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Ethical leadership and ambidexterity in young firms: examining the CEO-TMT Interface

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Abstract

To enrich the knowledge of the value of ethical leadership in a more entrepreneurial setting, we focus on technology-based young firms and theorize through the lens of CEO-TMT interface whether and how founder-CEOs' ethical leadership influences young firms' ambidexterity. We argue that founder-CEOs' ethical leadership can enhance young firms' ambidexterity in an indirect way, through promoting top management team (TMT) members' advice-seeking behavior and team satisfaction. Data from a multi-source and time-lagged survey of founder-CEOs and all TMT members in 81 Chinese technology-based young firms supported our predictions. We discuss the theoretical and practical implications of our study to the extant research.

Keywords Founder-CEO · Ethical leadership · Top management team · Ambidexterity · China

Introduction

Ethical leadership of business leaders is gaining increasing research attention in light of recent corporate scandals (e.g., Shin, 2012; Walumbwa and Schaubroeck, 2009). Yet,

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the understanding of ethical leadership's influence on firm-level outcomes has remained underdeveloped, mainly focusing on firms' financial performance (Eisenbeiss, van Knippenberg, and Fahrbach, 2015) and prosocial performance (e.g., corporate social responsibility, firm-level citizenship behaviors) (Pastoriza, Ariño, and Ricart, 2008; Shin, 2012; Shin et al., 2015; Wu et al., 2015). This oversight is particularly prominent in the entrepreneurship field as it is rare to see discussion about ethical leadership of founder-CEOs, who create and lead young firms, and its influence on the firms. This neglect might be rooted in a false view that young firms are still at start-up or expansion stages (Beckman and Burton, 2008; Hanks, Watson, Jansen, and Chandler, 1993) and too small to be ethically conscientious. In order to increase market share or revenue quickly, an "action bias" of CEOs of young firms may curtail them from fully considering ethical issues. However, young firm leaders' ethical leadership is imperative to study because evidence has suggested that long hours, stressful environments and financial strain all enhance ethical challenges of entrepreneurs (Hannafey, 2003). Investigating the influence of founder-CEOs' ethical leadership on firm-level outcomes would assist entrepreneurs to better understand the value of investing their efforts to develop and demonstrate such an essential aspect of leadership.

We intend to help addressing this void by examining whether and how ethical leadership of founder-CEOs affects young firms' ambidexterity, a dynamic orientation important for the firms' perseverance (Hormiga, Batista-Canino, and Sánchez-Medina, 2011; Lubatkind et al., 2006). Ambidexterity refers to a firm's orientation to simultaneously pursue exploitation (refinement of existing advantages) and exploration (search for new possibilities) with comparable dexterity (Lubatkin et al., 2006; Heavy and Simsek, 2017). Strategic management researchers have stressed that without such dexterity, a young firm may not be sufficiently able to navigate its changing difficulties in day-to-day operations and progress into more sustainable success (Atuahene-Gima and Li, 2004; Ling, López-Fernández, Serrano-Bedia, and Kellermans, 2020). Similarly, entrepreneurial marketing scholars have suggested that the agility to pivot in response to changing opportunities is beneficial for a young firm's image as it encourages investors' and public's confidence in the firm, especially if the firm is technology-based (Eggers, Hansen, and Davis, 2012; Hills, Hultman, and Miles, 2008).

Our conceptual model is built upon the notion of the interface between CEOs and their top management teams (TMTs) (i.e., CEO-TMT interface) in upper echelons literature (Ling, Simsek, Lubatkin, and Veiga, 2008a; Peterson, Smith, Martorana, and Owens, 2003; Zaccaro and Klimoski, 2002). This notion stresses that CEOs have a profound impact on firms through shaping TMT attitudes and behaviors, and these attitudes and behaviors shared among TMT members, in turn, can affect firm-level outcomes (Ou, Waldman, and Peterson, 2018). The CEO-TMT interface is even more salient in young firms because the less complex ownership and stakeholder structures afford CEOs substantial discretion and extensive interaction opportunities in affecting TMT members (Ling et al., 2008b).

Our core argument is that young firms led by ethical founder-CEOs have the potential to exhibit higher levels of ambidexterity. Consistent with others who have found the relationship between top leadership behavior and firm-level outcomes to be indirect through TMT-level characteristics (e.g., Hmieleski, Cole, & Baron, 2012; Ling et al., 2008a), we would not expect a direct relationship between founder-CEOs' ethical

leadership and young firms' ambidexterity. Rather, we argue that this influence is indirect, transmitted through TMT members' shared *behavior* of advice-seeking and *attitude* of team satisfaction.

Taking China—a major emerging economy where entrepreneurship activities become more and more prevalent (Grosse and Ling, 2015; Gupta et al., 2014)—as the focus, we test our model via a multi-sourced and time-lagged survey of founder-CEOs and all TMT members in 81 technology-based young firms that were less than 10 years old. Although our findings from China, a country characterized by Eastern culture and the institutional change from central planning to market competition (Wei and Ling, 2015), may not be equally applicable everywhere, this study contributes to the entrepreneurship literature by taking the lead in attending to founder-CEOs' ethical leadership, linking it to young firms' outcomes, and identifying the mechanism underlying the linkage. In doing so, we hope not only to advance the knowledge of ethical leadership's influences on firm-level outcomes in a more entrepreneurial setting but also to propose a venue through which technology-based young firms may be better able to attain ambidexterity—founder-CEOs' ethical leadership.

Theoretical background and hypotheses development

Ethical leadership and CEO-TMT interface

Ethical leadership is defined "as *the demonstration of normatively appropriate conduct through personal actions and interpersonal relationships, and the promotion of such conduct to followers through two-way communication, reinforcement, and decision-making"* (Brown et al., 2005, p.120). Social learning theory, which underpins the ethical leadership literature, emphasizes that leaders perceived to be ethical are attractive and credible role models (Brown et al., 2005) and, as such, ethical leaders can influence followers via modeling (Brown et al., 2005; Zhu et al., 2019). The limited literature about CEO ethical leadership has extended this argument to firm-level outcomes from the organizational climate or culture perspective, highlighting that the ethical culture cultivated by ethical CEOs can mediate the relationship between these CEOs' ethical leadership and firms' financial performance (e.g. Eisenbeiss, et al., 2015, Shin et al., 2015) and corporate social responsibility (Wu et al., 2015). Although these insights are meaningful, a specific examination of founder-CEO ethical leadership's influence on young firms' outcomes and the intervening mechanisms may be warranted, given that the ethical culture within young firms is often underdeveloped (Hannafey, 2003).

Research about young firms suggests that the CEO-TMT interface could be a potential platform that transforms founder-CEOs' ethical leadership into young firms' ambidexterity (Ling et al., 2008a). This notion stresses that CEOs, especially those creating and leading young firms, define their TMTs; therefore, they should have a profound impact on firms through shaping the collective attitudes and behaviors of TMT members, who are chiefly responsible for the strategic decision-making and ongoing operations of the firms (Klotz, Hmieleski, Bradley, and Busenitz, 2014, p. 227). The notion has been applied to explain various firm-level outcomes at young firms (e.g., Ling et al., 2008a; Ou, Waldman, and Peterson, 2018). Particularly, with

respect to ambidexterity, researchers have found that "information and knowledge processes underlying ambidexterity are likely to take place at the interactional interface between the CEO and other TMT members" (Cao, Simsek, and Zhang, 2010, p. 1273).

The notion of CEO-TMT interface also fits our research need because unlike other behaviors of leadership, such as transformational leadership, leader-member exchange, and empowering leadership in which significant variation occurs in followers' evaluations of their leaders, ethical leadership tends to be a group-oriented phenomenon (Den Hartog and DeHoogh, 2009) and is likely to produce stronger group-level effects. In other words, team members tend to share perceptions of their leaders' ethical behaviors and thus ethical leaders have higher potential to create shared attitudinal and behavioral norms among their direct team members (Avey, Wernsing, and Palanski, 2012). These shared TMT attitudes and behaviors, in turn, can affect firm-level outcomes. Accordingly, we focus our discussion on ethical leadership perceptions of founder-CEOs by TMT members, not founder-CEOs' specific ethical actions. Indeed, what is considered ethical varies across cultures and such moral norms within a society significantly influence individual behaviors (Kibler & Kautonen, 2016). Below we apply the notion of CEO-TMT interface to examine the process through which founder-CEOs' ethical leadership perceived by TMT members affects TMTs and, in turn, promotes young firms' ambidexterity.

Founder-CEOs' ethical leadership and TMT characteristics: The social learning perspective

From its original theorizing, ethical leadership has been framed as a process of social learning by which leaders transmit social cues (Brown et al., 2005). As social learning theory points out, leader behaviors, attitudes, and emotions are emulated and internalized by followers (Bandura, 1986). Observational learning occurs through both conscious and unconscious processes and in different types (Bandura, 1986). Most notably, behavioral modeling involves the direct observation and imitation. Followers may watch leaders and mimic their behaviors. Abstract modeling occurs as a person observes the behavior of the leader, learns the skill, and generalizes it beyond the immediate context. This modeling effect involves the internalization of the value of such behavior. For example, if a follower observes a leader asking questions to understand a client's needs, he or she may come to value and practice listening behaviors with clients and other team members. In general, modeling is facilitated through attention, retention, reproduction, and motivation. Over time, the process can create shared behaviors and attitudes within a group (Owens and Hekman, 2016).

Because founder-CEOs are the "definers" of young firms' TMTs and set an example of the team members they select, we expect behavioral and abstract modeling to occur to a great degree within the interface between founder-CEOs and the TMTs. In this context, the followers (i.e., TMT members) are likely to pay significant attention to and retain information about what the founder-CEO says and does, reproduce his or her behaviors and information, and are keenly motivated to act and think in similar ways. Given that team members tend to have consistent evaluations of their leaders' ethical leadership (Den Hartog and DeHoogh, 2009), we expect that founder-CEOs' behaviors and attitudes should be modeled and become shared within their TMTs. Specifically, we propose that founder-CEOs' ethical leadership is likely to influence TMT members'

shared behavior in the form of advice-seeking behavior and shared attitude in the form of team satisfaction.

Advice-Seeking Behavior in TMTs. Advice-seeking refers to "the formation of opinions, attitudes, and judgments through deliberate information exchange with other individuals" (Alexiev, Jansen, Van den Bosch and Volberda, 2010, p. 1346). This behavior is conceptualized as a valuable problem-solving (Heyden, van Doorn, Reimer, Van Den Bosch, and Volberda, 2013) and decision-making behavior (Alexiev, et al., 2010) in which information is sought as part of the decision-making process. Such information may be gathered from sources internal or external to the firm (Alexiev, et al., 2010). Members of TMTs are the key decision-makers in firms; therefore, it is important that they look to others for information and advice to enhance the accuracy of decisions, gain a broader perspective on opportunities and threats, and monitor environmental changes (Van Doorn, Heyden, and Volberda, 2017). Particularly, in young firms, open communication is essential within entrepreneurial processes and, particularly, the development of ambidexterity. Despite this, research on information and communication flow within TMT members at young firms is rather limited (Zur & Walega, 2015).

Founder-CEOs' ethical leadership is likely to promote advice-seeking behavior in TMTs because communicating openly and valuing others' voice represents a signature demonstration of ethical leadership (Walumbwa, Morrison, and Christensen, 2012). Indeed, from the moral development perspective, more advanced moral reasoning stems from a consideration of multiple perspectives and values, and a consideration of others in their decision-making (Treviño, 1992). Given this, it is not surprising that ethical leaders, who use more advanced moral reasoning, emphasize the importance of two-way communication during which they are not only expressing their own opinions but also welcoming others' thoughts (Brown et al., 2005).

Social learning theory suggests that the two-way communication behaviors of ethical leaders can "trickle down" to their direct followers (Brown et al., 2005; Mayer et al., 2009), inspiring those who witness the behaviors to imitate and address their work and approach people in a similar manner (Kaptein, Huberts, Avelino, and Lasthuizen, 2005). Further, through abstract modeling (Bandura, 1999), followers may internalize higher order principles, such as the value of advice-seeking, implied in leaders' deliberate information exchange behaviors, and come to value and practice similar behaviors in the interaction with others. All this suggests that TMT members enlisted and continually led by founder-CEOs with greater levels of ethical leadership are more likely to emulate and internalize advice seeking behaviors than their counterparts, thus creating a unified set of such practices in their work of interacting with people both within (e.g., their own subordinates) and outside of the firm (e.g., managers of other companies, clients, suppliers) (Owens and Hekman, 2016). Hence:

- *Hypothesis 1. Founder-CEOs' ethical leadership will be positively associated with TMTs' advice-seeking behavior.*

TMT satisfaction In addition to modeling specific behaviors (e.g. advice-seeking), social learning shapes team members' attitudes as it provides a sense of belonging, cohesion, and satisfaction (Avey et al., 2012). Specifically, social learning theory

suggests that the positive interpersonal behavior of ethical leaders can influence thoughts and attitudes, such as satisfaction with the team. Team satisfaction is considered an "essential aspect of team effectiveness" (Gevers and Peeters, 2009, p. 380) and like other workplace attitudes, satisfaction is rooted in both cognition and affect (Weiss, 2002). With respect to cognition, ethical leaders are likely to influence team members' satisfaction through the modeling of caring behaviors (Bandura, 1999). By definition, ethical leaders demonstrate social responsiveness and caring by communicating to followers that their needs are of the leader's concern (Mayer et al., 2012). Brown and Treviño (2006) suggest that such caring treatment can cultivate followers' satisfaction through their direct observation and personal experience, which promotes the perception of leaders' trustworthiness and psychological bond to the team. This argument has been supported by the evidence that team members of ethical leaders experience less relationship conflict (Mayer et al., 2012).

Additionally, ethical leadership may influence team satisfaction through a more affective pathway. Leadership has been described as "an emotion-laden process" (George, 2000, p. 1046) in which leaders use emotions to demonstrate an appreciation of work contributions, motivate and garner enthusiasm, manage and implement change, and establish a meaningful collective identity. Ethical leaders, in particular, foster positive emotions (Brown and Mitchell, 2010). Studies show that CEO ethical leadership is positively related to TMT members' optimism and perceived team effectiveness, which promotes team-member liking (De Hoogh and Den Hartog, 2008). Applying these considerations to TMTs in young firms, we expect that founder-CEOs' ethical leadership should promote satisfaction shared among TMT members, especially given that their founder status and the firm's simple structure grant them additional discretion and opportunities to demonstrate their virtuous interpersonal behaviors and thus affect team members' perception of the team. Taken together, we suggest:

- *Hypothesis 2. Founder-CEOs' ethical leadership will be positively associated with TMT satisfaction.*

Linking TMT characteristics to ambidexterity

In uncertain environments, such as those that technology-based young firms face, it is risky to focus exclusively on exploration or exploitation (Simsek, 2009); the former is crucial for the avoidance of rapid obsolescence of products and services and the latter is indispensable in ensuring operational efficiency and a more stable stream of cash flow (Jansen, George, Van den Bosch, and Volberda, 2008). Yet, exploration and exploitation involve contradictory knowledge processes (Floyd and Lane, 2000). Exploration entails externalizing and combining tacit knowledge bases, through which the firm both drives and responds to potential environmental trends by creating novel technologies and new markets. Conversely, exploitation entails the use of explicit knowledge bases so that existing technology can be refined, and the needs of existing customers can be better satisfied (Lubatkin, et al., 2006). Given the conflicts associated with these pulls (Levinthal and March, 1993; March, 1991), executives are tempted to attend to one rather than both, leading to an imbalance between exploration and exploitation (Cao

et al., 2010). Thus, researchers have stressed the importance for top executives to consider rich and diverse information to avoid this managerial myopia, which in turn helps facilitate ambidexterity (Smith and Tushman, 2005; Tushman and O'Reilly, 1997). This is particularly true for young firms. Because of newness and small size, these firms lack the large amount of resource and the dual organizational structure that large firms possess to cope with the contradictory knowledge process, and consequently, "they have to rely more on their executive process to attain ambidexterity" (Cao et al., 2010, p. 1273).

We posit that TMTs high in advice-seeking behaviors are better able to lead the firm to alleviate the contradictory knowledge process associated with ambidexterity (Alexiev et al., 2010). The main value of advice-seeking is to exchange task-related information that enhances the prospect of accurate judgment and decision-making (Bonaccio and Dalal, 2006; McDonald and Westphal, 2003). Advice sought from outside of the firm, such as suppliers, customers, and managers of other companies can provide tacit knowledge to top executives to stay alert on environmental changes. Advice sought from inside, such as lower-level employees who possess critical operational information, can help top executives to accumulate explicit knowledge and monitor internal issues. We expect that TMTs with greater advice-seeking behaviors would have more access to the useful and timely information about the firm's internal and external environments, and therefore attain a more thorough knowledge of the firm's exploratory and exploitative options than their counterparts engaging in less advice-seeking behavior.

In addition to a more thorough knowledge base, advice-seeking behaviors may also improve the novelty of knowledge and help to remove biases. Internal and external advisers often offer alternative ideas that have not been considered (Alexiev, et al., 2010; McDonald, Khanna, and Westphal, 2008). As such, the more actively TMT members seek advice, the more they may find opportunities for obtaining and assimilating knowledge not yet completely known by the team members (Menon and Pfeffer, 2003). The exposure to fresh ideas might particularly help the team members to counterbalance a tendency to exploit the firm's current products and markets. As such, exploratory ideas are more likely to be taken into consideration and the biases that potentially impede ambidexterity would be alleviated. Hence,

- *Hypothesis 3. TMTs' advice-seeking behavior will be positively associated with young firms' ambidexterity.*

Prior studies suggest that TMTs' satisfaction could be conducive to ambidexterity because it provides a safe environment for the team members to collectively manage the contradictory knowledge processes between exploration and exploitation (Simsek, 2009). As Tushman and O'Reilly (1996) stress, ambidexterity occurs when aspirations are shared, and an ambidextrous executive team coalesces. Burgelman (2002) elaborates these complicated managerial integration processes and emphasizes the need for "strategic debate" in which executives encourage dissenters to challenge their points. Members satisfied with their teams have been found to perceive more mutual support (Rozell and Scroggins, 2010) and feel more open to voicing concerns and ideas (Costa, 2003). Based on this, we reason that at young firms, TMTs high in team satisfaction would act as a forum that serves to dissipate team members' reluctance to sharing

knowledge so that the team will be better able to leverage a diverse set of insights from its members—each a repository of knowledge based on day-to-day work of addressing different external and internal issues. Essentially, the synchronization among satisfied team members should enhance the "opportunity for feedback and error correction and... synthesis of different points of view" (Tushman and Nadler, 1978, p. 618), so that exploratory and exploitative opportunities are better leveraged, driving the firm more towards ambidexterity.

Absent mutual satisfaction, TMT members may be more hesitant to share knowledge and debate and have a stronger tendency to address dissonances they encounter by focusing on "their own piece of the enterprise" (Hambrick, 1998, p. 123). At an extreme, discussion of strategic issues could be limited to bilateral exchange coupled with distilled and infrequent communication (Hambrick, Li, Xin, and Tsui, 2001). In this case, the teams will distract more attention to team maintenance, thereby reducing the firm's flexibility in achieving ambidexterity. Similar to this reasoning, Lubatkin et al., (2006) observed that small businesses led by TMTs with higher levels of behavioral integration are more ambidextrously orientated. Therefore:

- *Hypothesis 4. TMTs' satisfaction will be positively associated with young firms' ambidexterity.*

By integrating the prior hypotheses of the direct effects among constructs, we propose that shared advice-seeking behaviors and team satisfaction among TMT members would mediate the relationship between founder-CEOs' ethical leadership and young firms' ambidexterity.

- *Hypothesis 5. TMTs' advice-seeking behavior will mediate the indirect association between founder-CEOs' ethical leadership and young firms' ambidexterity.*
- *Hypothesis 6. TMTs' satisfaction will mediate the indirect association between founder-CEOs' ethical leadership and young firms' ambidexterity.*

Method

Sample and data collection

We collected data from TMTs of technology-based young firms in China. We limited firm age to less than ten years—as typical for research on young firms (e.g., Beckman, 2006; Nuscheler, Engelena, and Zahra, 2019). We eliminated very small firms in which founder-CEOs likely acted as sole founders rather than TMT leaders (Beckman and Burton, 2008), including sampled firms that had ten employees or more. Our data showed that in China young firms reaching this size typically have been in business for at least three years. Firm age in our sample thus ranged between three and ten. All the firms were privately held.

Data was collected from TMTs in four major cities in China (Beijing, Shanghai, Guangzhou, and Chengdu) locating in northern, eastern, southern, and western regions respectively. Based on the data registered at Science Park Administrative Bureau in each city, we identified a pool of technology-based young firms that met the age and

size criteria and in which CEOs were one of the founders and had acted as the CEO of the TMT since firm inception. A random number generator was then used to select 800 firms. The firms were contacted by phone, and 450 firms expressed interest to participate in the survey. Ten trained research assistants were assigned to visit the founder-CEOs of these firms, explain the research, and assure the participants of the confidentiality of their responses. To ensure that the firms matched our research interest, the research assistants explained the definition of TMTs and asked the founder-CEO to confirm that he or she worked actively with such a team rather than as the sole founder. The founder-CEOs were then asked to identify all the other members in the TMT.

The surveys were collected on-site and both the founder-CEOs and other TMT members consented to participate in the survey. Ethical leadership was evaluated by non-CEO TMT members only. Other than ethical leadership, the questions for the founder-CEOs and other TMT members were the same. Since the measurement items were originally developed in English, a commonly utilized back translation procedure was applied to ensure that the translation was accurate and the questions' meaning was not altered (Brislin, 1980). The construct items and the Cronbach's alphas of major constructs are listed in the Appendix.

Attaining full participation from busy top executives is very challenging. We successfully obtained surveys without any incomplete items from the founder-CEOs and all TMT members in 152 firms. Approximately one year later, we sent a follow-up survey about ambidexterity. We did so based on Podsakoff, MacKenzie, Lee, and Podsakoffs' (2003) recommendation that the length of the time lag should correspond to the process under examination. We considered a one-year lag to be reasonably long enough to reflect more fully the impact of a founder-CEO's ethical leadership, and reasonably short enough to avoid the intervention of other contaminating factors and the loss of sampling firms. Also, using such a time-lag design when collecting data from the same source, whereby information is first gathered on independent variables and mediators and then on dependent variable, can assist to minimize common method variance (Podsakoff et al., 2003). Seven firms with incomplete follow-up questionnaires were dropped. To maximize the rigor of the ambidexterity measure, we further screened the sample by focusing on firms in which follow-up questionnaires were obtained from at least two TMT members, one of whom was the founder-CEO. Sixty-four firms were excluded. We stressed founder-CEOs' participation because they are knowledgeable regarding their firms' activities (Dess and Davis, 1984; Robinson and Pearce, 1988). We also insisted on the participation of at least one other TMT member because the multiple-respondent approach reduces single source biases and yields a more rigorous estimate (Podsakoff et al., 2003).

These stringent criteria led to a final sample of all members in 81 TMTs, including 81 founder-CEOs and 171 other team members, representing 18.4% of the 450 firms surveyed or 10.4% of the 800 firms in the original sampling frame. This response rate was comparable with "the 10.12% rate typical for studies which target executives in upper echelons" (Geletkanycz, 1997, p. 622; Cruz et al., 2010). We tested for potential non-response bias with a widely used procedure suggested by Armstrong and Overton (1977). We compared early-returned and late-returned questionnaires on a number of variables. The results indicated that early-responding (41 firms) and late-responding (40 firms) firms were similar across team size, firm age, firm size, and industries. An

ANOVA test suggested no significant mean differences between the two groups, implying that non-response bias was minimal (Combs and Ketchen, 1999).

Measures

Ambidexterity (T2) We gathered time-lagged assessments on ambidexterity one year after collecting information on the other variables in the model. We used He and Wong's (2004) eight-item measure, which was also used by recent studies (e.g. Lubatkin et al., 2006). These items were designed to measure how firms divide attention and resources between innovation activities with explorative versus exploitative objectives (He and Wong, 2004). Following prior studies, we asked the respondents to rate the importance of eight objectives to their firms over the last year. The first four objectives pertain to exploration (introducing a new generation of products, extending the product range, opening new markets, and entering new technology fields) and the last four are about exploitation (improving existing product quality, improving production flexibility, reducing production cost, and enhancing existing markets). Responses were given on a five-point scale (1 = not at all important, 5 = highly important).

Different methods have been used to combine exploration and exploitation to measure ambidexterity, including multiplying the two (Gibson and Birkinshaw, 2004; He and Wong, 2004), calculating the difference between the two (He and Wong, 2004), and taking the average (Cao et al., 2010; Lubatkin et al., 2006). Lubatkin et al.,'s (2006) comparison of the different combinations suggests that empirically taking the average causes the least information loss. We thus measured ambidexterity based on the mean of all eight items. We utilized an inter-rater reliability coefficient to examine the intragroup reliability (r_{wg}) of responses (James, Demaree, and Wolf, 1993). R_{wg} greater than or equal to 0.70 indicates good agreement within a group (George and Bettenhausen, 1990). Statistical checks indicated a high inter-rater agreement between the founder-CEO and the other respondent(s) within each firm (average $r_{wg} = 0.93$). We also checked ICC(1) and ICC(2). Their values were 0.30 and 0.62 respectively, all higher than the thresholds recommended in the literature (i.e., 0.12 for ICC[1] and 0.60 for ICC[2]) (James, 1982). We, therefore, averaged their scores. Cronbach's alpha value was 0.85.

Founder-CEOs' ethical leadership (T1) This variable was rated by all TMT members other than the founder-CEO, using a ten-item scale developed and validated by Brown, Treviño, and Harrison (2005). Team members were asked to rate the extent to which they agreed with statements (1 = strongly disagree, 7 = strongly agree). For this scale, the average intragroup reliability (r_{wg}) was 0.96, with ICC(1) and ICC(2) values of 0.41 and 0.66, respectively. We took the mean of team members' scores within each firm. The reliability of the measure was 0.95.

Advice-seeking behavior in TMTs (T1) Following previous studies (e.g., Alexiev et al., 2010), we adopted a team-level scale that assesses the extent of advice-seeking behavior. All TMT members, including the founder-CEO, were asked to rate (1 = strongly disagree, 5 = strongly agree). We repeated the questions twice, first about advice sought from outside of the firm (*external advice-seeking*), and second about

advice sought from within the firm (*internal advice-seeking*). The average inter-rater reliability coefficient (r_{wg}) was .91, with ICC(1) being 0.45 and ICC(2) being 0.73. Adequate reliability of the scale was achieved ($\alpha = 0.84$).

TMT satisfaction (T1) This measure was assessed by all TMT members, including the founder-CEO. The scale was developed and validated by Hackman (1988) and has been adopted by other studies (e.g., Foo, Sin, and Yiong, 2006). Team members were asked to rate the extent to which they agreed with the statements (1 = strongly disagree, 5 = strongly agree). The average intragroup reliability (r_{wg}) was 0.82, with ICC(1) = 0.57, ICC(2) = 0.82. Thus, team members' scores within each firm were averaged. The reliability of the measure was 0.75.

Control variables To decrease the variance caused by factors unrelated to the research question, we controlled for TMT size. The teams averaged 3.11 members, ranging from 3 to 4, a typical size in young firms (Beckman and Burton, 2008; Beckman et al., 2007). We controlled for firm age as this has been linked to firm outcomes (Carmeli, Schaubroeck, and Tishler, 2011; Hannan and Freeman, 1989). The firms averaged 7.42 years. Likewise, we controlled firm size (the number of employees as reported by the founder-CEO). The average was 62 employees. We controlled for industry type because it has been linked to a firm's motivation to adapt to changing conditions (Lubatkin et al., 2006). The firms were categorized into computer software, electronics, advanced materials, and others (e.g., telecommunication, biotech, automation, semi-conductor, medical devices). They were dummy-coded with "others" as the reference.

Analyses and results

Examining measurement model fit and addressing common method variance Confirmatory factor analyses (CFA) with various model structures were compared to the four-factor measurement model, which included ethical leadership, advice-seeking behavior, team satisfaction, and ambidexterity. Results showed that the four-factor measurement model, in which external advice-seeking and internal advice-seeking were treated as latent factors of a second order construct of advice-seeking behavior, had the best fit [χ^2 (d.f. = 236) = 328.62, $p < .001$, CFI = .93, IFI = .94, TLI = .92, and RMSEA = .06]. Further, all items loaded significantly on the predicted latent factors ($p < .01$), verifying convergent validity. This model was superior to the one-factor, two-factor, and three-factor models. It was also superior to a five-factor model in which external advice-seeking and internal advice-seeking were treated as independent constructs [$\chi 2$ (d.f. = 237) = 345.37, $p < .001$, CFI = .91, IFI = .90, TLI = .89, and RMSEA = .08].

Although our time-lagged data collection procedure helped to minimize common method variance (Podsakoff et al., 2003), to ensure rigor we performed Harman's single factor test to look for additional traces of common method bias. The first factor only explained 21.2% of the variance, far below the 50% threshold (Podsakoff, et al., 2003). This suggested that common method variance was not likely to bias our data. We also checked bivariate correlations by only using one team member's (who did not assess ambidexterity) measure of founder-CEO's ethical leadership, excluding founder-

CEO from the assessments of advice-seeking behaviors and team satisfaction, and only using the measure of ambidexterity from the founder-CEO. The measures were significantly correlated with the assessments based on the full sample (ethical leadership correlation = .94; advice-seeking correlation = .93; team satisfaction correlation = .89; and ambidexterity correlation = .92). Using these alternative measures yielded results similar to our full sample. To maintain empirical rigor, the results presented below are based on the full sample.

Descriptive statistics, correlations, and bootstrapping regression analysis results Table 1 summarizes means, standard deviations, and correlations among all variables. No inter-factor correlation is above the recommended level of .65 (Tabachnick and Fidell, 2012). We used bootstrapping regression with PROCESS version 3.1 (Hayes, 2018) to test hypotheses. This approach helps to address small sample concerns and avoid power issues caused by asymmetric and other non-normal distributions of indirect effects (MacKinnon et al., 2004; Preacher, Rucker and Hayes, 2007). Specifically, we utilized PROCESS Model 4. The results show that, as proposed, founder-CEOs' ethical leadership operates through an indirect effect on firms' ambidexterity. The results in the upper half of Table 2 indicate that founder-CEOs' ethical leadership did not have a direct influence on ambidexterity as the 95% bias-corrected bootstrap confidence interval contained zero (bootstrap coefficient = −.13, SE = .07, 95% CI = [−.27, .01]). However, ethical leadership had significant effect (R^2 = .27) on teams' advice-seeking behaviors (bootstrap coefficient = .26, SE = .07, 95% CI = [.13, .39]). It also had significant effect (R^2 = .47) on TMT satisfaction (bootstrap coefficient = .57, SE = .07, 95% CI = [.42, .71]). This supported H1 and H2 regarding ethical leadership's influence on the two characteristics of TMTs. In addition, TMTs' advice-seeking behavior (bootstrap coefficient = .27, SE = .09, 95% CI = [.09, .45]) and satisfaction (bootstrap coefficient = .19, SE = .08, 95% CI = [.03, .35]) had significant effect on ambidexterity, supporting H3 and H4. In total, the two team variables along with ethical leadership explained 31% of the variance in ambidexterity (R^2 = .31).

The results in the lower half of Table 2 further indicate that the indirect effects of founder-CEOs' ethical leadership on ambidexterity through advice-seeking behavior (bootstrap coefficient = .07, SE = .03, 95% CI = [.02, .14]) and team satisfaction (bootstrap coefficient = .11, SE = .04, 95% CI = [.02, .19]) were both positive and statistically different from zero, as evidenced by 95% bias-corrected bootstrap confidence intervals that were entirely above zero. In addition, the total indirect effect of ethical leadership on ambidexterity was significant (bootstrap coefficient = .18, SE = .05, 95% CI = [.08, .27]). Figure 1 summarizes our findings.

Although traditionally a significant direct effect between independent and outcome variables must be established as a starting point for mediation as an "effect to be mediated," more contemporary thinking using more sophisticated modeling (Preacher et al., 2007) confirmed that it is not necessary, rather, only the significance of the indirect effect should be considered (Zhao, Lynch, and Chen, 2010). As Aguinis et al. (2017, p. 676) concluded, "Although this test was included in the original presentation of the causal-steps procedure (Baron and Kenny, 1986), subsequent revisions indicated that it is not required (Kenny et al., 1998)". This view has been increasingly adopted in the practice of developing and testing mediation relationships. Based on this

Table 1 Means, standard deviations, and correlations

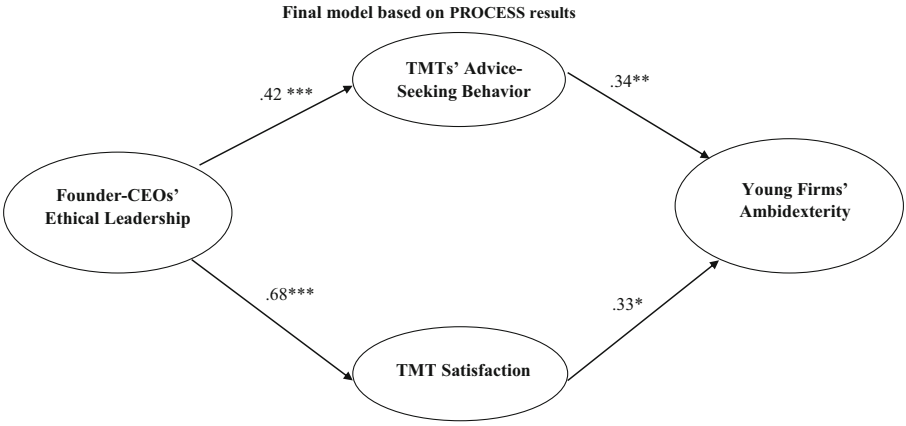
		Mean	s.d.	α	1	2	3	4	5	6	7	8	9
1	TMT size	3.11	.31										
2	Firm size	62.07	74.87		−.14								
3	Firm age	7.42	1.95		−.16	.23*							
4	Software industry	.27	.44		−.03	.01	−.03						
5	Electronics industry	.28	.45		−.13	.02	.07	−.37***					
6	Material industry	.14	.35		.08	.03	−.13	−.25*	−.26*				
7	Ethical leadership	5.29	.80	.95	.11	.03	.18	−.19	.03	.06			
8	TMT satisfaction	3.88	.67	.75	−.10	.03	.15	−.07	.11	−.02	.59***		
9	Advice-seeking	3.55	.50	.84	.10	.10	.11	−.12	−.15	.16	.45***	.28**	
10	Ambidexterity	4.05	.40	.85	.08	.30**	.03	.04	−.13	.16	.09	.20	.31**

Notes: $N = 81$; α represents reliability coefficients when available; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 2 PROCESS results

	Paths									Indirect Effects		
	To Team Satisfaction (R^2 = .47)			To Advice-Seeking (R^2 = .27)			To Ambidexterity (R^2 = .31)					
	B	SE	95% bootstrap CI	B	SE	95% bootstrap CI	B	SE	95% bootstrap CI	B	SE	95% bootstrap CI
Ethical Leadership	.57	.07	(.42, .71)	.26	.07	(.13, .39)	−.13	.07	(−.27, .01)			
Advice-Seeking							.27	.09	(.09, .45)			
TMT Satisfaction							.19	.08	(.03, .35)			
Ethical Leadership → Advice-Seeking → Ambidexterity										.07	.03	(.02, .14)
Ethical Leadership → Team Satisfaction → Ambidexterity										.11	.04	(.02, .19)

N = 81. Unstandardized regression coefficients are reported. Bootstrap sample size = 5000. CI = confidence interval



Note: Standardized parameter estimates. N = 81. ***p<0.001; **p<0.01; *p<0.05

Fig. 1 Final model based on PROCESS results. Note: Standardized parameter estimates. N = 81. ***p < 0.001; **p < 0.01; *p < 0.05.

advancement in methodology literature, we conclude that our results supported an "indirect-only mediation" (Zhao, Lynch, and Chen, 2010). In other words, H5 and H6 which proposed TMT characteristics' mediation roles were supported.

Robustness tests To gain more insight, we performed a series of additional analyses. First, we tested the model with maximum likelihood structural equation modeling (SEM) in AMOS, contrasting between nested structural models to produce a better fitting model that accounts for the covariances between latent constructs (Bollen, 1989; Joreskog, 1993). The first nested model is the covariates model (Model 1 in Table 3), which specified the influences of all covariates on three endogenous constructs. Model 2 specified the effects of advice-seeking and team satisfaction on ambidexterity after accounting for the effects of covariates and ethical leadership. Supporting H3 and H4, advice-seeking (.35, p < .05) and team satisfaction (.32, p < .05) were both associated with ambidexterity. Model 3 added the effects of ethical leadership on advice-seeking and team satisfaction, without linking ethical leadership directly to ambidexterity. Supporting H1 and H2, ethical leadership was associated with advice-seeking (.41, p < .001) and team satisfaction (.62, p < .001). Model 4 added the path from ethical leadership to ambidexterity. Model 4 [χ^2(d.f. = 379) = 486.31, CFI = .93, IFI = .93, TLI = .91, and RMSEA = .06] was similar to Model 3 [χ^2(d.f. = 380) = 489.52, CFI = .93, IFI = .93, TLI = .92, and RMSEA = .06]. Using a two-tailed test, the χ^2 difference (1) of 3.21 between the models was not statistically significant. This suggests that ethical leadership does not have a significant direct influence on ambidexterity.

Second, to facilitate a more comprehensive assessment, we tested the model with another measure of ambidexterity—the multiplication of exploration and exploitation (Gibson and Birkinshaw, 2004; He and Wong, 2004). The findings were consistent with those in the main analysis. Third, we explored team satisfaction's moderating role because some upper echelons researchers consider the mutual satisfaction between TMT members so important that other TMT characteristics act only in proportion to the

Table 3 SEM results: Summary of fit indices for contrasts based on the hypothesized model

Model	df	χ^2	CFI	IFI	TLI	RMSEA	Comparison	$\Delta\chi^2$	Δdf
Model 1: Covariates only	384	598.38***	.86	.87	.83	.08			
Covariates plus:									
Model 2: EL to AM (controlled); advice-seeking and TMT satisfaction to AM	381	580.30***	.87	.87	.84	.08	Model 2 vs. 1	18.08***	3
Model 3 (Full Mediation): EL to advice-seeking and TMT satisfaction; advice-seeking and TMT satisfaction to AM	380	489.52***	.93	.93	.92	.06	Model 3 vs. 2	90.78***	1
Model 4 (Partial Mediation): EL to AM (controlled); EL to advice-seeking and TMT satisfaction; advice-seeking and TMT satisfaction to AM	379	486.31***	.93	.93	.91	.06	Model 4 vs. 3	3.21	1

Note: N = 81. ***$p < .001$, ** $p < .01$, *$p < .05$

Variable names are abbreviated in the table as follows: EL = ethical leadership, AM = ambidexterity. Covariates include team size, firm size, firm age, and industry type

degree that positive attitude among TMT members exists (Hambrick, 2005). Absent clear theoretical and empirical support, we did not hypothesize such relationships, but we tested them with hierarchical regression. The results showed that team satisfaction did not interact with team advice-seeking behavior to affect ambidexterity ($B = .08$, $SE = .05$, $p = .14$). Team satisfaction did not significantly moderate the relationship between ethical leadership and team advice-seeking behavior either ($B = .10$, $SE = .08$, $p = .11$).

Third, to address potential endogeneity concern, we re-evaluated the hypothesized relationships using two-stage least squares (2SLS) regressions with instrumental variables. This robustness test was conducted because "Despite their strengths, longitudinal designs do not rule out the possibility of omitted variables that can account for the relations involved in mediated models…, which is a relevant source of endogeneity" (Aguinis et al., 2017, pp. 677). Since no standard practice of combining 2SLS with mediation analyses is available yet, we chose to follow scholars' suggestions (e.g., Antonakis et al., 2010; Stock et al., 2002) to apply 2SLS regression with instrumental variables to two parts of our model (from the independent variable to the mediators, and from the mediators to the dependent variable). We chose three stable variables to be the instrumental variables. We first identified whether the firm is a family firm (self-reported by the founder-CEO) as an instrumental variable, which predicts our independent variable (i.e., CEO's ethical leadership) but does not predict our mediators (i.e., advice-seeking behavior and team satisfaction). In the regression with the predicted ethical leadership resulted from the first stage analysis as the independent variable, the

coefficient estimate of ethical leadership was positive and statistically significant for both advice-seeking behavior ($B = .28$, $SE = .13$, $p < .05$) and team satisfaction ($B = .67$, $SE = .15$, $p < .001$). We then identified TMT members' average age as an instrumental variable for advice seeking behavior and the number of family members in the TMT as an instrumental variable for team satisfaction. In the regression with the predicted advice-seeking behavior and team satisfaction resulted from the first stage analysis, the coefficient estimates of advice-seeking behavior ($B = .91$, $SE = .40$, $p < .05$) and team satisfaction ($B = .30$, $SE = .15$, $p < .05$) were both positive and statistically significant for ambidexterity. All this lends additional support to the findings of our main tests.

Discussion

To better understand the value of ethical leadership in a more entrepreneurial setting, this study examined whether and how founder-CEOs' ethical leadership influences young firms' ambidexterity. Integrating social learning theory underlying ethical leadership literature (Bandura, 1986) with the CEO-TMT interface noted in upper echelons literature (Klotz et al., 2014), we hypothesized that founder-CEOs' ethical leadership indirectly promotes young firms' ambidexterity through affecting TMT members' collective behavior (advice-seeking behavior) and attitude (team satisfaction). Data from a multi-source and time-lagged survey of founder-CEOs and TMT members in 81 Chinese technology-based young firms supported our full model.

Contributions to theory

Despite some progress in studying the influence of CEO ethical leadership, whether and how this leadership style brings value to young firms is largely under-explored. Indeed, although entrepreneurship scholars have expanded the research of various leadership styles (e.g., transformational, empowering leadership) to the CEOs of small or young firms (e.g., Ling et al., 2008a; Ling, Wei, Klimoski & Wu, 2015), ethical leadership has largely been neglected, causing an insufficient understanding of this increasingly important aspect of business leaders. The current study demonstrates the potential in introducing ethical leadership literature into the entrepreneurship field to improve our knowledge of how young firms can be managed more successfully. The indirect link we found between ethical leadership and ambidexterity, a rarely studied firm-level outcome important for young firms' perseverance, suggests that founder-CEOs' efforts to act as ethical leaders do matter and have value.

Our study also supplements the ethical leadership literature by suggesting a mechanism that transmits ethical CEOs' influence on firm-level outcomes. Different from the organizational climate or culture perspective often used to identify the mediators of ethical leadership in large organizations, we draw on the CEO-TMT interface to conceptualize the mediation process. We found that TMT members' collective behavior (advice-seeking behavior) and attitude (team satisfaction) bridge the ethical leadership-ambidexterity link. Extending this line of research, future research may examine, for example, whether founder-CEOs' ethical leadership affects TMT characteristics (e.g., TMT members' collective goals for the firm) which, in turn, influences young firms'

ability to successfully complete an initial public offering. It would also be interesting to explore if founder-CEOs' ethical leadership influences the decision-making quality and speed of TMTs and, consequently, influences young firms' speed of market growth.

Our findings also add evidence to social learning theory, which serves as the backbone of ethical leadership (Brown et al., 2005) and emphasizes the modeling process. Our results demonstrate that the ethical leadership of founder-CEOs affects TMT members' shared behaviors and attitudes, which, in turn, affect young firms' ambidexterity. Unlike the study of Avey et al., (2012) which focused on individual-level indicators of social learning, our study examined team-level characteristics that better reflect shared social learning effect and demonstrate its power.

Our model and findings also advance the understanding of ambidexterity. Although ambidexterity has been explained from different perspectives (e.g., organizational structure, context), how young firms can better pursue this important dynamic orientation still demands a richer pool of knowledge, especially given their lack of resources and managerial infrastructures (Heavy and Simsek, 2017). Our study suggests a new venue through which leaders of technology-based young firms can lead their firms towards higher levels of ambidexterity—their exhibition of ethical leadership. Future researchers may supplement our study by examining whether the findings could be generalized to less technology-based young firms.

Limitations and future research directions

It is important to note several limitations, which we hope to serve to inspire future research. First, we have focused on TMTs that were relatively stable (our data showed that 71% of team members joined the team since the firm inception and all team members had been in the position for at least 3 years). However, team stability may influence the way founder-CEOs and team members interact (Hambrick, 1994). It would be interesting to examine if team member turnover (exit and entry of team members) has any influence on the proposed model.

Second, the external validity of our conclusions could be restricted as our sample was selected in China only. Scholars can replicate our model in countries with different cultures or institutional contexts to examine the generalizability of this research. Third, we focus on ambidexterity as the key firm-level outcome. Although this choice originated from our wish to provide a more direct examination of ethical leaders' influence on the outcome of technology-based young firms, future research may direct attention to other firm-level phenomena to further the understanding of the consequences of ethical leadership of founder-CEOs. Fourth, we allude to a process model, but one should be cautious when interpreting the findings because we did not follow changes over time, even though we collected data at two time points and corrected for potential endogeneity-related bias.

In addition, we were unable to directly measure the modeling process and the formation of shared behaviors and attitudes across the TMT. Future research can use observational studies to shed light on these processes. Furthermore, we only examined perceptions of ethical leadership. We recommend future research to observe and assess leaders' ethical actions directly while taking the situationally and culturally dependent definition of what is ethical into consideration. Finally, in examining the mediating roles of TMT members' collective behavior and attitude, we focused on advice-seeking and team satisfaction because they appear highly relevant to ethical leadership

described in the literature (e.g., Brown et al., 2005). We encourage a more comprehensive investigation of TMTs' behaviors and attitudes and their mediating roles.

Practical implications

Our study suggests that fulfilling social expectations for ethical management and achieving firms' sustainable success are not mutually exclusive. Particularly in technology-based young firms, founder-CEOs' ethical leadership can be a powerful tool that equips the firm with enhanced levels of ambidexterity. Since the balance between exploration and exploitation is crucial for young firms' long-term success, practically leaders of young firms should be concerned with factors that improve this firm-level orientation (Cao et al., 2010; Lubatkin et al., 2006). Our research suggested two pathways founder-CEOs' ethical leadership can help meet this end—through shaping TMTs' advice-seeking behavior and satisfaction. Thus, in practical terms, founder-CEOs should be aware of their role as models of behaviors and attitudes they wish their teams to emulate, especially the ways in which they live out behaviors such as fairness in decision-making, seeking out advice, and promoting constructive relationships among team members (Brown et al., 2005). Training on behaviors related to ethical leadership may be useful for entrepreneurs who plan to launch or already lead TMTs (Eisenbeiss, et al., 2015).

Further, the advice-seeking behavior and team satisfaction promoted by founder-CEOs' ethical leadership may help young firms on marketing. Large-scale marketing campaigns are usually too costly for resource-constrained young firms (Hills, et al., 2008). The young firms that actively seek advice and satisfy TMT members may be less disadvantaged in this aspect as these positive efforts can promote customer and public trust in the firm, so that the meaningful and intimate relationship with the market will be easier to develop.

Conclusion

We present a conceptual model that alludes to the importance of founder-CEOs' ethical leadership in shaping TMTs' behaviors and attitudes, which, in turn, facilitate the firm's achievement of ambidexterity. Our results support our theorizing about the process. In so doing, we enrich the relevant literature by applying ethical leadership to a more entrepreneurial setting. Meanwhile, we demonstrate the potential in applying the CEO-TMT interface perspective to better understand the mechanisms underlying the influence of this important leadership style in young firms.

Availability of data and material The data generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

Code availability Not Applicable.

Authors' contributions All authors contributed to the study conception and design. All authors read and approved the final manuscript.

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Compliance with ethical standards

Conflicts of interest/competing interests The authors declare that they have no conflict of interest.

Appendix

Table 4 Scale Items and Reliabilities

Construct	Items	Alpha
Dependent Variable		
Ambidexterity	**Please indicate the importance of the following objectives regarding product/market development to your firm:**	.85
	Introduce new generation of products	
	Extend product range	
	Open up new markets	
	Enter new technology fields	
	Improve existing product quality	
	Improve production flexibility	
	Reduce production cost	
	Enhance existing markets	
Independent Variable		
Ethical Leadership	**Our CEO …**	.95
	Listens to what his/her subordinates have to say	
	Discusses business ethics or values with subordinates	
	Sets an example of how to do things the right way in terms of ethics	
	When making decisions, asks "what is the right thing to do?"	
	Defines success not just by results but also the way that they are obtained	
	Conducts personal life in an ethical manner	
	Disciplines employees who violate ethical standards	
	Makes fair and balanced decisions	
	Can be trusted	
	Has the best interests of employees in mind	
Mediators		
Advice-Seeking Behavior	**Please rate your TMT about advice sought from outside of (within) the firm:**	.84
	Frequency of the team's advice-seeking	
	The extent to which the team gathers knowledge regarding its current strategy	
	The extent to which the team seeks advice regarding future strategy	
TMT Satisfaction	**Please rate the extent to which you agree with the following statements:**	.75
	Generally speaking I am very satisfied with the team	
	I frequently wish I could quit the team (reverse scored)	
	I am generally satisfied with the work I do on the team	

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