking: Does the composition of the top management team make a difference? *Strategic Management Journal*, *10*(Special Issue), 107–124.

Barker, V. L., & Mueller, G. C. (2002). CEO characteristics and firm R&D spending. *Management Science*, *48*(6), 782–801.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173–1182.

Blau, P.M. (Ed.). (1977). *Inequality and heterogeneity*. New York: The Free Press.

Boeker, W. (1997a). Executive migration and strategic change: The effect of top manager movement on product market entry. *Administrative Science Quarterly*, *42*, 231–236.

Boeker, W. (1997b). Strategic change: The influence of managerial characteristics and organizational growth. *Academy of Management Journal*, *40*, 152–170.

Boerner, S., Linkohr, M., & Kiefer, S. (2011). Top management team diversity: Positive in the short run, but negative in the long run? *Team Performance Management*, *17*(7), 328–353.

Boling, J. R., Pieper, T. M., & Covin, J. G. (2016). CEO tenure and entrepreneurial orientation within family and nonfamily firms. *Entrepreneurship Theory and Practice*, *40*(4), 891–913.

Boone, C., Lokshin, B., Guenter, H., & Belderbos, R. (2019). Top management team nationality diversity, corporate entrepreneurship, and innovation in multinational firms. *Strategic Management Journal*, *40*(2), 277–302.

Bouncken, R. B. (2004). Cultural diversity in entrepreneurial teams: Findings of new ventures in Germany. *Creativity and Innovation Management*, *13*(4), 240–253.

Bouncken, R. B., Plüschke, B. D., Pesch, R., & Kraus, S. (2016). Entrepreneurial orientation in vertical alliances: Joint product innovation and learning from allies. *Review of Managerial Science*, *10*(2), 381–409.

Cai, L., Liu, Q., & Yu, X. (2013). Effects of top management team heterogeneous background and behavioural attributes on the performance of new ventures. *Systems Research and Behavioral Science*, *30*(3), 354–366.

Carpenter, M. A. (2002). The implications of strategy and social context for the relationship between top management team management heterogeneity and firm performance. *Strategic Management Journal*, *23*(3), 275–284.

Carpenter, M. A., & Fredrickson, J. W. (2001). Top management teams, global strategic posture, and the moderating role of uncertainty. *Academy of Management Journal*, *44*(3), 533–545.

Carpenter, M. A., Geletkanycz, M. A., & Sanders, W. G. (2004). Upper echelons research revisited: Antecedents, elements, and consequences of top management team composition. *Journal of Management*, *30*(6), 749–778.

https://doi.org/10.1017/jmo.2020.24 Published online by Cambridge University Press

Casillas, J. C., Moreno, M. A., & Barbero, J. L. (2010). A configurational approach of the relationship between entrepreneurial orientation and growth of family firms. *Family Business Review*, *23*(1), 27–44.
Certo, S. T., Lester, R. H., Dalton, C. M., & Dalton, D. R. (2006). Top management teams, strategy and financial performance: A meta-analytic examination. *Journal of Management Studies*, *43*(4), 813–839.
Chen, H. L., Hsu, W. T., & Huang, Y. S. (2010). Top management team characteristics, R&D investment and capital structure in the IT industry. *Small Business Economics*, *35*(3), 319–333.
Chen, W. H., Kang, M. P., & Butler, B. (2019). How does top management team composition matter for continual growth? Reinvestigating penrose's growth theory through the lens of upper echelons theory. *Management Decision*, *57*(1), 41–70.
Chi, N. W., Huang, Y. M., & Lin, S. C. (2009). A double-edged sword? Exploring the curvilinear relationship between organizational tenure diversity and team innovation: The moderating role of team-oriented HR practices. *Group & Organization Management*, *34*(6), 698–726.
Child, J. (1972). Organizational structure, environment and performance: The role of strategic choice. *Sociology*, *6*(1), 1–22.
Child, J. (1997). Strategic choice in the analysis of action, structure, organizations and environment: Retrospect and prospect. *Organization Studies*, *18*(1), 43.
Covin, J. G., Green, K. M., & Slevin, D. P. (2006). Strategic process effects on the entrepreneurial orientation-sales growth rate relationship. *Entrepreneurship Theory and Practice*, *30*(1), 57.
Covin, J. G., & Slevin, D. P. (1989). Strategic management of small firms in hostile and benign environments. *Strategic Management Journal*, *10*(1), 75–87.
Covin, J. G., & Slevin, D. P. (1991). A conceptual model of entrepreneurship as firm behavior. *Entrepreneurship Theory and Practice*, *16*, 7–25.
Covin, J. G., & Wales, W. J. (2012). The measurement of entrepreneurial orientation. *Entrepreneurship Theory and Practice*, *36*(4), 677–702.
Duriau, V. J., Reger, R. K., & Pfarrer, M. D. (2007). A content analysis of the content analysis literature in organization studies. *Organizational Research Methods*, *10*(1), 5–34.
Eisenhardt, K. M., Kahwajy, J. L., & Bourgeois, L. J. (1997). Conflict and strategic choice: How top management teams disagree. *California Management Review*, *39*(2), 42–62.
Finkelstein, S., & Hambrick, D. C. (1990). Top-management-team tenure and organizational outcomes: The moderating role of managerial discretion. *Administrative Science Quarterly*, *35*(3), 484–503.
Finkelstein, S., & Hambrick, D. C. (1996). *Strategic leadership: Top executives and their effects on organizations*. Minneapolis, MN: West Publishing Company.
Finkelstein, S., Cannella, S. F. B., Hambrick, D. C., & Cannella, A. A. (2009). Strategic leadership: Theory and research on executives, top management teams, and boards: Oxford University Press.
Gabarro, J. J. (1987). *Dynamics of taking charge*. Boston, MA: Harvard Business School Press.
George, B. A., & Marino, L. (2011). The epistemology of entrepreneurial orientation: Conceptual formation, modeling, and operationalization. *Entrepreneurship Theory and Practice*, *35*(5), 989–1024.
Haans, R. F., Pieters, C., & He, Z. L. (2016). Thinking about U: Theorizing and testing U-and inverted U-shaped relationships in strategy research. *Strategic Management Journal*, *37*(7), 1177–1195.
Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis*. New Jersey: Oearson Education, Inc.
Hambrick, D. C. (2007). Upper echelons theory: An update. *Academy of Management Review*, *32*(2), 334–343.
Hambrick, D. C., & Abrahamson, E. (1995). Assessing managerial discretion across industries: A multimethod approach. *Academy of Management Journal*, *38*(5), 1427–1441.
Hambrick, D. C., & Cannella, A. A. (2004). CEOs who have COOs: Contingency analysis of an explored structural form. *Strategic Management Journal*, *25*(10), 959–979.
Hambrick, D. C., Cho, T. S., & Chen, M. J. (1996). The influence of top management team heterogeneity on firms' competitive moves. *Administrative Science Quarterly*, *41*(4), 659–684.
Hambrick, D. C., & Fukutomi, G. D. (1991). The seasons of a CEO's tenure. *Academy of Management Review*, *16*(4), 719–742.
Hambrick, D. C., Humphrey, S. E., & Gupta, A. (2015). Structural interdependence within top management teams: A key moderator of upper echelons predictions. *Strategic Management Journal*, *36*(3), 449–461.
Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *The Academy of Management Review*, *9*(2), 193.
Hannan, M. T., & Freeman, J. (1984). Structural inertia and organizational change. *American Sociological Review*, *49*(2), 149–164.
Harms, R., Reschke, C. H., Kraus, S., & Fink, M. (2010). Antecedents of innovation and growth: Analysing the impact of entrepreneurial orientation and goal-oriented management. *International Journal of Technology Management*, *52*(1/2), 135–152.
Heavey, C., Simsek, Z., Roche, F., & Kelly, A. (2009). Decision comprehensiveness and corporate entrepreneurship: The moderating role of managerial uncertainty preferences and environmental dynamism. *Journal of Management Studies*, *46*(8), 1289–1314.
Henderson, A. D., & Fredrickson, J. W. (2001). Top management team coordination needs and the CEO pay gap: A competitive test of economic and behavioral views. *Academy of Management Journal*, *44*(1), 96–117.

https://doi.org/10.1017/jmo.2020.24 Published online by Cambridge University Press

Henderson, A. D., Miller, D., & Hambrick, D. C. (2006). How quickly do CEOs become obsolete? Industry dynamism, CEO tenure, and company performance. *Strategic Management Journal*, *27*(5), 447–460.
Heyden, M. M., Van Doorn, S., Reimer, M., Van Den Bosch, F. J., & Volberda, H. W. (2013). Perceived environmental dynamism, relative competitive performance, and top management team heterogeneity: Examining correlates of upper echelons' advice-seeking. *Organization Studies*, *34*(9), 1327–1356.
Jarzabkowski, P., & Searle, R. H. (2004). Harnessing diversity and collective action in the top management team. *Long Range Planning*, *37*(5), 399–419.
Jehn, K. A. (1995). A multimethod examination of the benefits and detriments of intragroup conflict. *Administrative Science Quarterly*, *40*(2), 256–282.
Jehn, K. A. (1997). A qualitative analysis of conflict types and dimensions in organizational groups. *Administrative Science Quarterly*, *42*(3), 530–557.
Jehn, K. A., & Mannix, E. A. (2001). The dynamic nature of conflict: A longitudinal study of intregroup conflict and group conflict and group performance. *Academy of Management Journal*, *44*(2), 238–251.
Jeong, S. H., & Harrison, D. A. (2017). Glass breaking, strategy making, and value creating: Meta-analytic outcomes of women as CEOs and TMT members. *Academy of Management Journal*, *60*(4), 1219–1252.
Katz, R. (1982). The effects of group longevity on project communication and performance. *Administrative Science Quarterly*, *27*(1), 81–104.
Kauer, D., zu Waldeck, T. C. P., & Schäffer, U. (2007). Effects of top management team characteristics on strategic decision making. *Management Decision*, *45*(6), 942–967.
Keck, S. L. (1997). Top management team structure: Differential effects by environmental context. *Organization Science*, *8*(2), 143–156.
Knapp, J. R., Dalziel, T., & Lewis, M. W. (2011). Governing top managers: Board control, social categorization, and their unintended influence on discretionary behaviors. *Corporate Governance: An International Review*, *19*(4), 295–310.
Knight, D., Pearce, C. L., Smith, K. G., Olian, J. D., Sims, H. P., Smith, K. A., & Flood, P. (1999). Top management team diversity, group process, and strategic consensus. *Strategic Management Journal*, *20*(5), 445.
Kor, Y. Y. (2003). Experience-based top management team competence and sustained growth. *Organization Science*, *14*(6), 707–719.
Kor, Y. Y. (2006). Direct and interaction effects of top management team and board compositions on R&D investment strategy. *Strategic Management Journal*, *27*(11), 1081–1099.
Kreiser, P. M., Marino, L. D., & Weaver, K. M. (2002). Assessing the psychometric properties of the entrepreneurial orientation scale: A multi-country analysis. *Entrepreneurship Theory and Practice*, *26*(4), 71–93.
Li, J., Wei, M., & Lin, B. (2016). Does top executives' US experience matter? Evidence from US-listed Chinese firms. *China Journal of Accounting Research*, *9*(4), 267–282.
Li, P. Y. (2017). The impact of the top management teams' knowledge and experience on strategic decisions and performance. *Journal of Management & Organization*, *23*(4), 504–523.
Ling, Y., & Kellermanns, F. W. (2010). The effects of family firm specific sources of TMT diversity: The moderating role of information exchange frequency. *Journal of Management Studies*, *47*(2), 322–344.
Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, *21*(1), 135–172.
Merton, R. K. (1968). *Social Theory and Social Structure*, 1st ed. (1949), Free press, New york.
Miles, M. P., Covin, J. G., & Heeley, M. B. (2000). The relationship between environmental dynamism and small firm structure, strategy, and performance. *Journal of Marketing Theory and Practice*, *8*(2), 63–78.
Miller, C., Burke, L. M., & Glick, W. H. (1998). Cognitive diversity among upper-echelon executives: Implications for strategic decision processes. *Strategic Management Journal*, *19*(1), 39.
Miller, D. (1983). The correlates of entrepreneurship in three types of firms. *Management Science*, *29*(7), 770–791.
Miller, D. (1991). Stale in the saddle: CEO tenure and the match between organization and environment. *Management Science*, *37*(1), 34–52.
Miller, D. (2011). Miller (1983) Revisited: A reflection on EO research and some suggestions for the future. *Entrepreneurship Theory and Practice*, *35*(5), 873–894.
Miller, D., & Friesen, P. H. (1984). A longitudinal study of the corporate life cycle. *Management Science*, *30*(10), 1161–1183.
Naranjo-Gil, D., Hartmann, F., & Maas, V. S. (2008). Top management team heterogeneity, strategic change and operational performance. *British Journal of Management*, *19*(3), 222–234.
Nielsen, S. (2009). Why do top management teams look the way they do? A multilevel exploration of the antecedents of TMT heterogeneity. *Strategic Organization*, *7*(3), 277–305.
Nielsen, S. (2010). Top management team diversity: A review of theories and methodologies. *International Journal of Management Reviews*, *12*(3), 301–316.
Nielsen, B. B., & Nielsen, S. (2013). Top management team nationality diversity and firm performance: A multilevel study. *Strategic Management Journal*, *34*(3), 373–382.

https://doi.org/10.1017/jmo.2020.24 Published online by Cambridge University Press

Olson, B. J., Parayitam, S., & Twigg, N. W. (2006). Mediating role of strategic choice between top management team diversity and firm performance: Upper echelons theory revisited. *Journal of Business & Management*, *12*(2), 111–126.
Papadakis, V. M., & Barwise, P. (2002). How much do CEOs and top managers matter in strategic decision-making? *British Journal of Management*, *13*(1), 83–95.
Pelled, L. H., Eisenhardt, K. M., & Xin, K. R. (1999). Exploring the black box: An analysis of work group diversity, conflict, and performance. *Administrative Science Quarterly*, *44*(1), 1–28.
Rauch, A., Wiklund, J., Lumpkin, G. T., & Frese, M. (2009). Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future. *Entrepreneurship Theory and Practice*, *33*(3), 761–787.
Richard, O. C., Barnett, T., Dwyer, S., & Chadwick, K. (2004). Cultural diversity in management, firm performance, and the moderating role of entrepreneurial orientation dimensions. *Academy of Management Journal*, *47*(2), 255–266.
Richard, O. C., Wu, P., & Chadwick, K. (2009). The impact of entrepreneurial orientation on firm performance: The role of CEO position tenure and industry tenure. *The International Journal of Human Resource Management*, *20*(5), 1078–1095.
Schweiger, D. M., Sandberg, W. R., & Ragan, J. W. (1986). Group approaches for improving strategic decision making: A comparative analysis of dialectical inquiry, devil's advocacy, and consensus. *Academy of Management Journal*, *29*(1), 51–71.
Sciascia, S., Mazzola, P., & Chirico, F. (2013). Generational involvement in the top management team of family firms: Exploring nonlinear effects on entrepreneurial orientation. *Entrepreneurship Theory and Practice*, *37*(1), 69–85.
Short, J. C., Broberg, J. C., Cogliser, C. C., & Brigham, K. H. (2010). Construct validation using computer-aided text analysis (CATA): An illustration using entrepreneurial orientation. *Organizational Research Methods*, *13*(2), 320–347.
Simons, T., Pelled, L. H., & Smith, K. A. (1999). Making use of difference: Diversity, debate, and decision comprehensiveness in top management teams. *Academy of Management Journal*, *42*(6), 662–673.
Simsek, Z., Heavey, C., & Veiga, J. J. F. (2010). The impact of CEO core self-evaluation on the firm's entrepreneurial orientation. *Strategic Management Journal*, *31*(1), 110–119.
Souder, D., Simsek, Z., & Johnson, S. G. (2012). The differing effects of agent and founder CEOs on the firm's market expansion. *Strategic Management Journal*, *33*(1), 23–41.
Talke, K., Salomo, S., & Kock, A. (2011). Top management team diversity and strategic innovation orientation: The relationship and consequences for innovativeness and performance. *Journal of Product Innovation Management*, *28*(6), 819–832.
Tanikawa, T., & Jung, Y. (2016). Top management team (TMT) tenure diversity and firm performance. *International Journal of Organizational Analysis*, *24*(3), 454–470.
Van Doorn, S., Heyden, M. L., & Volberda, H. W. (2017). Enhancing entrepreneurial orientation in dynamic environments: The interplay between top management team advice-seeking and absorptive capacity. *Long Range Planning*, *50*(2), 134–144.
Van Doorn, S., & Volberda, H. W. (2009). Entrepreneurial orientation and firm performance: The role of the senior team. *Academy of Management Proceedings*, *1*, 1–6.
Wiersema, M. F., & Bantel, K. A. (1992). Top management team demography and corporate strategic change. *Academy of Management Journal*, *35*(1), 91–121.
Williams, K. Y., & O'Reilly, C. A. (1998). Demography and diversity in organizations: A review of 40 years of research. *Research in Organizational Behavior*, *20*, 77.
Williams, R. J., Fadil, P. A., & Armstrong, R. W. (2005). Top management team tenure and corporate illegal activity: The moderating influence of board size. *Journal of Managerial Issues*, *17*(4), 479–493.
Wu, S., Levitas, E., & Priem, R. L. (2005). CEO Tenure and company invention under differing levels of technological dynamism. *Academy of Management Journal*, *48*(5), 859–873.
Xie, X. Y., Ji, H., Luan, K., & Zhao, Y. Z. (2018). The curvilinear relationship between team familiarity and team innovation: A secondary data analysis. *Journal of Management & Organization*, *26*(5), 1–19.
Yang, L., & Wang, D. (2014). The impacts of top management team characteristics on entrepreneurial strategic orientation. *Management Decision*, *52*(2), 378–409.
Zenger, T. R., & Lawrence, B. S. (1989). Organizational demography: The differential effects of age and tenure distributions on technical communication. *Academy of Management Journal*, *32*(2), 353–376.

J. Ruben Boling is an Associate Professor of Management and Entrepreneurship and Director of the Center for Entrepreneurship & Innovation in the Mike Cottrell College of Business at the University of North Georgia. Dr. Boling's research and teaching are focused on entrepreneurship and strategic management, primarily in the areas of top management teams, entrepreneurial orientation, and corporate innovation.

Mariangela Vecchiarini is an Assistant Professor of Management and Entrepreneurship in the Mike Cottrell College of Business at the University of North Georgia. She earned her Ph.D. in Entrepreneurship and Innovation from the Italian University Vanvitelli (Naples, Italy). Her research interests include entrepreneurial orientation, innovation, and family business.

Cite this article: Boling JR, Vecchiarini M (2024). Entrepreneurial orientation and the interaction of top management team background characteristics. *Journal of Management & Organization* **30**, 1–17. https://doi.org/10.1017/jmo.2020.24