

The Power of Calling: How Founder CEOs Drive Ambidexterity and Innovation in Firms

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ABSTRACT This study investigates the phenomenon of founder CEOs playing an inordinately crucial role in achieving firm innovation performance. While existing research compares the effectiveness of founder and non-founder CEOs, the reasons behind founder CEOs' advantage in achieving high innovation performance remain unclear. Building on upper echelons theory, this study explores micro-foundations underlying this phenomenon. We propose that CEO founder status positively influences innovation performance through the application of ambidextrous firm strategy, with such effects being moderated by the extent to which CEOs experience a sense of calling for their work. Based on data from 200 small- and medium-sized high-tech enterprises in China, we find that founder, as compared to non-founder, CEOs have a more positive relationship with innovation performance, mediated by ambidextrous firm strategy, and this effect is strengthened by calling for their work. These findings provide new insights regarding *how* and *when* a 'founder advantage' is most likely to be achieved regarding innovation performance. Moreover, by focusing on Chinese firms, this study responds to calls for expanding management research beyond Western contexts, enriching our understanding of founder CEOs and innovation in diverse cultural settings.

Keywords: ambidexterity, calling, entrepreneurship, founder advantage, upper echelons

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We extend our appreciation to Zi Wang for her assistance in facilitating the interviews and her work in organizing the interview materials.

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INTRODUCTION

The history of the world's most innovative corporations is replete with examples of founding CEOs who have led their firms from inception to positions of market leadership, including Microsoft, Apple, Facebook, Google, Tesla, Amazon, Salesforce, Netflix, Oracle, Uber, Dell, Alibaba and Huawei, to name just a few modern examples. Founder CEOs are often credited with setting the initial vision, mission, and strategic direction for their firms, embedding their values and identities into the organizational culture (Staw, 1991). This has led to the commonly observed phenomenon referred to as the 'founder advantage', where firms led by founder CEOs tend to outperform those led by non-founders on various performance metrics, including return on assets and stock market returns (Begley, 1995; Nelson, 2003).

However, despite these observations, the existing body of research presents mixed findings regarding the effectiveness of founder versus non-founder CEOs, especially as firms move beyond their initial growth stages. Some studies suggest that the advantages associated with founder leadership diminish as companies mature (Certo et al., 2001), with arguments favouring the appointment of external CEOs who bring seasoned executive experience and a focus on operational efficiencies (Wasserman, 2017). These findings highlight the complexity of the so-called founder advantage and suggest that its benefits may not be universal but contingent on specific conditions or mechanisms that have yet to be fully understood.

To address this gap, our study seeks to unpack the black box of founder advantage by examining not just whether, but *how* and *when* a founder advantage might contribute to firm innovation performance. We propose that the effectiveness of founder CEOs in driving innovation is mediated by their ability to foster ambidextrous strategies – balancing exploration and exploitation within their firms. Drawing on upper echelons theory, which posits that the characteristics of top executives significantly influence strategic decision-making and organizational outcomes (Hambrick, 2007; Hambrick and Mason, 1984), we argue that founder CEOs, due to their unique embodied job characteristics and expectations, are particularly well-positioned to implement such strategies. Moreover, we hypothesize that these effects are further amplified when CEOs perceive their work as a calling – an intrinsic sense of purpose that drives them to align their personal values with their organizational roles (Dik and Duffy, 2009; Wrzesniewski, 2012). In sum, the current research not only seeks to resolve the ongoing debate about the existence and extent of a founder advantage but also aims to elucidate the underlying mechanisms and conditions that determine when and how this advantage translates into superior innovation performance.

Our conceptual model is tested using a sample of 200 high-tech SMEs based in northern China, a region known for its growing technological sector and supportive economic policies aimed at fostering innovation (Zhang et al., 2024). By focusing on firms in China, our study responds to recent calls to broaden the scope of management research beyond Western-centric perspectives (Wickert et al., 2024). Data were collected from multiple sources, including primary data from surveys administered to chief executive officers (CEOs) and chief financial officers (CFOs) of sampled firms, and secondary data from the State Intellectual Property Office of China. We chose

to sample SMEs because they represent a critical developmental stage where the effectiveness of founder versus non-founder CEOs is often debated. For example, according to Wasserman (2006), the benefits of having a non-founder CEO may begin to outweigh those of a founder CEO as firms mature. SMEs are in a unique phase of growth where they face significant challenges related to scaling operations, managing innovation, and professionalizing management. This stage is crucial for examining the impact of CEO type on firm performance, as SMEs must balance the need for innovative strategies with operational efficiency. Furthermore, our selection of high-tech firms was made to align our study with previous research on ambidexterity and firm innovation performance (Danneels, 2002). High-tech firms are characterized by rapid technological advancements and intense competitive pressures, which make them particularly relevant for studying the impact of CEO type on innovation. These firms must continuously adapt and innovate, making them a fitting context for exploring how different types of CEOs influence strategic decision-making and innovation outcomes. We used the PROCESS macro in SPSS, applying bootstrapped and biased corrected methods (Hayes, 2013), to provide quantitative results for our proposed relationships. These results are further supplemented by qualitative data, gathered from semi-structured interviews with a sub-sample of CEO participants, to elicit contextualized examples of the nuances within those relationships.

Our study is anticipated to make two primary contributions. First, our theory and findings provide insights to the extensive body of literature (Wasserman, 2006) and entrepreneurial lore (Baron and Hmieleski, 2018) that suggests founder CEOs should be replaced with non-founder CEOs to build operational efficiency to sustain their firms. Our research extends upper echelons theory by demonstrating that founder CEOs, particularly those with a high sense of calling, are more successful than non-founder CEOs in asserting ambidextrous strategies and achieving high innovation performance – outcomes needed for displacing incumbent competitors and attaining industry leadership (Markides and Geroski, 2005). This advances the understanding of *how* specific CEO characteristics, such as calling, influence strategic decision-making and firm performance, thus contributing to the upper echelons literature by unpacking the ‘black box’ of founder advantage. Furthermore, our study offers nuanced insights into leadership succession strategies, challenging the prevailing view that external CEOs are universally better suited for operational efficiency. Instead, we enrich the discourse on the conditions under which founder CEOs provide unique advantages to their firms (Certo et al., 2001; Wasserman, 2017).

Second, our study additionally provides nuanced explanations regarding *when* a founder advantage with respect to ambidexterity and innovation performance is more likely to exist by demonstrating the significant role of calling. In so doing, our research extends limited research addressing calling among founders (Bell et al., 2019; Rietveld and Van Burg, 2014) and responds to recent calls for expanding the broader literature on calling to include top executives and organizational outcomes (Lysova et al., 2019; Thompson and Bunderson, 2019), while also addressing the need for management research to incorporate non-Western contexts by demonstrating how founder CEOs’ sense of calling can uniquely impact firm innovation and ambidexterity in a Chinese setting (Wickert et al., 2024). Importantly, there is considerable heterogeneity

regarding individual differences of founder CEOs (Ciavarella et al., 2004; Hmieleski and Baron, 2009), and therefore it is unlikely that such persons would uniformly be able to generate an advantage regarding ambidexterity and innovation for their firms. Indeed, our theory and findings demonstrate that founder CEOs who view their work as a calling appear to be particularly dedicated toward keeping their firms agile by strategically balancing exploration and exploitation so as to achieve levels of innovation performance. This insight makes an important contribution to the entrepreneurship literature by emphasizing the value in individual characteristics that are intrinsic, superordinate, purpose-driven, and enduring. Other commonly examined individual difference variables within this literature, such as identity (Fauchart and Gruber, 2011; Powell and Baker, 2014), passion (Cardon et al., 2009; Warnick et al., 2018), and intrinsic motivation (Kibler et al., 2019), are more prone to shifting across time and situation. In contrast, calling is likely to consistently shape the motivation and strategic choices of individuals (such as founder CEOs) regardless of external reinforcers, emotional states, or fluctuating personal interests. Our findings suggest that calling for one's work may be a key factor worth considering when evaluating investments in founder-lead innovation-oriented firms and when firms are assessing whether to transition from a founder to non-founder CEO.

THEORY AND HYPOTHESIS DEVELOPMENT

Linking CEO Founder Status to Innovation Performance Via Firm Ambidextrous Strategy

Research on ambidextrous firm strategy has shown that both exploration and exploitation are critical for innovation performance (Gupta et al., 2006; Uotila et al., 2009). More specifically, firms can benefit from exploitative capabilities and activities for achieving direct and immediate profits, which are important for firm survival (March, 1991; Yamakawa et al., 2011), while using explorative activities to reach long-term goals such as growth and firm longevity (Abernathy and Clark, 1985; Benner and Tushman, 2003). Thus, firms can engage in ambidextrous strategies by *simultaneously* pursuing explorative and exploitative simultaneously (Tushman and O'Reilly, 1996). Importantly, once firms develop a strategic orientation toward ambidexterity, they tend to maintain such an orientation into the future as it develops into an organizational capability (Posen and Levinthal, 2012). It can, however, be challenging for organizations to reconcile internal tensions with conflicting demands to achieve ambidexterity (Raisch and Birkinshaw, 2008; Zimmermann et al., 2015). Such difficulty tends to result from exploration and exploitation in many ways being considered mutually exclusive (March, 1991). This is to say that organizational elements and activities which promote exploration are often distinct from those that promote exploitation (Tushman and O'Reilly, 1996). For example, a typical exploitation attempt involves adaptation to environmental demands, which may foster structural inertia of a firm and hurt its future ability to explore new opportunities (Hannan and Freeman, 1984; He and Wong, 2004). Likewise, exploration may slow down a

firm's exploitative activities, such as improving operating efficiencies (March, 1991). Therefore, a consistent and long-term vision by top executives of the firm's goals has been shown to be necessary for harmonizing the divergent requirements of exploration and exploitation, thereby fostering the development of ambidextrous capabilities (O'Reilly III and Tushman, 2011). In today's rapidly changing business environment, firms are constantly under the pressure of limited time and other resources, which makes adoption of an ambidextrous firm strategy particularly important. Thus, the extent to which founder versus non-founder CEOs achieve high levels of firm innovative performance is likely to partly hinge on differences in their preferences for adopting, and ability for executing, ambidextrous firm strategies.

As suggested by upper echelons theory (Hambrick, 2007; Hambrick and Mason, 1984), CEOs exert a significant impact on the actions of their firms (e.g., Cao et al., 2010; Hambrick and Quigley, 2014; Jansen et al., 2008) and play a central role in deploying resources to meet the requirement of their decision choices – such as the adoption of ambidextrous strategies (Boumgarden et al., 2012; Lubatkin et al., 2006). Aligning with this perspective, founder and non-founder CEOs exhibit distinct differences in their work roles and expectations that are generally consistent across time and situation (Brigham et al., 2007; Lee et al., 2017). Such differences involve fundamental approaches to their work and leadership of their firms (see Table I for definitions of such differences and qualitative examples drawn from our sample). In turn, on average, these factors are likely to have profound and enduring effects on how their firms operate and perform. Specifically, founder and non-founder CEOs tend to exhibit important differences in terms of their motivation and vision (Baum et al., 1998), approach toward the status quo (Ward, 2004), risk-taking (Zhao et al., 2010), decision-making processes (Schjoedt, 2009), adaptability (Hmieleski and Baron, 2008), and tolerance for uncertainty (McMullen and Shepherd, 2006). We now apply this logic from upper-echelons theory to develop a model suggesting that these differences are likely to propel CEOs who are founders to be more likely to pursue ambidextrous strategies and subsequently achieve higher levels of innovation performance as compared to their non-founder counterparts (see Figure 1). To further bolster our arguments regarding differences in job characteristics between founder and non-founder CEOs, we have integrated qualitative evidence collected from our primary sample into our theory development below (see Table I).^[1]

Founder CEOs are typically driven by a strong vision and mission, rooted in a personal desire to alter the status quo in ways that significantly impact the world (Baum et al., 1998). For example, Interviewee 6, a founder, reflected this sentiment, stating, 'I see myself as the core of my company, so my will determines the company's innovation choices. I have deep affection and a long-term vision for the company, so I want my company to have sustainable development. This means I must weigh and seize various innovation opportunities'. This deep personal connection often translates into a desire to both explore and exploit new opportunities (Guerrero, 2021), introducing novel solutions that depart from traditional norms (Hmieleski and Sheppard, 2019; Ward, 2004). Founder CEOs, like Interviewee 6, are motivated to pursue strategies that entail exploration and exploitation in order to express their vision by developing and commercializing new products and services (Roelandt et al., 2023). Their identity and values of founder CEOs are more likely to become embodied in their firm, reinforcing

Table I. Factors differentiating founder versus non-founder CEO job characteristics and qualitative examples of such differences

<i>Job characteristic</i>	<i>Points of differentiation</i>	<i>Qualitative examples</i>
Motivation and vision (Baum et al., 1998)	Founder CEO. Driven by a strong vision and mission. They often have a clear idea of the impact they want to make on the world and are motivated to build a business aligned with their values.	Interviewee 6 (founder). I see myself as the core of my company, so my will determines the company's innovation choices. I have deep affection and a long-term vision for the company, so I want my company to have sustainable development. This means I must weigh and seize various innovation opportunities.
	Non-founder CEO. Focused on executing the vision set by the company founders or board of directors. They may contribute to shaping the direction of the company, but their role tends to be more about aligning the organization with established goals.	Interviewee 10 (non-founder). As the current CEO, I inherit and uphold the mission from the company's founder. Meanwhile, as a professional agent, I am responsible for the mid- to short-term development and goals, thereby achieving the company's long-term mission.
Challenging the status quo (Ward, 2004)	Founder CEO. Strong desire for challenging the status quo through the development and commercialization of unique products and services that alter traditional industry norms.	Interviewee 6 (founder). An excellent founder needs to lead the company through different phases, which requires continuous self-improvement in terms of continuously improving existing products and, on this basis, exploring new markets and new technologies.
	Non-founder CEO. Focused on optimizing and working within existing systems and operations, maintaining a focus on operating efficiencies and profit.	Interviewee 11 (non-founder). I must focus more on improving existing systems to ensure the stability and continuous profitability of the company.
Risk-taking (Zhao et al., 2010)	Founder CEO. Typically bear significant personal financial risk. Their personal wealth may be tied to the success of the venture. Often must take substantial risks to see their vision come to fruition.	Interviewee 6 (founder). As the founder, I am willing to take on this risk of innovation, actively addressing unknown environments and learning from failures. Interviewee 7 (founder). The success or failure of my business directly determines my fortune and life. I and my business share a common destiny.
	Non-founder CEO. While they may have stock options or performance-based incentives, non-founder CEOs usually do not have the same level of personal financial investment in the company. Their compensation is generally tied to the company's performance, but they rarely have the same level of ownership or personal risk as entrepreneurs.	Interviewee 10 (non-founder). My priority is to integrate and upgrade our traditional business model, maximize internal development, and ensure the company achieves sustainable growth and predictable expansion in the future.

(Continues)

Table I. (Continued)

<i>Job characteristic</i>	<i>Points of differentiation</i>	<i>Qualitative examples</i>
Decision-making (Schjoedt, 2009)	Founder CEO. Typically have a high degree of autonomy in decision-making. Must act quickly and make decisions based on their instincts and vision without the need for extensive approval processes. More likely to have dual role as CEO and board chair.	Interviewee 7 (founder). My values and personal preferences directly influence the business's operational choices and overall strategy.
	Non-founder CEO. Tend to work within a more structured environment. Decision-making involves collaboration with boards, executive teams, and other stakeholders. The process may be more complex, requiring input from various departments and compliance with corporate governance.	Interviewee 9 (non-founder). As the CEO, my role in leading the team is crucial, but more importantly, it is about the overall organizational capability and cohesion, integrating the diverse talents within the organization. This helps the organization operate more professionally and standardize its operations.
Adaptability (Hmieleski and Baron, 2008)	Founder CEO. Must be adaptable and flexible. Often must pivot their strategies, change directions, and iterate on their business models based on market feedback and evolving conditions.	Interviewee 8 (founder). As the head of a company that organizes sports events, during the COVID-19 pandemic, I swiftly made business adjustments, shifting operations to small-scale online activities and developing mobile applications.
	Non-founder CEO. Need to be adaptable as well, but their role largely involves managing and optimizing existing structures. They may not experience the same level of uncertainty and constant change because they are entering an established firm that is likely to have already gained some market traction.	Interviewee 9 (non-founder). Unlike the founder who has very strong personal charisma, which was very important for the initial stage of the company, all the things I want to do are centred around the market and profitability, which is very practical.
Tolerance for Uncertainty (McMullen and Shepherd, 2006)	Founder CEO. Need to thrive in uncertainty and be comfortable navigating through ambiguity. Viewing uncertainty as a source of opportunity and adapting to rapidly changing circumstances is crucial.	Interviewee 8 (founder). As a founder, I personally have an adventurous spirit and am willing to challenge myself and explore opportunities.
	Non-founder CEO. While non-founder CEOs need to manage uncertainty, their focus is often on mitigating risks and ensuring stability within the organization. The emphasis may be on creating and executing well-defined strategies rather than embracing high levels of uncertainty.	Interviewee 12 (non-founder). For my company, the requirements for sustainable development tend to favour prudent and steady innovation. This requires our operations and management to be standardized and continuous.

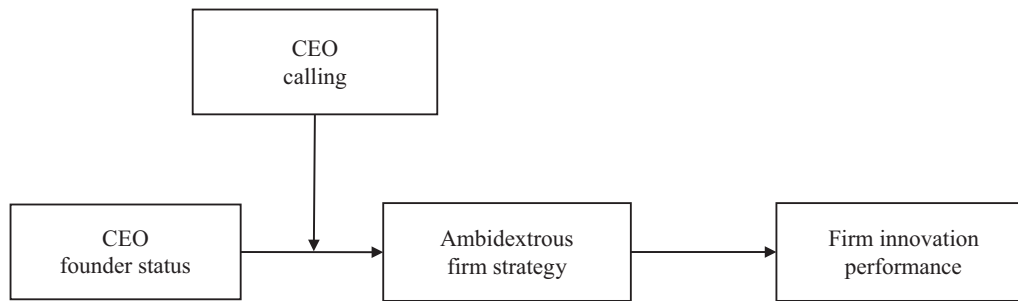


Figure 1. Theoretical model

their inclination toward maintaining ambidexterity in order to bring their vision and mission to life (Marquis and Tilcsik, 2013; Stinchcombe, 1965). Additionally, founder CEOs' dedication to a long-term vision, as emphasized by Interviewee 6, is crucial in overcoming short-term pressures to focus solely on exploration or exploitation in the moment, further reinforcing the likelihood of their influence on the adoption of an ambidextrous orientation (O'Reilly III and Tushman, 2011). In contrast, non-founder CEOs, such as Interviewee 10, who mentioned, 'As the current CEO, I inherit and uphold the mission from the company's founder. Meanwhile, as a professional agent, I am responsible for the mid- to short-term development and goals, thereby achieving the company's long-term mission', are more likely to be motivated by short-term goals (Jain and Tabak, 2008). While these CEOs may contribute to shaping the company's direction, they are generally tasked with meeting objectives set by others (e.g., board of directors) – which are likely to emphasize a conservative approach that would be inconsistent with the pursuit of ambidexterity (Certo et al., 2001; Wasserman, 2017). This short-term focus is reflected in their tendency to optimize existing systems and operations rather than simultaneously pursuing exploration and exploitation, which may challenge established norms (Fahlenbrach, 2009; Miller et al., 2011; Wasserman, 2006). Non-founder CEOs, like Interviewee 11, who stated, 'I must focus more on improving existing systems to ensure the stability and continuous profitability of the company', face a higher level of scrutiny and are more likely to prioritize short-term goals over long-term gains, positioning them to focus resources sequentially on exploration or exploitation rather than both simultaneously (Boumgarden et al., 2012; Leone and Liu, 2010).

Risk-taking and decision-making processes also distinguish founder CEOs from non-founder CEOs, with the former more willing to take bold risks and engage in heuristic decision-making processes (Zhao et al., 2010). This consistent proclivity for risk aligns with the adoption of ambidextrous strategies, crucial for developing an enduring strategic orientation toward simultaneously exploring and exploiting business opportunities. For instance, Interviewee 6, a founder, highlighted, 'As the founder, I am willing to take on this risk innovation, actively addressing unknown environments and learning from failures'. Such statement underscores the personal stakes and willingness to embrace risk, which are critical for ambidexterity. Founder CEOs often operate autonomously, making rapid decisions based on their instincts and vision

(Schjoedt, 2009), allowing them to adapt quickly to the demands of balancing exploration and exploitation. In contrast, non-founder CEOs, typically incentivized by performance-based compensation, often lack the same level of personal investment and are less inclined to take bold risks (Abebe and Alvarado, 2013). Interviewee 10, a non-founder, stated, 'My priority is to integrate and upgrade our traditional business model, maximize internal development, and ensure the company achieves sustainable growth and predictable expansion in the future'. This statement indicates that non-founder CEOs may lack the motivation and discretion to pursue ambidextrous strategies, focusing more sequentially on exploration or exploitation. Their complex decision processes, involving input from various departments and stakeholders, may further limit their ability to adapt and innovate, hindering the development and execution of ambidextrous strategies.

Adaptability, a crucial characteristic distinguishing founder and non-founder CEOs, manifests in their differing approaches to uncertainty and change. Founder CEOs are typically highly adaptable and flexible, often pivoting away from their original products and services and iterating on business models for new opportunities based on market feedback and evolving conditions (Hmieleski and Baron, 2008). Interviewee 8, a founder, provided a relevant example, stating, 'As the head of a company that organizes sports events, during the COVID-19 pandemic, I swiftly made business adjustments, shifting operations to small-scale online activities and developing mobile applications'. Such adaptability allows them to thrive amidst uncertainty, viewing it as a source of opportunity and adjusting to rapidly changing circumstances (McMullen and Shepherd, 2006). This comfort in uncertainty makes them more likely to consistently embrace the flexibility required for an ambidextrous approach (Dai et al., 2017) and perceive uncertainty as an opportunity for gain rather than a threat of loss (Baron, 2013). As evidence of this point, founder CEOs have been found to more effectively navigate their firms through times of crisis as compared to non-founding CEOs (Honjo and Kato, 2021). In contrast, while non-founder CEOs also require adaptability, they tend to focus on managing and optimizing existing structures within established firms (Lee et al., 2017). Interviewee 9, a non-founder, highlighted this focus, stating, 'Unlike the founder who has very strong personal charisma, which was very important for the initial stage of the company, all the things I want to do are centered around the market and profitability, which is very practical'. Their approach to uncertainty is often centred on risk mitigation and ensuring stability within the organization, prioritizing well-defined strategies over embracing high levels of uncertainty (Wasserman, 2017). Thus, while both founder and non-founder CEOs must navigate uncertainty, their differing levels of adaptability are likely to have consistent effects across time and situation with respect to their perspectives on embracing change and pursuing ambidextrous strategies.

Taken together, the long-term vision, personal connection, risk appetite, and decision-making style of founder CEOs create an environment where an ambidextrous strategic orientation, balancing exploration and exploitation, is not only feasible but also likely to be enduringly embraced as a natural extension of their leadership approach. In contrast, non-founder CEOs, while possessing their own strengths and skills, may face challenges in adopting an ambidextrous strategy due to a more short-term vision, structured decision-making process, focus on optimizing existing structures, and lower tolerance

for the uncertainties associated with the exploration and exploitation that is required to launch new products and services. Extending these arguments, research on ambidextrous firm strategies has shown that both exploration and exploitation are critical for achieving high levels of innovation performance (Gupta et al., 2006; Uotila et al., 2009). The extent to which founder versus non-founder CEOs achieve high levels of firm innovative performance is likely to partly hinge on consistent differences in their preferences for adopting, and ability for executing, ambidextrous firm strategies.

Firm innovation occurs when organizations successfully commercialize new products or services that fundamentally alter the behaviour of consumers in ways that are novel and useful (Markides and Geroski, 2005). Adoption of an ambidextrous firm strategy has been demonstrated as a critical driver of innovation performance (Tushman and O'Reilly, 1996). This relationship has been argued to exist because explorative and exploitative practices complement each other in delivering high levels of firm innovation (Gupta et al., 2006). In particular, exploration and exploitation are elemental aspects of firm innovation. For example, exploration is needed in order to produce the creative insights and elaboration that serve as the initial material from which innovative projects are spawned (Gibson and Birkinshaw, 2004). Complimentarily, exploitation is needed to routinize and fine-tune operational capabilities to transform these initial insights into innovations and then launch them to market (He and Wong, 2004). Thus, firms that adopt ambidextrous strategies are more likely to achieve the high levels of innovation required to maintain competitive advantage. This argument is in line with our claim that CEO preferences for adopting ambidextrous strategies and their ability to execute these strategies are likely to differ based on their founder status. Hence, the relationship between CEOs' founder status and firm innovation performance will be positively mediated through the adoption of an ambidextrous firm strategy.

Hypothesis 1: The relationship between CEOs' founder status and firm innovation performance will be positively mediated by the implementation of an ambidextrous firm strategy.

The Moderating Role of CEO Calling

The notion of people viewing their work as a calling has long been recognized in the management literature (e.g., Bunderson and Thompson, 2009; Dik and Duffy, 2009; Dobrow and Tosti-Kharas, 2011; Wrzesniewski et al., 1997). Even though subtle differences exist with regard to its definition, scholars tend to consistently view calling as a work orientation that reflects a strong sense of purpose and meaning prompted by a summons (e.g., sense of destiny) and characterized by prosocial motivation (Duffy et al., 2018; Thompson and Bunderson, 2019). Similarly, we view CEO calling here as a work orientation that is marked by a sense of destiny, purpose and meaning, and aimed at helping others or contributing to the common good (Dik and Duffy, 2009; Thompson and Bunderson, 2019; Wrzesniewski, 2012).^[2]

As a work orientation, calling reflects people's understanding of why they work, along with their beliefs and values about what work means to them – shaping the goals they

find meaningful to pursue (Baumeister, 1991). These characteristics distinguish viewing one's work as a calling from seeing one's work as a job (i.e., work is a means to an end) or as a career (i.e., work is a means of advancement or general achievement) (Wrzesniewski et al., 1997). Calling is also conceptually and empirically different from other related constructs such as work passion, identity, intrinsic motivation, and job involvement (see Table II). In particular, the superordinate nature of calling locates its directionality as a relational antecedent with respect to its association with related constructs. For instance, individuals may experience intrinsic motivation or a sense of passion for their work when it is internalized as a calling. However, it is important to clarify that mere intrinsic motivation or passion toward one's work does not automatically elevate it to the status of a true calling.

Another important point of differentiation is that calling is characterized by a profound sense of purpose and meaning that transcends immediate rewards or career advancement (Bunderson and Thompson, 2009). Unlike work passion or intrinsic motivation, which can be situational and dependent on specific aspects of the job or work environment, calling represents a stable and enduring orientation toward one's work, often driven by a deep-seated belief in its significance and alignment with personal values and life goals (Dik and Duffy, 2009; Thompson and Bunderson, 2019; Wrzesniewski, 2012). This deep sense of purpose is what differentiates calling from work identity, which is more closely tied to how individuals perceive themselves in relation to their work roles and how these roles are influenced by social and organizational contexts. While work identity involves the ways in which one's self-concept is shaped by their professional role and interactions within the workplace, calling goes beyond these contextual factors to reflect an internalized sense of vocation and dedication. Calling integrates personal values, life purpose, and a sense of duty, making it a more encompassing and less contingent construct than work identity. Consequently, while work identity and calling may overlap in some aspects, calling's emphasis on intrinsic fulfillment and purpose sets it apart as a distinct and more profound orientation toward work.

Overall, the combined internal, superordinate, purpose-driven, and enduring nature of calling makes it an optimal variable for consideration as a factor enhancing (or moderating) the extent to which CEOs are dedicated to their distinct work roles, exemplifying the differences reviewed above regarding founder and non-founder CEOs' approaches to their work and leadership, and shaping the degree to which they pursue ambidextrous strategies and achieve high innovative performance for their firms.

For founder CEOs, having a strong calling for their work is likely to contribute toward a deeply personal and unwavering investment in their efforts to pursue the long-term vision and mission they have set for their firms (Baum et al., 1998), creatively altering the status quo (Ward, 2004), taking bold risks (Zhao et al., 2010), being adaptable and making quick decisions to capitalize on opportunities (Schjoedt, 2009), and navigate the uncertainty that is inherent to entrepreneurial pursuits (Hmieleski and Baron, 2008; McMullen and Shepherd, 2006). As previously argued (see Table I), these factors are job characteristics associated with unique differences distinguishing what it means to be a founder (rather than non-founder) CEO and align with the adoption and consistent support of ambidextrous firm strategies over the long run, which subsequently enhance the

Table II. Factors differentiating calling from related constructs

<i>Variable</i>	<i>Differentiating Features for Calling</i>
Work passion	Calling is different from work passion in that it involves experiencing work as meaningfully contributing to the world or the well-being of others, which is not necessary for having a passion; promotes the feeling of being ‘destined to do’ one’s work, whereas work passion does not prompt such experiences; and is not always accompanied by joyful experiences and pleasure, while work passion endangers enjoyment of work (Astakhova et al., 2022; Bunderson and Thompson, 2009; Wrzesniewski, 2012)
Work identity	Calling differs from work identity in that it is intrinsically driven by a deep sense of purpose and personal fulfilment, independent of external validation or social roles. While work identity is embedded in a social context and shaped by external factors such as social expectations, feedback, and interactions with others (Ashforth and Mael, 1989), calling is rooted in an internal motivation that transcends these external influences. Work identity often involves how individuals see themselves within their professional roles, such as ‘who I am when I am at work’, whereas calling reflects a more profound, personal connection to the work itself, driven by a sense of mission or a belief that the work is inherently meaningful. This intrinsic nature of calling means it remains consistent even in the absence of social recognition, making it distinct from the more socially contingent concept of work identity.
Work intrinsic motivation	Calling is different from work intrinsic motivation in that it involves a deep sense of meaning and contributing to something greater than oneself, and a sense of being externally summoned for work (Conway et al., 2015). In contrast, intrinsic motivation requires a sense of relatedness that entails connection and belonging but does not necessitate a need for improving the well-being of others (Deci and Ryan, 1985). Moreover, calling has a specific purpose, whereas individuals can be intrinsically motivated to engage in many different activities and for a variety of reasons (Hess et al., 2018).
Job involvement	Calling extends beyond the relative importance of one’s job in life and includes a sense of being ‘called’ to this work with a prosocial purpose, whereas job involvement is the general belief that one’s job is central to the person’s life (Kanungo, 1982).

odds of achieving high innovation performance for their firms (Brigham et al., 2007). In other words, a strong calling is likely to strengthen the effect of these job characteristics of founder CEOs that contribute to the choice of ambidextrous strategies and heightened innovation performance. Moreover, the sense of destiny associated with calling makes it both a superordinate and enduring feature guiding the strategic choices of individuals (Dik and Duffy, 2009). Thus, this sense of destiny is likely to provide founder CEOs with the sustained drive that is required to manage the conflicting demands of exploration and exploitation, and convert ambidexterity into the successful development and commercialization of innovative new products and services.

In contrast, concerning non-founder CEOs, sensing a strong calling for their work is likely to reinforce the distinct set of characteristics (see Table I) aligned with the specific attributes associated with their work role. Non-founder CEOs typically ascend

to their position by either advancing through the ranks within their company or by establishing a track record of success in previous roles at different companies (Kumar et al., 2021). Attaining the position of CEO is likely to be associated with their specific endowment of human capital, marked by strengths in analytical reasoning, operational efficiency, risk management, and a history of collaborative achievements with diverse stakeholders (Certo et al., 2001). These attributes are expected to be carried forward and expressed in the role of a professional (non-founder) CEO. Thus, having a sense of meaning and destiny for this role is likely to lead toward risk-averse, conservative, and short-term strategies that may not align with the principles of ambidexterity or pursuit of innovative outcomes. This does not imply that non-founder CEOs, who have a profound sense of calling for their work, will exhibit less ambition or drive than their founder counterparts. Instead, it suggests that their ambition or drive will be focused on their unwavering commitment to seeking pathways for success that align with, rather than oppose, the existing status quo and achievement of short-term results. Consequently, a sense of calling will be less likely to increase their pursuit of ambidextrous firm strategies and innovative performance as compared to founder CEOs.

Overall, this set of relationships comprises what we have characterized as a 'founder advantage' in terms of founder, as compared to non-founder, CEOs possessing a calling for their work being endowed with a unique capacity to lead their firms toward the adoption of ambidextrous strategies, subsequently achieving higher innovation performance as a result. We therefore state our final hypothesis, which summarizes our overall model, as follows:

Hypothesis 2: The degree to which CEOs perceive their work as a calling will moderate the indirect relationship between founder status and firm innovation performance, mediated through the implementation of an ambidextrous firm strategy, such that it will become more positive when they are higher in calling.

METHODS

Sample and Data Collection

The sample for the current study is drawn from high-tech small- and medium-sized enterprises (SMEs) in a large city located in northern China. We selected SMEs as the target sample because previous studies on ambidexterity have suggested that CEOs of SMEs have more impact on making and implementing strategic decisions compared to those in relatively large firms (Cao et al., 2010; Lubatkin et al., 2006) and as a population are likely to have a mix of CEOs who are founders and non-founders (Ling et al., 2008). Moreover, SMEs represent a developmental stage in the growth of firms for which the benefits of having a non-founder CEO have been argued to begin outweighing those of a founder CEO (Wasserman, 2006). Building on prior research (e.g., Arend, 2006; Chen and Nadkarni, 2017), we defined SMEs by the number of

employees: firms with less than 500 employees. First, we established a partnership with a governmental agency, the responsibility of which is to serve the SMEs in that city regarding their legal and governmental issues. Second, we obtained a list of SMEs from the agency and then approached their CEOs via emails and phone calls. As a reward for the agency and the participating SMEs, we developed a report outlining the factors that affect SME innovation performance, which may be used as reference material to guide future SME development. After preliminary communications (i.e., emails and phone calls), 228 CEOs expressed interest in participating, and eventually 200 provided valid responses, yielding a response rate of 88 per cent. One reason behind this high response rate is that we preselected the participants based on the interest they expressed regarding participation during the preliminary communications, and sent survey invitations to only those who expressed a strong desire to participate in the study.

To reduce the possible risks of common method variance and reversed causality, we collected data from multiple sources, including primary data from an online survey and secondary data from the State Intellectual Property Office of China. Specifically, we invited CEOs to report their own calling, ambidextrous firm strategy, status as to whether they are a founder, demographic information, entrepreneurial experience, and their perceived firm innovation performance. Meanwhile, the chief financial officer (CFO) was asked to report information regarding two objective indicators of firm innovation performance, which included the number of patent applications and the number of new products in 2014, the year in which the surveys were conducted. In addition, we also measured lagged firm innovation performance by searching the patent database of the State Intellectual Property Office of China and recording the number of government-approved patents of each surveyed firm between 2015 and 2017.

Firms in the final sample had an average of about 30 employees ($SD = 43.31$). The average organizational tenure of the CEOs was approximately 3 years ($SD = 3.27$), with 75.5 percent being male and 24.5 per cent having founded at least one previous firm. In addition, 15.5 percent of the CEOs were younger than 30 years old, 35.5 per cent were between 30 and 40 years old, 25.5 per cent were between 40 and 50 years old, 19.5 per cent were between 50 and 60 years old, and 4.0 per cent were above 60 years old. Regarding educational attainment, 73.5 per cent of the CEOs had a bachelor's degree or below, and 26.5 per cent had a master's or a more advanced degree. In terms of industry, 18 per cent of SMEs in our sample are in the biological and pharmaceutical industry, 36 per cent are in the information technology industry, 22 per cent are in the manufacturing industry, and 24 per cent are in a variety of others industries.

Finally, we conducted semi-structured interviews with 12 CEOs from our sample, including 8 founders and 4 non-founders. These interviews, which averaged 29.50 minutes in duration ($SD = 12.84$), were designed to explore (1) the job characteristics that differ between founder and non-founder CEOs (see Table I) and (2) how a sense of calling may contribute to a founder advantage (see Table VIII). Data regarding the first point is used to bolster our theory development, whereas data regarding the latter is used as a supplemental analysis to further unpack some nuances of the founder advantage identified in our research.

Measures

All measures described below were rated using a 5-point Likert-type scale ranging from 1 = strongly disagree to 5 = strongly agree. Since each of the measures used was originally developed in English, we followed a translation and back-translation process to convert them into Chinese for use in the current study (Brislin, 1986).

CEO founder status. We determined whether the CEO was a founder based on their response to a demographic survey item asking whether they are a founder of the firm (Ling et al., 2008). Responses were coded such that no = 0 and yes = 1. In total, 68.5 percent of the CEOs identified themselves as being founders of their firms.

CEO calling. CEO calling for their work was examined using a 10-item measure adapted from Dik et al. (2012c) ($\alpha = 0.891$). Example items include 'I see my career as a path to purpose in life' and 'my career is an important part of my life's meaning'. Higher scores indicate that respondents perceived themselves as being greater in calling for their work than those scoring lower.

Ambidextrous firm strategy. We assessed a firm's implementation of an ambidextrous strategy using an 8-item measure, with four items relating to exploration ($\alpha = 0.912$) and four items about exploitation ($\alpha = 0.851$) (He and Wong, 2004). Example items for exploration and exploitation include 'We experiment with new products and services in our local market' and 'We frequently refine the provision of existing products and services', respectively. Furthermore, we followed prior research by multiplying the two scores, and using the multiplicative interaction of explorative and exploitative practices to reflect an ambidextrous firm strategy (e.g., Gibson and Birkinshaw, 2004; He and Wong, 2004). Higher scores indicate greater levels of ambidextrous firm strategies.^[3]

Innovation performance. To ensure the robustness of our results, we used four measures from three different sources to assess firm innovation performance. We asked CFOs to report the number of patent applications submitted and the number of new products launched in this year (Tortoriello and Krackhardt, 2010). We also asked the CEOs to report their perceived firm innovation performance based on the 4-item measure ($\alpha = 0.873$) adapted from Tierney et al. (1999). An example item is 'Our unit demonstrated originality in our work'. In addition, because the time elapsed during the patent approval process varies due to the nature (or complexity) of the patent, to ensure the comprehensiveness of our measure of firm innovation performance, we tracked the number of government-approved patents of each surveyed firm for the following three years after the survey (i.e., from 2015 to 2017). These data are from the patent database of the State Intellectual Property Office of China. Overall, we used four measures across multiple sources and time points to provide a comprehensive account of firm innovation performance.

Control variables. Following prior research (e.g., Chatterjee and Hambrick, 2007; Jansen et al., 2008; Markusen et al., 1995; Nadkarni and Herrmann, 2010), we controlled for

CEO demographic variables, such as gender (0 = male, 1 = female), age (1 = younger than 30 years old, 2 = between 30 and 40 years old, 3 = between 40 and 50 years old, 4 = between 50 and 60 years old, and 5 = above 60 years old), education (1 = doctor's degree, 2 = master's degree, 3 = bachelor's degree, 4 = associate degree, 5 = other), and prior entrepreneurial experience (i.e., before founding this firm, the CEO had 1 = at least one entrepreneurial experience, 0 = no entrepreneurial experience). We also controlled for CEOs' tenure with their firm in number of years and their relative ownership, indicated by the CEO's shareholding ratio ranging from 1 (no shares) to 5 (100 per cent of the shares). In addition, we controlled for firm size (i.e., the number of employees), annual R&D spending (using a logarithmic transformation with base 10), four industry dummy variables (biological and pharmaceutical, information technology, manufacturing, and all other industries), and firm age in number of years since founding.

Confirmatory Factor Analysis

We conducted confirmatory factor analyses (CFAs) using Mplus 7.0 (Muthén and Muthén, 2010) on all CEO-reported measures to determine the distinctiveness of these variables, including CEO calling, firm exploration, firm exploitation, and CEO perceived innovation performance. We followed prior research to create three parcels for the items of the CEO calling scale, which allows for a favourable item to sample size ratio (e.g., Bagozzi and Edwards, 1998). The 4-factor model (i.e., baseline model) best fits the data ($\chi^2(df) = 158.349 (84)$, RMSEA = 0.067, CFI = 0.978, NNFI = 0.973, SRMR = 0.032) as compared with alternative models shown in Table III.

Statistical Procedures

The study hypotheses were tested using SPSS 26.0 with the PROCESS macro (Hayes, 2013). Models examined with this macro were calculated using the bias corrected method applying 95% confidence intervals obtained through 10,000 bootstrap samples. Importantly, the PROCESS macro provided empirical tests for the indirect effects predicted in H1 and conditional indirect effects proposed in H2, offering additional insight beyond what can be assumed by assessing the pattern of relationships demonstrated by the significance of variable coefficients in simple regression analyses. In addition, the interaction predicted in H2 was plotted using a macro developed by Dawson (2014). Finally, two supplemental analyses are provided. The first probes whether there is a difference in the degree of calling experienced by founder versus non-founder CEOs, while the second uses qualitative data from semi-structured interviews with a sub-sample of CEO participants to further contextualize the study findings.

RESULTS

Descriptive Statistics

Table IV lists the means, standard deviations, and bivariate correlations among the variables. As expected, an ambidextrous firm strategy was positively related to CEO calling

Table III. Results of confirmatory factor analyses (CFAs)

<i>Models</i>	χ^2	Df	χ^2/df	$\Delta\chi^2$	<i>CFI</i>	<i>NFI</i>	<i>RMSEA</i>	<i>SRMR</i>
4-factor model (baseline model)	158.349	84	1.885		0.978	0.973	0.067	0.032
3-factor model (calling, exploration + exploitation, CEO perceived innovation)	214.679	87	2.468	56.330**	0.941	0.929	0.086	0.041
3-factor model (calling + exploitation, exploration, CEO perceived innovation)	427.591	87	4.915	269.242**	0.839	0.811	0.140	0.082
2-factor model (calling + exploration + exploitation, CEO perceived innovation)	454.430	89	5.106	296.081**	0.830	0.801	0.144	0.081
2-factor model (calling + CEO perceived innovation + exploitation)	562.231	89	6.317	403.882**	0.779	0.741	0.163	0.089
1-factor model (calling + exploration + exploitation + CEO perceived innovation)	619.318	90	6.881	460.969**	0.758	0.720	0.172	0.091

** $p < 0.01$.

Table IV. Descriptive statistics and variable correlations

Variables	Mean	SD	1	2	3	4	5	6	7	8
1. Firm size	30.230	43.311								
2. Firm age	6.465	2.886	0.314 (0.000)							
3. CEO education	3.035	1.004	-0.050 (0.483)	-0.021 (0.765)						
4. CEO ent. experience	0.265	0.442	-0.036 (0.612)	0.001 (0.984)	-0.021 (0.768)					
5. CEO tenure	2.710	3.268	0.097 (0.172)	0.197 (0.005)	-0.041 (0.564)	0.226 (0.001)				
6. CEO ownership	2.935	1.404	-0.007 (0.922)	-0.073 (0.303)	0.091 (0.201)	-0.077 (0.277)	-0.120 (0.091)			
7. CEO gender	0.245	0.431	-0.069 (0.332)	0.025 (0.724)	0.154 (0.029)	-0.105 (0.139)	0.008 (0.912)	0.192 (0.006)		
8. CEO age	2.610	1.088	-0.010 (0.890)	0.023 (0.748)	-0.112 (0.116)	0.164 (0.021)	0.077 (0.281)	-0.208 (0.003)	-0.159 (0.024)	
9. CEO calling	3.509	1.418	-0.031 (0.665)	-0.032 (0.632)	-0.104 (0.142)	0.263 (0.000)	0.079 (0.264)	0.047 (0.504)	-0.135 (0.056)	0.263 (0.000)
10. Founder status	0.685	0.466	-0.050 (0.486)	-0.010 (0.887)	-0.213 (0.002)	0.334 (0.000)	0.102 (0.152)	-0.178 (0.012)	-0.189 (0.007)	0.421 (0.000)
11. Ambidextrous strategy	18.443	5.348	0.018 (0.799)	0.005 (0.940)	-0.017 (0.814)	0.240 (0.001)	0.185 (0.009)	0.003 (0.968)	-0.120 (0.090)	0.154 (0.030)
12. Patent applications	4.470	8.212	0.117 (0.100)	0.064 (0.370)	0.090 (0.205)	0.098 (0.166)	0.008 (0.916)	-0.075 (0.289)	-0.045 (0.523)	0.071 (0.316)
13. New products	1.640	5.302	0.044 (0.540)	0.015 (0.834)	0.035 (0.619)	-0.021 (0.765)	-0.005 (0.940)	0.081 (0.257)	0.116 (0.103)	0.016 (0.817)

(Continues)

Table IV. (Continued)

Variables	Mean	SD	1	2	3	4	5	6	7	8
14. Perceived innovation performance	4.140	0.628	0.065 (0.360)	0.019 (0.786)	-0.221 (0.002)	0.060 (0.397)	0.120 (0.092)	-0.035 (0.621)	-0.243 (0.001)	0.156 (0.028)
15. Patent approvals	4.880	11.562	-0.009 (0.902)	0.015 (0.834)	0.005 (0.943)	0.011 (0.875)	-0.033 (0.643)	-0.057 (0.424)	-0.056 (0.435)	0.156 (0.027)
16. R&D spending	2.748	0.787	0.065 (0.363)	0.083 (0.242)	-0.070 (0.323)	-0.019 (0.786)	-0.084 (0.235)	0.047 (0.507)	-0.051 (0.477)	-0.017 (0.811)
17. Industry1 (dummy)	0.180	0.385	0.021 (0.772)	0.101 (0.156)	-0.003 (0.962)	0.014 (0.849)	0.022 (0.758)	-0.015 (0.828)	0.066 (0.353)	0.156 (0.027)
18. Industry2 (dummy)	0.360	0.481	0.045 (0.524)	0.100 (0.161)	0.047 (0.512)	-0.120 (0.091)	-0.008 (0.914)	-0.077 (0.280)	-0.040 (0.577)	-0.086 (0.228)
19. Industry3 (dummy)	0.220	0.415	-0.114 (0.109)	-0.119 (0.092)	-0.043 (0.549)	0.091 (0.198)	-0.079 (0.264)	0.007 (0.917)	-0.022 (0.758)	0.002 (0.980)
20. Industry4 (dummy)	0.240	0.428	0.041 (0.567)	-0.087 (0.222)	-0.008 (0.911)	0.034 (0.633)	0.066 (0.354)	0.093 (0.190)	0.007 (927)	-0.046 (0.516)

Variables	9	10	11	12	13	14	15	16	17	18	19
10. Founder status	0.735 (0.000)										
11. Ambidextrous strategy	0.462 (0.000)	0.445 (0.000)									
12. Patent applications	0.003 (0.963)	0.053 (0.453)	0.150 (0.033)								
13. New products	0.020 (0.781)	0.080 (0.260)	0.163 (0.021)	0.160 (0.024)							

(Continues)

Table IV. (Continued)

Variables	9	10	11	12	13	14	15	16	17	18	19
14. Perceived innovation performance	0.291 (0.000)	0.306 (0.000)	0.496 (0.000)	0.129 (0.068)	0.185 (0.009)						
15. Patent approvals	0.078 (0.273)	0.069 (0.328)	0.258 (0.000)	0.184 (0.009)	0.040 (0.575)	0.248 (0.000)					
16. R&D spending	0.034 (0.631)	0.065 (0.359)	-0.010 (0.885)	-0.120 (0.089)	0.032 (0.652)	0.101 (0.153)	0.059 (0.405)				
17. Industry1 (dummy)	-0.050 (0.483)	-0.018 (0.795)	0.113 (0.110)	0.075 (0.292)	0.103 (0.146)	0.129 (0.069)	0.073 (0.307)	0.045 (0.526)			
18. Industry2 (dummy)	-0.092 (0.197)	-0.030 (0.677)	-0.083 (0.245)	-0.058 (0.412)	-0.108 (0.126)	0.040 (0.572)	0.046 (0.520)	-0.102 (0.152)	-0.351 (0.000)		
19. Industry3 (dummy)	0.001 (0.990)	-0.004 (0.959)	-0.101 (0.157)	-0.010 (0.890)	-0.062 (0.383)	-0.181 (0.010)	-0.071 (0.319)	0.019 (0.792)	-0.249 (0.000)	-0.398 (0.000)	
20. Industry4 (dummy)	0.147 (0.038)	0.053 (0.452)	0.088 (0.213)	0.008 (0.913)	0.089 (0.209)	0.015 (0.838)	-0.048 (0.500)	0.055 (0.435)	-0.263 (0.000)	-0.421 (0.000)	-0.298 (0.000)

Note: N = 200. Correlations with an absolute value > 0.150 are significant at 0.05 level. Exact p-values are in parentheses.

($R = 0.462$, $p < 0.01$) and CEO founder status ($R = 0.445$, $p < 0.01$). Ambidexterity was also positively associated with innovation performance, including the number of patent applications in 2014 ($R = 0.150$, $p < 0.05$), the number of new products in 2014 ($R = 0.163$, $p < 0.05$), CEO perceived innovation performance ($R = 0.496$, $p < 0.01$), and the total number of patents from 2015 to 2017 in the patent database of the State Intellectual Property Office of China ($R = 0.258$, $p < 0.01$).

Test of Indirect Effects

Hypothesis 1 suggests that the relationship between CEOs' founder status and firm innovation performance will be positively mediated by the implementation of an ambidextrous firm strategy. As shown in Table V, founder status has a significant and positive relationship with ambidextrous strategy ($B = 2.998$, $SE = 1.202$, $p = 0.013$); ambidextrous strategy has significant and positive relationships with new products ($B = 0.170$, $SE = 0.083$, $p = 0.043$), perceived innovation performance ($B = 0.051$, $SE = 0.008$, $p = 0.000$), and patent approvals ($B = 0.683$, $SE = 0.179$, $p = 0.000$). In addition, ambidextrous strategy has a marginally significant relationship with patent applications ($B = 0.239$, $SE = 0.129$, $p = 0.066$). These findings demonstrate a general pattern of support for H1. As an overall statistical test of the predicted indirect effect of founder status on innovation performance through the mediating effects of ambidexterity, PROCESS Model 4 was used. The results for these analyses are displayed in Table VI. Founder status is observed to have a significant positive indirect effect (via ambidextrous firm strategy) on new products (*boot indirect effect* = 0.510, with a 95% *CI* = 0.056 to 1.322), perceived innovation performance (*boot indirect effect* = 0.154, with a 95% *CI* = 0.041 to 0.290), and patent approvals (*boot indirect effect* = 2.049, with a 95% *CI* = 0.412 to 4.220), but non-significant indirect effect on patent applications (*boot indirect effect* = 0.716, with a 95% *CI* = -0.067 to 1.810). Therefore, the results support H1 with respect to most measures of innovation performance.

Test of Conditional Indirect Effects

Hypothesis 2 suggests that the degree to which CEOs perceive their work as a calling will moderate the indirect relationship between founder status and firm innovation performance, mediated through the implementation of an ambidextrous firm strategy, such that it will become more positive when they are high in calling. As shown in Table V, the interaction of founder status with calling on ambidextrous strategy is positive and significant ($B = 1.792$, $SE = 0.710$, $p = 0.012$). Consistent with our prediction, calling enhances the positive relationship between founder status and firm ambidextrous strategy, as shown in Figure 2. Furthermore, the results of PROCESS Model 7 shown in Table VII demonstrate that the indirect effect of founder status on the number of new products via ambidextrous strategy is significant and positive when calling is high (+1 *SD*) (*indirect effect* = 0.874, $SE = 0.559$, 95% *CI* = 0.105 to 2.222) and non-significant when calling is low (-1 *SD*) (*indirect effect* = 0.148, $SE = 0.284$, 95% *CI* = -0.371 to 0.815), with the index of moderated mediation being significant (*index of moderated mediation* = 0.256, $SE = 0.194$, 95% *CI* = 0.009 to 0.743). Similarly, the indirect effect of founder status on CEO perceived innovation performance via ambidextrous firm strategy is significantly and positive when calling is high (+1 *SD*)

Table V. Regression models for ambidextrous strategy and measures of firm innovation performance

Variables	Ambidextrous strategy					
	B	SE	p-value	B	SE	p-value
Intercept	12.480***	2.371	0.000	14.759**	2.402	0.000
Controls						
Firm size	0.003	0.008	0.684	0.003	0.008	0.708
Firm age	-0.041	0.125	0.743	-0.057	0.123	0.642
CEO education	0.368	0.342	0.283	0.454	0.339	0.181
CEO ent. experience	0.796	0.820	0.333	0.739	0.809	0.362
CEO tenure	0.207 ⁺	0.108	0.057	0.175	0.107	0.104
CEO ownership	0.196	0.256	0.445	0.211	0.253	0.404
CEO gender	-0.869	0.807	0.283	-0.754	0.797	0.345
CEO age	-0.280	0.346	0.420	-0.240	0.341	0.484
R&D spending	-0.233	0.430	0.589	-0.379	0.428	0.377
Industry1 (dummy)	1.470	1.058	0.166	1.529	1.044	0.145
Industry2 (dummy)	-0.550	0.896	0.540	-0.662	0.885	0.455
Industry3 (dummy)	-1.120	0.988	0.258	-0.939	0.977	0.338
Main effects						
Founder status	2.998*	1.202	0.013	3.578**	1.207	0.003
CEO calling	0.962**	0.361	0.008	0.174	0.473	0.713
Ambidextrous strategy						
Interactions						
Founder status × CEO calling				1.792*	0.710	0.012
F-value	5.593***		0.000	5.796***		0.000
R ²	0.297			0.321		

(Continues)

Table V. (Continued)

Variables	Patent applications			New products			Perceived innovation performance			Patent approvals		
	B	SE	p-value	B	SE	p-value	B	SE	p-value	B	SE	p-value
Intercept	2.383	4.455	0.593	-1.803	2.879	0.532	3.205***	0.285	0.000	-12.390*	6.180	0.046
Controls												
Firm size	0.023	0.014	0.107	0.006	0.009	0.505	0.000	0.001	0.731	-0.007	0.020	0.723
Firm age	0.141	0.219	0.520	0.013	0.142	0.925	-0.007	0.014	0.607	0.036	0.303	0.906
CEO education	0.868	0.601	0.150	0.218	0.388	0.576	-0.112**	0.039	0.004	-0.001	0.833	0.999
CEO ent. experience	1.310	1.441	0.364	-0.754	0.931	0.419	-0.113	0.092	0.224	-0.517	1.997	0.796
CEO tenure	-0.182	0.191	0.340	-0.052	0.123	0.676	0.009	0.012	0.438	-0.301	0.264	0.256
CEO ownership	-0.311	0.450	0.490	0.304	0.291	0.297	0.008	0.029	0.779	-0.483	0.623	0.439
CEO gender	-0.536	1.419	0.706	1.448	0.917	0.116	-0.230*	0.091	0.012	-0.118	1.966	0.952
CEO age	0.224	0.607	0.712	-0.043	0.392	0.913	0.018	0.039	0.642	1.786*	0.842	0.035
R&D spending	-1.408 ⁺	0.754	0.063	0.073	0.487	0.882	0.074	0.048	0.126	1.162	1.045	0.268
Industry1 (dummy)	0.472	1.865	0.800	0.025	1.205	0.984	0.164	0.119	0.170	1.280	2.584	0.621
Industry2 (dummy)	-1.230	1.572	0.435	-1.549	1.016	0.129	0.125	0.101	0.218	2.422	2.179	0.268
Industry3 (dummy)	-0.053	1.738	0.976	-1.098	1.123	0.330	-0.117	0.111	0.293	0.077	2.409	0.975
Main effects												
Founder status	1.221	2.141	0.569	2.439 ⁺	1.384	0.080	0.013	0.137	0.925	-4.016	2.968	0.178
CEO calling	-0.728	0.645	0.261	-0.711 ⁺	0.417	0.090	0.027	0.041	0.515	0.235	0.894	0.793
Ambidextrous strategy	0.239 ⁺	0.129	0.066	0.170*	0.083	0.043	0.051***	0.008	0.000	0.683***	0.179	0.000
Interactions												
Founder status × CEO calling	1.206		0.270	1.180		0.291	6.951***		0.000	1.745*		0.046
F-value	0.090			0.088			0.362					
R ²												

Note: N = 200.

⁺p < 0.1; *p < 0.05; **p < 0.01; ***p < 0.001.

Table VI. Indirect effects (via ambidextrous strategy) on patent applications, new products, perceived innovation performance, and patent approvals

<i>Model</i>	<i>Patent applications</i>			<i>New products</i>			<i>Perceived innovation performance</i>			<i>Patent approvals</i>		
	<i>Boot indirect effect</i>	<i>Boot 95% confidence interval</i>	<i>Boot SE</i>	<i>Boot indirect effect</i>	<i>Boot 95% confidence interval</i>	<i>Boot SE</i>	<i>Boot indirect effect</i>	<i>Boot 95% confidence interval</i>	<i>Boot SE</i>	<i>Boot indirect effect</i>	<i>Boot 95% confidence interval</i>	<i>Boot SE</i>
CEO founder status (via ambidextrous strategy) on firm innovation performance	0.716	-0.067 to 1.810	0.490	0.510	0.056 to 1.322	0.330	0.154	0.041 to 0.290	0.064	2.049	0.412 to 4.220	0.977

Note: Non-founder CEO = 0, founder CEO = 1. N = 200. Bootstrap sample size = 10,000. Bias corrected confidence intervals are reported. Control variables = firm size, firm age, CEO gender, CEO age, CEO education, CEO entrepreneurial experience, CEO tenure, CEO ownership, R&D spending, industry type.

Table VII. Conditional indirect effects of CEO founder status (via ambidextrous strategy) on patent applications, new products, perceived innovation performance, and patent approvals dependent on calling

Model	Calling	Patent applications			New products			Perceived innovation performance			Patent approvals		
		Boot indirect effect	Boot 95% confidence interval	Boot SE	Boot indirect effect	Boot 95% confidence interval	Boot SE	Boot indirect effect	Boot 95% confidence interval	Boot SE	Boot indirect effect	Boot 95% confidence interval	Boot SE
CEO founder status (via ambidextrous strategy) on firm innovation performance	-1.418 (-1 SD) 0.000 (Mean) 1.418 (+1 SD)	0.218	0.429 to 1.133	0.148	0.284 to 0.815	0.093	0.054 to 0.187	0.717	0.145 to 0.224	1.249	0.717 to 1.706	0.326	
		0.754	0.548 to 1.959	0.511	0.348 to 1.374	0.069	0.187 to 0.320	2.477	0.072 to 0.344	1.002	0.717 to 1.469	0.835 to 4.771	
		1.291	0.923 to 3.261	0.874	0.559 to 2.222	0.109	0.320 to 0.578	4.238	0.148 to 0.578	1.469	1.469 to 7.540		

Formal statistical test of moderated mediation	Index of moderated mediation	Index of moderated mediation			Index of moderated mediation			Index of moderated mediation		
		Boot 95% confidence interval	Boot SE	Boot 95% confidence interval	Boot 95% confidence interval	Boot SE	Boot 95% confidence interval	Boot 95% confidence interval	Boot SE	Boot 95% confidence interval
0.378	0.329	-0.079 to 1.191	0.194	0.009 to 0.743	0.094	0.052 to 0.214	1.241	0.652	0.148 to 2.692	

Note: Non-founder CEO = 0, founder CEO = 1. N = 200. Bootstrap sample size = 10,000. Bias corrected confidence intervals are reported. Control variables = firm size, firm age, CEO gender, CEO age, CEO education, CEO entrepreneurial experience, CEO tenure, CEO ownership, R&D spending, industry type.

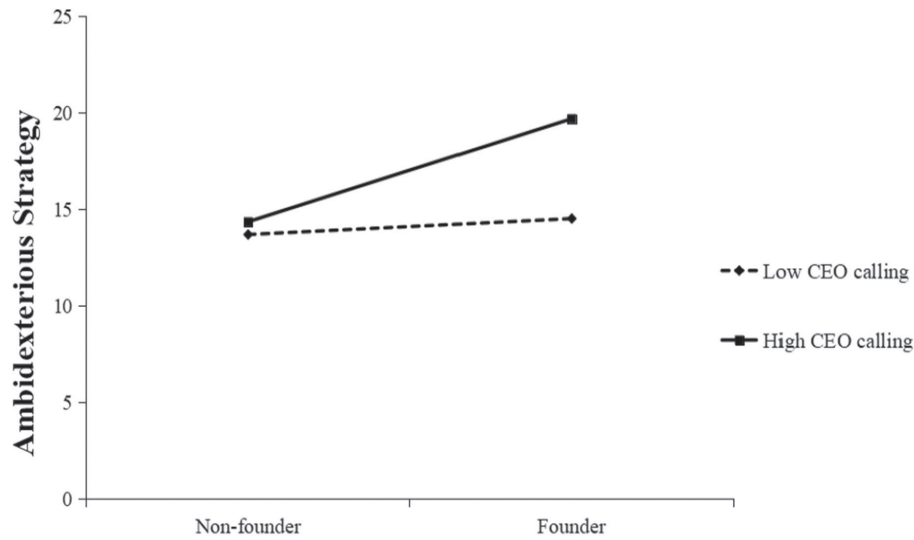


Figure 2. The interaction of CEO founder status with calling on ambidextrous firm strategy

(*indirect effect* = 0.320, *SE* = 0.109, 95% *CI* = 0.148 to 0.578) and non-significant when calling is low (-1 *SD*) (*indirect effect* = 0.054, *SE* = 0.093, 95% *CI* = -0.145 to 0.224), with the index of moderated mediation index also being significant (*index of moderated mediation* = 0.094, *SE* = 0.052, 95% *CI* = 0.013 to 0.214). In addition, the indirect effect of founder status on the number of patent approvals via ambidextrous strategy is significant and positive when calling is high ($+1$ *SD*) (*indirect effect* = 4.238, *SE* = 1.469, 95% *CI* = 1.893 to 7.540) and non-significant when calling is low (-1 *SD*) (*indirect effect* = 0.717, *SE* = 1.249, 95% *CI* = -1.706 to 3.326), with the index of moderated mediation being significant (*index of moderated mediation* = 1.241, *SE* = 0.652, 95% *CI* = 0.148 to 2.692). Lastly, however, the indirect effects of founder status on the number of patent applications is non-significant when calling is high ($+1$ *SD*) (*indirect effect* = 1.291, *SE* = 0.923, 95% *CI* = -0.305 to 3.261) and low (-1 *SD*) (*indirect effect* = 0.218, *SE* = 0.429, 95% *CI* = -0.660 to 1.133), and the index of moderated mediation is non-significant (*index of moderated mediation* = 0.378, *SE* = 0.329, 95% *CI* = -0.079 to 1.191). Overall, H2 receives support from three out of four indicators of firm innovation performance, showing generally consistent support for our overall model.

Translating the findings into practical and economic terms, we observed that when the CEO is a founder, a one standard deviation (i.e., 1.42 units on a 5-point scale) increase in calling results in a noteworthy 0.47 gain in number of new products, 0.13 advancement in perceived innovation performance (i.e., an increase of 0.21 standard deviations), and 1.46 return in number of patent approvals. It is essential to note that, despite our efforts, we could not account for all potential factors that may influence innovation performance. Therefore, caution is advised when interpreting the magnitude of the observed effects. Nevertheless, these results strongly indicate that our model predicts substantial real-world benefits in terms of innovation performance for founder CEOs perceiving their work as a calling.

Supplemental Analysis 1: Are Founder, Versus Non-Founder, CEOs Higher in Calling?

Given the ability of founder CEOs to shape the development of their firms around their calling as compared to non-founder CEOs who must instead try to obtain a leadership position with a firm that they perceive to align with their calling, it stands to reason that founder CEOs, on average, might be higher in perceived calling for their work than non-founder CEOs. We therefore sought to explore this issue as a supplementary examination. First, we considered the correlation between calling and founder status, which demonstrated a positive and significant relationship ($R = 0.735$, $p < 0.01$). Next, we regressed founder status onto calling with the same set of control variables used to examine the study hypotheses. Once again, the relationship was found to be positive and significant ($B = 2.346$, $SE = 0.175$, $p = 0.000$). Therefore, the ‘founder advantage’ that we have identified in the current research appears to be based on calling of founder CEOs not only having more positive effects on firm ambidextrous strategy and innovative performance as compared to non-founder CEOs, but also for such persons to be endowed with higher overall levels of calling than their non-founder counterparts.

Supplemental Analysis 2: Qualitative Evidence for the Role of Founder Status and CEO Calling in Achieving Ambidexterity

Qualitative data from our semi-structured interviews further illuminate nuances regarding how CEO calling enables founder CEOs to excel in ambidexterity. The quotations derived from a content analysis are presented in Table VIII, with examples aligned with our primary arguments (Braun and Clarke, 2006). Specifically, founder status and CEO calling appear to contribute to how founder characteristics – such as setting a compelling mission and vision, creatively altering the status quo, risk-taking, adaptability, and navigating uncertainty – are linked to the adoption of an ambidextrous firm strategy. For instance, Interviewee 1, a founder, emphasized the importance of balancing the roles of scientist and businessperson to keep the company alive and achieve something bigger, reflecting a deep commitment to a prosocial mission. Similarly, Interviewee 4, another founder, highlighted the integration of social responsibility into the company’s mission, shaping the value and culture that employees commit to over time. Furthermore, Interviewee 3 described how a strong sense of calling provides a clear goal, allowing flexibility in the path taken to achieve it, thus facilitating adaptability. These examples underscore how founder CEOs leverage their sense of calling to drive ambidexterity within their firms.

DISCUSSION

The existing body of research comparing the effectiveness of founder to non-founder CEOs has to date resulted in mixed findings, leaving the question of what enables a potential ‘founder advantage’ unanswered. The primary objective of the current study was to address this research gap by examining the association of CEO founder status

Table VIII. Qualitative examples for the role of CEO calling in enhancing factors representing a founder advantage

<i>Founder advantage</i>	<i>Qualitative examples</i>
Setting and committing to a vision and mission	<p>Interviewee 1 (founder). As a bio-medical device company, we truly believe what we do is important for the humanity. I have to constantly balance between the role as a scientist for the investment and development of new technology and products and the role as a businessperson for economic return. I have to keep this company alive to achieve something bigger.</p> <p>(Prosocial orientation and purpose)</p>
	<p>Interviewee 4 (founder). I personally feel the importance to have social responsibility as part of the mission of a company. This is how I developed the value and culture of my company, to which my employees become committed over time under my influence. I value the qualities such as being tenacious, responsible, caring etc. Starting with improving the life of my employees and their families, I hope, in the near future, my company can take on more social responsibilities and initiate more meaningful and positive changes in the society.</p> <p>(Prosocial orientation)</p>
	<p>Interviewee 5 (founder). Coming from an economically humble family, my main reason for building this company is to create jobs for more people and generate more benefit for disadvantaged groups in the society. For example, I constantly look and participate in philanthropical projects, especially the ones about education, because this is my personal mission.</p> <p>(Prosocial orientation and purpose)</p>
Creatively altering the status quo	<p>Interviewee 1 (founder). In China, people prefer more stable job positions that belongs to the staffing system endorsed by or affiliated with the government. Private companies usually cannot provide such positions. Knowing the importance of talents in the development of my company, with the confidence in our cutting-edge technologies, I managed to persuade our local government to provide such job openings inside my company.</p> <p>(Purpose)</p>
	<p>Interviewee 3 (founder). In the second decade of our development, we faced big challenges due to our strategy with a focus on expansion. It was a tremendous change for the company to re-focus on the cash flow and to slow down. I realized the necessity and educated the employees to alter their mindset.</p> <p>(Persistence)</p>
Taking bold risks	<p>Interviewee 2 (founder). Whenever we make a decision of buying an equipment or device, it is associated with a huge risk of whether it will be outdated in the next five years, causing additional cost for replacement. I consider this is part of the cost that we cannot fully avoid when doing something we believe is right. When the bad scenario happens, we will have to handle it with persistence.</p> <p>(Purpose and persistence)</p>
	<p>Interviewee 3 (founder). My job is like climbing a mountain, a meaningful goal that I have to achieve. Of course, climbing a mountain is full of uncertainties and risks, but what you can do is just to try your best to manage them, while sticking with your goal.</p> <p>(Purpose and persistence)</p>

(Continues)

Table VIII. (Continued)

<i>Founder advantage</i>	<i>Qualitative examples</i>
Adaptability and making quick decisions to capitalize opportunities	<p>Interviewee 1 (founder). Before the pandemic, we did not have any sales personnel in our company because we always had a long waiting list of customers for our products. This year is the first year that we see the need for some marketing and sales effort. I quickly step into the role myself, because I am the CEO, but also the scientist, who can better explain all details and benefits of our products to new customers. This change has added a lot more business trips to my agenda.</p> <p>(Purpose)</p> <p>Interviewee 3 (founder). I feel like I was born for what I am doing. A strong sense of calling depicts a clear goal for me as knowing <i>where to go</i>. This makes me be able to keep the flexibility of choosing which path to <i>get there</i>. With a clear goal, I wouldn't get lost easily.</p> <p>(Destiny and Purpose)</p>
Navigating Uncertainty	<p>Interviewee 1 (founder). Our team of scientists spends a lot of time exploring possible new technologies and products. Most of the ideas may be proven wrong eventually, the procedure of which may take one year or more. As the CEO, I have to give them this freedom to do so, because I believe our products are in the leading position of the industry and innovation is the key to sustain it.</p> <p>(Purpose)</p> <p>Interviewee 2 (founder). Uncertainties and risks exist everywhere, such as the business environment, competition, our team, the life cycle of our product, etc. As a long-term oriented person, I believe the key is your passion. As long as you believe in what you do, you would be happy for taking these challenges.</p> <p>(Purpose)</p>

with ambidextrous firm strategy and, ultimately, innovation performance. In addition, the role of calling was considered as an enabling boundary condition. Our results suggest that founder CEO status is associated with a firm strategy that is more ambidextrous and, in turn, results in better innovation performance, as shown by three out of four examined indicators of firm innovation performance. Yet, such benefits were observed to only be accrued to founder CEOs who were high in calling. We now consider the implications of these findings in relation to current knowledge regarding the founder advantage, discuss practical implications, review relevant limitations and future directions, and offer concluding thoughts.

How and when a 'Founder Advantage' Fuels Firm Innovation

The history of the world's most innovative corporations has been cast to date with an almost exclusive record of founder CEOs leading their firms from unknown startups to positions of market leadership. Founder CEOs set the initial vision, mission, and strategic direction for their firms (Baron et al., 1999). Thus, their values and core identities tend to become embedded in their firms (Staw, 1991). It therefore is unsurprising that studies have identified founder CEOs as being more likely to adopt a long-term view and engage in less opportunist behaviour as compared to non-founder CEOs (Boivie et al., 2011). Similarly, other research has observed that founder CEOs

are inclined to act as stewards, whereas non-founder CEOs instead tend to behave more as agents (Dawson et al., 2018). This orientation appears to positively affect the bottom line, as firms led by founder CEOs have been shown in a number of studies to outperform non-founder led firm on metrics such as return on assets (Begley, 1995) and stock market returns (Nelson, 2003). This has led some scholars to characterize such performance benefits as the ‘founder advantage’ (Chen, 2020). Despite the above noted benefits accrued to firms led by founder CEOs, there are a number of articles claiming that such persons also carry with them shortcomings that can potentially lead to deleterious outcomes. For instance, research findings have shown founder CEOs to be more overconfident in their decision making than non-founder CEOs (Lee et al., 2017). In addition, other research has demonstrated that founder CEOs may exert too much control, which can reduce the degree of influence that the broader top management team is able to exert on firm performance (Hendricks et al., 2019). In fact, the desire to maintain power has been one of the most consistent reasons used to explain cases of underperformance for firms led by founder versus non-founder CEOs (Wasserman, 2006), in terms of a decreased rate of market expansion (Souder et al., 2012) and lower valuations at IPO (Certo et al., 2001; Wasserman, 2017).

Therefore, taken together, despite a long history of examples suggesting the existence of a founder advantage, which has only grown of recent within the news media and popular press, research findings in support of this phenomenon are somewhat mixed. We therefore began the current research by first considering *how* a founder advantage is likely to occur. Integrating insights from upper echelons theory, we developed and examined a model predicting CEO founder status to be positively related to innovation performance via ambidextrous strategy. In so doing, we linked prior research suggesting an association of CEO founder status with innovation (Lee et al., 2020; Tzabbar and Margolis, 2017) and the research of ambidextrous strategy (Gupta et al., 2006; Tushman and O’Reilly, 1996). This allowed us to demonstrate a baseline mechanism explaining how a founder advantage occurs. Specifically, we argued that the status of CEOs as founder or non-founder is associated with embodied job characteristics and expectations, which, in turn, moulds the degree that such persons foster ambidextrous strategies within their organizations, and achieve heightened innovation performance. Our findings support this indirect effect, marking an initial step in unpacking the underlying dynamics of a founder advantage.

Our findings offer a nuanced understanding of the conditions under which a founder advantage is realized, advancing the discourse on upper echelons theory by incorporating the dimension of CEO calling. Importantly, our research highlights that the founder advantage is not universally present; instead, it is contingent upon the presence of a high sense of calling in founder CEOs. This finding challenges the conventional wisdom that founder CEOs inherently possess an advantage, as it demonstrates that this advantage is significantly moderated by their level of calling. Specifically, our results indicate that the founder advantage in innovation performance is only observed when founder CEOs have a high sense of calling for their work. In contrast, when calling is low, there is no significant difference in innovation performance between founder and non-founder CEOs. This insight advances knowledge regarding when and how a founder advantage is likely

to manifest and introduces CEO calling as a critical boundary condition within the scope of upper echelons theory. Moreover, this finding invites future research to explore the broader implications of calling for other performance outcomes beyond innovation, as well as its potential effects in different organizational contexts.

Importantly, however, our findings offer less insight regarding how non-founder CEOs might also be able to achieve high levels of innovation performance. Therefore, it might be interesting for future research to delve deeper into what factors might enable non-founder CEOs to obtain such outcomes for their firms. For example, prior research has found that sequential alteration (deliberately altering between exploration and exploitation over time) is used by some firms to adapt as opposed to the more traditional behavioural integration view of simultaneously engaging in exploration and exploitation (Birkinshaw et al., 2016). It may be that founder CEOs tend to follow a behavioural integration orientation, whereas non-founder CEOs apply a sequential alteration approach. Research examining this possibility could benefit from the use of a longitudinal design so as to consider founder-to-non-founder CEO transitions and respond to calls for research examining how tensions between exploration and exploitation evolve and are managed within firms over time (Zimmermann et al., 2018).

Next, we examined *when* such effects are most pronounced. We identified calling as a crucial boundary condition for the acknowledged founder advantage. The presence of a strong sense of calling for one's work was proposed to intensify differences in the stereotypical roles of founder and non-founder CEOs, such as risk-taking and growth orientation versus operational efficiency and profit maximization. Consequently, our predictions indicated that the pursuit of ambidextrous strategies and subsequent innovation performance gains would be heightened for founder CEOs compared to non-founder CEOs in the presence of an increased sense of calling for one's work. Our findings in support of these predictions contribute nuanced insights into the contextual factors influencing when a founder advantage is most likely to be realized.

In turn, our findings extend limited prior research on calling and organizational outcomes (e.g., Beadle, 2013; Lysova et al., 2016). Prior studies have typically focused on examining how one's calling relates to individual career- and work-related outcomes such as domain task performance, satisfaction, career/organizational commitment, and well-being (for reviews on calling, see Duffy and Dik, 2013; Thompson and Bunderson, 2019). However, one's calling has the potential for exerting influence beyond the individual level, such as on organizations or even society, especially when it is exhibited by individuals holding powerful positions such as top-level managers and CEOs – as would be predicted by upper echelons theory (Hambrick, 2007). By studying CEO calling, the results of our study demonstrate that an individual's calling can be highly relevant in shaping performance outcomes that extend beyond individuals, addressing a recent call for more research in this area (Thompson and Bunderson, 2019).

Our study not only contributes to the understanding of founder advantages but also offers a more sophisticated perspective on how personal values and motivations at the executive level can shape firm performance. Specifically, we found that the positive effects of a founder advantage in innovation are contingent on high levels of CEO calling, suggesting that calling interacts with leadership roles to produce varying outcomes. This insight provides a more detailed understanding of the role of calling within the scope

of upper echelons theory, suggesting that it does not uniformly enhance performance but rather interacts with specific leadership roles to produce varying outcomes. Future research could explore whether similar interactions between CEO calling and firm performance exist in other domains, such as profitability or market expansion, to further unravel the complex dynamics at play.

It is important to point out that even though our findings fail to identify benefits of calling for non-founder CEOs in terms of ambidexterity and subsequent innovation performance, this is not to say that having a sense of calling for their work does not carry other benefits for such persons. As we argue in our theory development, calling for non-founder CEO is likely to be aligned with their stereotypical attributes, such as risk aversiveness, an orientation toward optimization, and use of systematic decision-making processes. Having a sense of being called to apply such attributes in one's work may instead help non-founder, as compared to founder, CEOs to operate with greater efficiency and achieve higher levels of profitability for their firms in the short-term. Moreover, through pursuit of their long-term vision and orientation toward producing innovative outcomes, founder CEOs can easily lose sight of the short-term execution that is needed on a day-to-day basis in order to maintain the viability of their firms. Thus, even though our findings identify advantages for founder-CEOs, our study only provides a brushstroke of evidence in the much larger picture depicting the broader range of pro's and con's associated with firms having founder versus non-founder CEOs.

Finally, building on a recent editorial commentary by Wickert et al. (2024) and the suggestions of other researchers (e.g., Hmieleski and Cole, 2022), which highlight the need to integrate non-Western contexts into management research, our study makes notable progress in this area. By employing a sample of founder and non-founder CEOs from small- and medium-sized enterprises in China, the present research sought to address a significant gap in geographical and cultural representation in existing research. This approach not only aligns with calls for a broader inclusion of non-Western perspectives but also enhances our understanding of how CEO characteristics, especially the concept of calling, impact firm innovation within a non-Western (Chinese) context. Our findings highlight the importance of expanding management theories beyond Western-centric frameworks and demonstrate how non-Western contexts can provide valuable insights into leadership and organizational performance.

Practical Implications

Our research yields significant practical implications, particularly with respect to entrepreneurship education, leadership succession and transitions of power from founder to non-founder CEOs, and investment decisions for innovative and high growth ventures. First, with respect to entrepreneurship education, one noteworthy finding from our study is the advantage observed in having founding CEOs who possess a strong sense of calling. This suggests that entrepreneurship education programmes should consider integrating this characteristic into their training curriculums for venture team formation and leader selection. By emphasizing the importance of calling alongside other essential qualities, these programmes can better prepare aspiring entrepreneurs for success. Furthermore,

our findings suggest the potential importance of aligning calling with the growth objectives of founding teams. Training programmes should highlight the advantages of fostering this alignment, as calling appears to be particularly beneficial when pursuing an ambidextrous strategy and seeking to introducing innovative products or services – elements that are vital for achieving sustained firm growth (He and Wong, 2004). However, further research is needed to determine whether such training would indeed result in performance advantages.

Second, when managing leadership succession and transitions of power from founder to non-founder CEOs, our findings indicate a possibility that non-founders might need to self-regulate the tendency of their sense of calling to lead them toward risk aversion, efficiency, and optimization that characterize the role of a professional CEO (Wasserman, 2017), especially in times where an ambidexterity strategy and the achievement of innovation-oriented performance outcomes are desired. Keeping other founders on board (potentially including the founding CEO in another role, such as chairman of the board), might help to smooth such transitions and maintain a long-term vision for the success of the firm (Trinh et al., 2023). Further research is however needed to better understand how these transitions of power impact innovation performance and to determine the most effective leadership succession strategies.

Finally, calling may prove beneficial for potential investors to consider, particularly as it relates to the due diligence of firms seeking to produce high growth. Considering that our results demonstrate calling as an enabler of founder CEO's ability to achieve firm innovation via the pursuit of an ambidextrous strategy, it may be that firms led by founder CEOs having a sense of calling for their work are able to produce inordinate returns for their investors. Even though it is possible that external pressures – such as heightened return expectations – can potentially negatively impact a CEO's decision-making and strategic focus, we argue that founder CEOs who are high in calling are uniquely positioned to withstand and even thrive under these pressures. A strong sense of calling provides a sense of purpose and meaning for their work (Dik and Duffy, 2009), which can act as a buffer against external pressures, enabling founder CEOs to maintain their strategic vision and commitment to innovation despite increased expectations. Moreover, a high sense of calling often translates into a long-term perspective (Duffy et al., 2011), where the founder CEO is more likely to prioritize sustainable growth and innovation over short-term gains. This long-term focus aligns with the ambidextrous strategy we identified in our research, where the balance between exploration and exploitation is key to driving innovation and firm performance (O'Reilly III and Tushman, 2011). Therefore, assessing the degree to which founding CEOs experience a perceived calling for their work may be worthy of consideration in addition to other traditional investment criteria such as human capital, intellectual property, initial market penetration, and economic viability.

Limitations and Future Research

In addition to the contributions of our study, there are also a few limitations that warrant further discussion. First, despite our findings indicating the importance of CEO calling, research on calling involving individuals with high power and social status, such as CEOs

and entrepreneurs, is still embryonic and deserves particular attention. As demonstrated by the results of our study, the calling of an individual with founder status and a high level of influence may significantly impact important firm outcomes. Still, our findings should be interpreted with caution as we focused broadly on the concept of calling (as commonly done in prior research; e.g., Dik et al., 2012a, 2012b). This poses an opportunity for future research to consider whether there may be differences regarding the nature of what it means to have a calling to be a founder versus non-founder CEO beyond what was considered in the current work.

Second, the cross-sectional nature of our study introduces the possibility for survival bias (Chang, 2024). For example, it is possible that founder CEOs whose firms have survived to become SMEs may be endowed with unique qualities that are superior to those of other founder CEOs who failed to lead their firms to such a point of development. Thus, survivor bias could potentially cloud our ability to detect differences between the overall population of founder versus non-founder CEOs. This issue was partly addressed by controlling for the age and size of sampled firms. Nonetheless, future research could work to eliminate this issue by studying firms across their entire lifespan.

Third, the design of our study limits our ability to ascertain the enduring nature of the identified founder advantage over time. While we deliberately selected firms for study that have progressed beyond their nascent stages (e.g., mean firm age = 6.47, SD = 2.89), focused on an enduring individual characteristic (i.e., calling), and emphasized a critical processes (i.e., ambidexterity) and outcomes (i.e., innovation performance) essential for achieving sustained success imply a lasting impact, a longitudinal approach in future research is essential to validate the existence of an enduring founder advantage. Examining the trajectory of such an advantage over an extended period would provide a more comprehensive understanding of leadership difference regarding founder and non-founder CEOs.

Fourth, calling is associated with a number of other variables that have been more widely studied in the entrepreneurship literature and among upper echelons members in general – such as identity (Fauchart and Gruber, 2011), passion (Cardon et al., 2009), and intrinsic motivation (Kibler et al., 2019). In the current work, we argued that the combined intrinsic, superordinate, and enduring nature of calling made it an ideal focal point for investigating its role as a boundary condition moderating the extent to which a founder's advantage in terms of innovation performance is realized. Nevertheless, it is plausible that other related variables may also exert comparable influence. Given the agentic and deeply personal nature of entrepreneurship, it would be valuable for future research to concurrently explore and weigh the relative importance of these variables. Understanding which factors play more or less significant roles in shaping the ability of founder CEOs to achieve long-term success for their firms can provide valuable insights for understanding the micro-foundations of entrepreneurship.

Finally, our findings should be generalized cautiously to larger-sized companies in traditional industries. In the current study, data were collected from small- and medium-sized high-tech companies in which CEOs have significant discretion in making and implementing strategic decisions (Cao et al., 2010; Lubatkin et al., 2006). In larger companies, especially those in traditional industries, this may not be true to the same degree given the potential for input from additional stakeholders and the

influence of more complex organizational structures. Thus, we encourage researchers conducting future studies to acquire data encompassing a larger variety of firm sizes and industries.

CONCLUSIONS

Mark Twain once famously said that ‘The two most important days in your life are the day you are born and the day you find out why’. For founder CEOs who perceive their work as a calling, understanding their meaning in life might be even more important than for most persons. This is because when such individuals are able to identify their purpose and align it with the development of a business that becomes a calling, they have the potential to magnify the meaning of their lives by creating transformative organizations that encourage their employees to reach for new heights (e.g., by operating with ambidexterity) and to produce products and/or services that change the world for the better (e.g., by launching innovative products/services). Considering that definitions of entrepreneurship have coalesced around value creation as the core focus of the discipline (e.g., Bruyat and Julien, 2001), we suggest that any comprehensive theory of the field should consider key micro-foundations such as the role of calling among founders – which may serve as an impetus for inordinate entrepreneurial success.

ACKNOWLEDGMENTS

This research was funded by the National Natural Science Foundation of China (Project No. 72272107), Tianjin University Independent Innovation Fund (Project No. 2024XSC-0045), and MCIU/AEI/10.13039/501100011033/FEDER, UE Grant No. PID2023-148726OB-I00.

CONFLICT OF INTEREST STATEMENT

The authors have no conflict of interest to declare.

NOTES

- [1] We have conducted interviews and integrated qualitative examples into our theory development, as well as listed in Table I. For detailed information on the collection and analysis of these qualitative data, please refer to the Methods section.
- [2] It is important to emphasize that the concept of calling is indifferent regarding the degree to which an individual will apply an innovative approach in their work. Rather it implies that an individual will more deeply exemplify the characteristics associated with what they view as their work role – whether that involves reinforcing or altering the prevailing status quo within their industry.
- [3] We also examined the relationship of CEO founder status and its interactive effects with calling separately on exploration and exploitation. The results for the main effects of founder status and interaction with calling follow a similar pattern of significance and directionality with exploration and exploitation as for the overall measure of ambidexterity reported in our formal hypothesis testing.

REFERENCES

- Abebe, M. and Alvarado, D. A. (2013). ‘Founder-CEO status and firm performance: An exploratory study of alternative perspectives’. *Journal of Strategy and Management*, **6**, 343–57.

- Abernathy, W. J. and Clark, K. B. (1985). 'Innovation: mapping the winds of creative destruction'. *Research Policy*, **14**, 3–22.
- Arend, R. J. (2006). 'SME-supplier alliance activity in manufacturing: Contingent benefits and perceptions'. *Strategic Management Journal*, **27**, 741–63.
- Ashforth, B. E. and Mael, F. (1989). 'Social identity theory and the organization'. *Academy of Management Review*, **14**, 20–39.
- Astakhova, M. N., Cardon, M. S., Ho, V. T. and Kong, D. T. (2022). 'Passion for work passion research: Taming breadth and promoting depth'. *Journal of Organizational Behavior*, **43**, 1463–74.
- Bagozzi, R. P. and Edwards, J. R. (1998). 'A general approach for representing constructs in organizational research'. *Organizational Research Methods*, **1**, 45–87.
- Baron, J. N., Hannan, M. T. and Burton, M. D. (1999). 'Building the iron cage: Determinants of managerial intensity in the early years of organizations'. *American Sociological Review*, **64**, 527–47.
- Baron, R. A. (2013). *Enhancing Entrepreneurial Excellence: Tools for Making the Possible Real*. Cheltenham, UK: Edward Elgar Publishing.
- Baron, R. A. and Hmieleski, K. M. (2018). *Essentials of Entrepreneurship: Changing the World, One Idea at a Time*. Northampton, MA: Edward Elgar Publishing.
- Baum, J. R., Locke, E. A. and Kirpatrick, S. A. (1998). 'A longitudinal study of the relation of vision and vision communication to venture growth in entrepreneurial firms'. *Journal of Applied Psychology*, **83**, 43–54.
- Baumeister, R. F. (1991). *Meanings of Life*. New York: Guilford Press.
- Beadle, R. (2013). 'Managerial work in a practice-embodiment institution: The role of calling, the virtue of constancy'. *Journal of Business Ethics*, **113**, 679–90.
- Begley, T. M. (1995). 'Using founder status, age of firm, and company growth rate as the basis for distinguishing entrepreneurs from managers of smaller businesses'. *Journal of Business Venturing*, **10**, 249–63.
- Bell, R., Liu, P., Zhan, H., Bozward, D., Fan, J., Watts, H. and Ma, X. (2019). 'Exploring entrepreneurial roles and identity in the United Kingdom and China'. *The International Journal of Entrepreneurship and Innovation*, **20**, 39–49.
- Benner, M. J. and Tushman, M. (2003). 'Exploitation, exploration, and process management: The productivity dilemma revisited'. *Academy of Management Review*, **28**, 238–56.
- Birkinshaw, J., Zimmermann, A. and Raisch, S. (2016). 'How do firms adapt to discontinuous change? Bridging the dynamic capabilities and ambidexterity perspectives'. *California Management Review*, **58**, 36–58.
- Boivie, S., Lange, D., McDonald, M. L. and Westphal, J. D. (2011). 'Me or we: The effects of CEO organizational identification on agency costs'. *Academy of Management Journal*, **54**, 551–76.
- Boumgarden, P., Nickerson, J. and Zenger, T. R. (2012). 'Sailing into the wind: Exploring the relationships among ambidexterity, vacillation, and organizational performance'. *Strategic Management Journal*, **33**, 587–610.
- Braun, V. and Clarke, V. (2006). 'Using thematic analysis in psychology'. *Qualitative Research in Psychology*, **3**, 77–101.
- Brigham, K. H., De Castro, J. O. and Shepherd, D. A. (2007). 'A person–organization fit model of owner–managers' cognitive style and organizational demands'. *Entrepreneurship Theory and Practice*, **31**, 29–51.
- Brislin, R. W. (1986). 'The wording and translation of research instruments'. In Lonner, W. J. and Berry, J. W. (Eds), *Field Methods in Cross-Cultural Research*. Newbury Park, CA: Sage, 137–64.
- Bruyat, C. and Julien, P. (2001). 'Defining the field of research in entrepreneurship'. *Journal of Business Venturing*, **16**, 165–80.
- Bunderson, J. S. and Thompson, J. A. (2009). 'The call of the wild: Zookeepers, callings, and the double-edged sword of deeply meaningful work'. *Administrative Science Quarterly*, **54**, 32–57.
- Cao, Q., Simsek, Z. and Zhang, H. (2010). 'Modelling the joint impact of the CEO and the TMT on organizational ambidexterity'. *Journal of Management Studies*, **47**, 1272–96.
- Cardon, M. S., Wincent, J., Singh, J. and Drnovsek, M. (2009). 'The nature and experience of entrepreneurial passion'. *Academy of Management Review*, **34**, 511–32.
- Certo, S. T., Covin, J. G., Daily, C. M. and Dalton, D. R. (2001). 'Wealth and the effects of founder management among IPO-stage new ventures'. *Strategic Management Journal*, **22**, 641–58.
- Chang, X. (2024). 'Vining the blind: The perils of survivorship bias'. *Advances in Economics and Political Science*, **72**, 55–9.
- Chatterjee, A. and Hambrick, D. C. (2007). 'It's all about me: Narcissistic chief executive officers and their effects on company strategy and performance'. *Administrative Science Quarterly*, **52**, 351–86.

- Chen, J. and Nadkarni, S. (2017). 'It's about time! CEOs' temporal dispositions, temporal leadership, and corporate entrepreneurship'. *Administrative Science Quarterly*, **62**, 31–66.
- Chen, S. (2020). 'The founder advantage'. *GuruFocus*. Available at www.gurufocus.com/news/1013652/the-founder-advantage (accessed 2 July 2022)
- Ciavarella, M. A., Buchholtz, A. K., Riordan, C. M., Gatewood, R. D. and Stokes, G. S. (2004). 'The Big Five and venture survival: Is there a linkage?'. *Journal of Business Venturing*, **19**, 465–83.
- Conway, N., Clinton, M., Sturges, J. and Budjanovcanin, A. (2015). 'Using self-determination theory to understand the relationship between calling enactment and daily well-being'. *Journal of Organizational Behavior*, **36**, 1114–31.
- Dai, Y., Du, K., Byun, G. and Zhu, X. (2017). 'Ambidexterity in new ventures: The impact of new product development alliances and transactive memory systems'. *Journal of Business Research*, **75**, 77–85.
- Danneels, E. (2002). 'The dynamics of product innovation and firm competences'. *Strategic Management Journal*, **23**, 1095–121.
- Dawson, A., Paeglis, I. and Basu, N. (2018). 'Founder as steward or agent? A study of founder ownership and firm value'. *Entrepreneurship Theory and Practice*, **42**, 886–910.
- Dawson, J. F. (2014). 'Moderation in management research: What, why, when and how'. *Journal of Business and Psychology*, **29**, 1–19.
- Deci, E. L. and Ryan, R. M. (1985). *Intrinsic Motivation and Self-Determination in Human Behaviour*. New York: Plenum.
- Dik, B. J. and Duffy, R. D. (2009). 'Calling and vocation at work definitions and prospects for research and practice'. *The Counseling Psychologist*, **37**, 424–50.
- Dik, B. J., Duffy, R. D. and Steger, M. F. (2012a). 'Enhancing social justice by promoting prosocial values in career development interventions'. *Counseling and Values*, **57**, 31–7.
- Dik, B. J., Duffy, R. D. and Tix, A. P. (2012b). 'Religion, spirituality, and a sense of calling in the workplace'. In Hill, P. C. and Dik, B. J. (Eds), *The Psychology of Religion and Workplace Spirituality*. Charlotte, NC: Information Age, 113–34.
- Dik, B. J., Eldridge, B. M., Steger, M. F. and Duffy, R. D. (2012c). 'Development and validation of the Calling and Vocation Questionnaire (CVQ) and Brief Calling Scale (BCS)'. *Journal of Career Assessment*, **20**, 242–63.
- Dobrow, S. R. and Tosti-Kharas, J. (2011). 'Listen to your heart? Calling and receptivity to career advice'. *Journal of Career Assessment*, **20**, 264–80.
- Duffy, R. D. and Dik, B. J. (2013). 'Research on calling: What have we learned and where are we going?'. *Journal of Vocational Behavior*, **83**, 428–36.
- Duffy, R. D., Dik, B. J., Douglass, R. P., England, J. W. and Velez, B. L. (2018). 'Work as a calling: A theoretical model'. *Journal of Counseling Psychology*, **65**, 423–39.
- Duffy, R. D., Dik, B. J. and Steger, M. F. (2011). 'Calling and work-related outcomes: Career commitment as a mediator'. *Journal of Vocational Behavior*, **78**, 210–8.
- Fahlenbrach, R. (2009). 'Founder-CEOs, investment decisions, and stock market performance'. *Journal of Financial and Quantitative Analysis*, **44**, 439–66.
- Fauchart, E. and Gruber, M. (2011). 'Darwinians, communitarians, and missionaries: The role of founder identity in entrepreneurship'. *Academy of Management Journal*, **54**, 935–57.
- Gibson, C. B. and Birkinshaw, J. (2004). 'The antecedents, consequences, and mediating role of organizational ambidexterity'. *Academy of Management Journal*, **47**, 209–26.
- Guerrero, M. (2021). 'Ambidexterity and entrepreneurship studies: A literature review and research agenda'. *Foundations and Trends in Entrepreneurship*, **17**, 436–650.
- Gupta, A. K., Smith, K. G. and Shalley, C. E. (2006). 'The interplay between exploration and exploitation'. *Academy of Management Journal*, **49**, 693–706.
- Hambrick, D. C. (2007). 'Upper echelons theory: An update'. *Academy of Management Review*, **32**, 334–43.
- Hambrick, D. C. and Mason, P. A. (1984). 'Upper echelons: The organization as a reflection of its top managers'. *Academy of Management Review*, **9**, 193–206.
- Hambrick, D. C. and Quigley, T. J. (2014). 'Toward more accurate contextualization of the CEO effect on firm performance'. *Strategic Management Journal*, **35**, 473–91.
- Hannan, M. T. and Freeman, J. (1984). 'Structural inertia and organizational change'. *American Sociological Review*, **49**, 149–64.
- Hayes, A. (2013). 'Introduction to mediation, moderation, and conditional process analysis'. *Journal of Educational Measurement*, **51**, 335–7.
- He, Z. L. and Wong, P. K. (2004). 'Exploration vs. exploitation: An empirical test of the ambidexterity hypothesis'. *Organization Science*, **15**, 481–94.

- Hendricks, B., Howell, T. and Bingham, C. (2019). 'How much do top management teams matter in founder-led firms?'. *Strategic Management Journal*, **40**, 959–86.
- Hess, T. M., Growney, C. M., O'Brien, E. L., Neupert, S. D. and Sherwood, A. (2018). 'The role of cognitive costs, attitudes about aging, and intrinsic motivation in predicting engagement in everyday activities'. *Psychology and Aging*, **33**, 953–64.
- Hmieleski, K. M. and Baron, R. A. (2008). 'Regulatory focus and new venture performance: A study of entrepreneurial opportunity exploitation under conditions of risk versus uncertainty'. *Strategic Entrepreneurship Journal*, **2**, 285–99.
- Hmieleski, K. M. and Baron, R. A. (2009). 'Entrepreneurs' optimism and new venture performance: A social cognitive perspective'. *Academy of Management Journal*, **52**, 473–88.
- Hmieleski, K. M. and Cole, M. S. (2022). 'Laughing all the way to the bank: The roles of shared coping humor and entrepreneurial team-efficacy in new venture performance'. *Entrepreneurship Theory and Practice*, **46**, 1782–811.
- Hmieleski, K. M. and Sheppard, L. D. (2019). 'The Yin and Yang of entrepreneurship: Gender differences in the importance of communal and agentic characteristics for entrepreneurs' subjective well-being and performance'. *Journal of Business Venturing*, **34**, 709–30.
- Honjo, Y. and Kato, M. (2021). 'Are founder CEOs resilient to crises? The impact of founder-CEO succession on new firm survival'. *International Small Business Journal*, **40**, 205–35.
- Jain, B. A. and Tabak, F. (2008). 'Factors influencing the choice between founder versus non-founder CEOs for IPO firms'. *Journal of Business Venturing*, **23**, 21–45.
- Jansen, J. J., George, G., Van den Bosch, F. A. and Volberda, H. W. (2008). 'Senior team attributes and organizational ambidexterity: The moderating role of transformational leadership'. *Journal of Management Studies*, **45**, 982–1007.
- Kanungo, R. N. (1982). 'Measurement of job and work involvement'. *Journal of Applied Psychology*, **67**, 341–9.
- Kibler, E., Wincent, J., Kautonen, T., Cacciotti, G. and Obschonka, M. (2019). 'Can prosocial motivation harm entrepreneurs' subjective well-being?'. *Journal of Business Venturing*, **34**, 608–24.
- Kumar, M. V. S., Nagarajan, N. J. and Schlingemann, F. P. (2021). 'The performance of acquisitions of founder CEO firms: The effect of founder firm premium'. *Strategic Entrepreneurship Journal*, **15**, 619–46.
- Lee, J. M., Hwang, B. H. and Chen, H. (2017). 'Are founder CEOs more overconfident than professional CEOs? Evidence from S&P 1500 companies'. *Strategic Management Journal*, **38**, 751–69.
- Lee, J. M., Kim, J. and Bae, J. (2020). 'Founder CEOs and innovation: Evidence from CEO sudden deaths in public firms'. *Research Policy*, **49**, 103862.
- Leone, A. J. and Liu, M. (2010). 'Accounting irregularities and executive turnover in founder-managed firms'. *Accounting Review*, **85**, 287–314.
- Ling, Y., Simsek, Z., Lubatkin, M. H. and Veiga, J. F. (2008). 'The impact of transformational CEOs on the performance of small- to medium-sized firms: Does organizational context matter?'. *Journal of Applied Psychology*, **93**, 923–34.
- Lubatkin, M. H., Simsek, Z., Ling, Y. and Veiga, J. F. (2006). 'Ambidexterity and performance in small- to medium-sized firms: The pivotal role of top management team behavioral integration'. *Journal of Management*, **32**, 646–72.
- Lysova, E. I., Dik, B. J., Duffy, R. D., Khapova, S. N. and Arthur, M. B. (2019). 'Calling and careers: New insights and future directions'. *Journal of Vocational Behavior*, **114**, 1–6.
- Lysova, E. I., Khapova, S. N. and Jansen, P. W. G. (2016). *Founders and the creative-business intent tension in the video game industry: What insights can a calling offer?* Paper presented at the 32nd EGOS Colloquium in Naples, Italy.
- March, J. G. (1991). 'Exploration and exploitation in organizational learning'. *Organization Science*, **2**, 71–87.
- Markides, C. C. and Geroski, P. A. (2005). *Fast Second: How Smart Companies Bypass Radical Innovation to Enter and Dominate New Markets*. San Francisco, CA: Jossey-Bass.
- Markusen, J. R., Morey, E. R. and Olewiler, N. (1995). 'Competition in regional environmental policies when plant locations are endogenous'. *Journal of Public Economics*, **56**, 55–77.
- Marquis, C. and Tilcsik, A. (2013). 'Imprinting: Toward a multilevel theory'. *Academy of Management Annals*, **7**, 195–245.
- McMullen, J. S. and Shepherd, D. A. (2006). 'Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur'. *Academy of Management Review*, **31**, 132–52.
- Miller, D., Le Breton-Miller, I. and Lester, R. H. (2011). 'Family and lone founder ownership and strategic behaviour: Social context, identity, and institutional logics'. *Journal of Management Studies*, **48**, 1–25.
- Muthén, L. K. and Muthén, B. O. (2010). *Mplus User's Guide (V6.1)*. Los Angeles, CA: Muthén & Muthén.

- Nadkarni, S. and Herrmann, P. (2010). 'CEO personality, strategic flexibility, and firm performance: The case of the Indian business process outsourcing industry'. *Academy of Management Journal*, **53**, 1050–73.
- Nelson, T. (2003). 'The persistence of founder influence: Management, ownership, and performance effects at initial public offering'. *Strategic Management Journal*, **24**, 707–24.
- O'Reilly, C. A., III and Tushman, M. L. (2011). 'Organizational ambidexterity in action: How managers explore and exploit'. *California Management Review*, **55**, 5–22.
- Posen, H. E. and Levinthal, D. (2012). 'Chasing a moving target: Exploitation and exploration in dynamic environments'. *Management Science*, **58**, 587–601.
- Powell, E. E. and Baker, T. (2014). 'It's what you make of it: Founder identity and enacting strategic responses to adversity'. *Academy of Management Journal*, **57**, 1406–33.
- Raisch, S. and Birkinshaw, J. (2008). 'Organizational ambidexterity: Antecedents, outcomes, and moderators'. *Journal of Management*, **34**(3), 375–409.
- Rietveld, C. A. and Van Burg, E. (2014). 'Religious beliefs and entrepreneurship among Dutch protestants'. *International Journal of Entrepreneurship and Small Business*, **23**, 279–95.
- Roelandt, J., Rijssen, L. and Andries, P. (2023). 'The link between nascent entrepreneurs' role identity aspirations and their opportunity exploration and exploitation activities'. *Applied Psychology: An International Review*, **72**, 1134–59.
- Schjoedt, L. (2009). 'Entrepreneurial job characteristics: An examination of their effects on entrepreneurial satisfaction'. *Entrepreneurship Theory and Practice*, **33**, 619–44.
- Souder, D., Simsek, Z. and Johnson, S. G. (2012). 'The differing effects of agent and founder CEOs on the firm's market expansion'. *Strategic Management Journal*, **33**, 23–41.
- Staw, B. M. (1991). 'Dressing up like an organization: When psychological theories can explain organizational action'. *Journal of Management*, **17**, 805–19.
- Stinchcombe, A. L. (1965). 'Social structure and organizations'. In March, J. G. (Ed), *Handbook of Organizations*. Chicago, IL: Rand McNally & Co, **7**, 142–93.
- Thompson, J. A. and Bunderson, J. S. (2019). 'Research on work as a calling ... and how to make it matter'. *Annual Review of Organizational Psychology and Organizational Behavior*, **6**, 421–43.
- Tierney, P., Farmer, S. M. and Graen, G. B. (1999). 'An examination of leadership and employee creativity: The relevance of traits and relationships'. *Personnel Psychology*, **52**, 591–620.
- Tortoriello, M. and Krackhardt, D. (2010). 'Activating cross-boundary knowledge: The role of Simmelian ties in the generation of innovations'. *Academy of Management Journal*, **53**, 167–81.
- Trinh, V. Q., Salama, A., Li, T., Lyu, O. and Papagiannidis, S. (2023). 'Former CEOs chairing the board: Does it matter to corporate social and environmental investments?' *Review of Quantitative Finance and Accounting*, **61**, 1277–313.
- Tushman, M. L. and O'Reilly, C. (1996). 'Ambidextrous organizations: Managing evolutionary and revolutionary change'. *California Management Review*, **38**, 8–30.
- Tzabbar, D. and Margolis, J. (2017). 'Beyond the startup stage: The founding team's human capital, new venture's stage of life, founder–CEO duality, and breakthrough innovation'. *Organization Science*, **28**, 857–72.
- Uotila, J., Maula, M., Keil, T. and Zahra, S. A. (2009). 'Exploration, exploitation, and financial performance: Analysis of S&P 500 corporations'. *Strategic Management Journal*, **30**, 221–31.
- Ward, T. B. (2004). 'Cognition, creativity, and entrepreneurship'. *Journal of Business Venturing*, **19**, 173–88.
- Warnick, B. J., Murnieks, C. Y., McMullen, J. S. and Brooks, W. T. (2018). 'Passion for entrepreneurship or passion for the product? A conjoint analysis of angel and VC decision-making'. *Journal of Business Venturing*, **33**, 315–32.
- Wasserman, N. (2006). 'Stewards, agents, and the founder discount: Executive compensation in new ventures'. *Academy of Management Journal*, **49**, 960–76.
- Wasserman, N. (2017). 'The throne vs. the kingdom: Founder control and value creation in startups'. *Strategic Management Journal*, **38**, 255–77.
- Wickert, C., Potočník, K., Prashantham, S., Shi, W. and Snihur, Y. (2024). 'Embracing non-Western contexts in management scholarship'. *Journal of Management Studies*. <https://doi.org/10.1111/joms.13048>.
- Wrzesniewski, A. (2012). 'Callings'. In Cameron, K. S. and Spreitzer, G. M. (Eds), *The Oxford Handbook of Positive Organizational Scholarship*. New York: Oxford University Press, 45–55.
- Wrzesniewski, A., McCauley, C., Rozin, P. and Schwartz, B. (1997). 'Jobs, careers, and callings: people's relations to their work'. *Journal of Research in Personality*, **31**, 21–33.
- Yamakawa, Y., Yang, H. and Lin, Z. (2011). 'Exploration versus exploitation in alliance portfolio: Performance implications of organizational, strategic, and environmental fit'. *Research Policy*, **40**, 287–96.

- Zhang, Y., Tang, X. and Yang, J. (2024). 'Synergies of technological and institutional innovation driving manufacturing transformation: Insights from northeast China'. *Journal of the Knowledge Economy*. <https://doi.org/10.1007/s13132-024-01982-1>
- Zhao, H., Seibert, S. E. and Lumpkin, G. T. (2010). 'The relationship of personality to entrepreneurial intentions and performance: A meta-analytic review'. *Journal of Management*, **36**, 381–404.
- Zimmermann, A., Raisch, S. and Birkinshaw, J. (2015). 'How is ambidexterity initiated? The emergent charter definition process'. *Organization Science*, **26**, 1119–39.
- Zimmermann, A., Raisch, S. and Cardina, L. B. (2018). 'Managing persistent tensions on the frontline: A configurational perspective on ambidexterity'. *Journal of Management Studies*, **55**, 739–69.