

# How much do top management teams matter in founder-led firms?

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**Research Summary:** As firms mature, their founders are often replaced with seasoned executives. When founders are retained, the surrounding top management team (TMT) members are viewed as critical resources in helping compensate for the founder's managerial deficiencies. Surprisingly, however, little is known about how TMT members affect a founder-led firm's performance later in a firm's life. Using novel methods and a sample of over 2,000 firms, we address this gap. We find that although team structure has a significant impact on the performance of nonfounder-led firms (consistent with past literature), it has little to no effect on the operating performance of founder-led firms, suggesting that founder chief executive officers (CEOs) may exert too much control. Thus, the irony is that founders are retained to propel progress but their very retention may prevent progress. Taken together, our findings add to the entrepreneurship, team, and research methods literatures.

**Managerial Summary:** Although founders have the entrepreneurial skills to successfully grow a startup, they generally lack the managerial skills required to lead a large, public firm. As a result, many founder CEOs are replaced before a firm goes public. When founders do stay as CEO, the prevailing belief is that they require a strong TMT to help compensate for the founder's managerial deficiencies. However, given founders' desire to retain control, there is a question of whether they will rely on that team, or if they will simply continue to follow their own intuition. We find evidence that founder CEOs are much less likely to listen to and benefit from their teams relative to nonfounder CEOs.

## KEY WORDS

control, entropy balancing, founders, top management teams, upper echelons

## 1 | INTRODUCTION

As a firm grows, questions arise as to whether the original founders remain the right people to handle the challenges associated with leading a larger, more complex organization (Boeker & Karichalil, 2002; Gedajlovic, Lubatkin, & Schulze, 2004; Hambrick & Crozier, 1985; Pollock, Fund, & Baker, 2009). As firms transition from private to public, these challenges further expand to include increased regulatory requirements, more dispersed ownership, and intensified scrutiny of top management. The administrative skills necessary to manage these and other challenges associated with public firms differ from the entrepreneurial skills required to lead a new venture. The result is that boards of directors often replace founders with professional managers as firms mature and reach certain growth milestones (Jayaraman, Khorana, Nelling, & Covin, 2000; Stevenson & Jarillo, 1990; Wasserman, 2003).<sup>1</sup>

However, other boards retain founder-CEOs. Founders provide unique benefits, as they possess a deep tacit knowledge related to the firm and its operations (Eisenhardt & Schoonhoven, 1990; Kroll, Walters, & Le, 2007). Founders also generally have strong internal relationships with key employees and external relationships with the firm's major customers and partners (Fischer & Pollock, 2004). Finally, founders are often more personally identified with and committed to the firm, thereby mitigating agency concerns (Wasserman, 2006). Despite founders' administrative weaknesses, these benefits lead many boards of directors to retain founder leadership even as the firm continues to grow and develop. In such cases, other members of the firm's top management team (TMT) appear crucial in compensating for the founder's deficiencies (Jain & Tabak, 2008).

Surprisingly, however, little is known about how the structure of the TMT affects performance in founder-led firms. Several studies examine how founder leadership influences firm performance both for entrepreneurial ventures (see Klotz, Hmieleski, Bradley, & Busenitz, 2014 for a review) and mature firms (Jain & Tabak, 2008; Jayaraman et al., 2000; Kroll et al., 2007; Nelson, 2003). However, these founder-related studies generally assume away differences in the structures of TMTs, focusing instead on the founder-CEO classification exclusively (Adams, Almeida, & Ferreira, 2009). In contrast, the extensive literature on upper echelons addresses the effects of TMT structure (Carpenter, Geletkanycz, & Sanders, 2004; Hambrick & Mason, 1984). However, this literature does not address whether the performance effects of TMT structure are the same for teams led by founders versus teams led by nonfounders. In short, the literature that discusses founder leadership does not address team structure, and the literature that discusses team structure does not address founder leadership.

In this paper, we fill an important gap in the literature by examining two key questions: Does team structure differentially affect the performance of large firms with and without founder leadership, and if so, why?<sup>2</sup> These questions are important both theoretically and practically. If the ways founders structure their TMTs differentially affects performance relative to the ways nonfounders structure their TMTs, there are obvious implications for upper echelons theory, as well as managerial implications for how firms grow over time.

<sup>1</sup>There are several high-profile examples of founders being replaced before or during an initial public offering (IPO). One example is Rick Alden, the founder of SkullCandy, who left the top management team during the IPO process (Transworld Business, August 29, August 29, 2011). Similarly, prior to eBay's IPO, Meg Whitman stepped in as CEO to replace founder Pierre Omidyar, and at Yahoo!, Tim Koogle stepped in to replace founders Jerry Yang and David Filo.

<sup>2</sup>Following prior research, we define "team structure" to encompass multiple dimensions related to both the demographic composition and structure of a firm's top management team. Specifically, our measure considers the: tenure, age, diversity, size, and ownership of a firm's top management team.

To answer our research questions, we address the empirical challenge that firms with founder leadership differ from firms that do not have founder-CEOs across several different dimensions. To do so, we employ entropy balancing—a novel multivariate matching approach—to account for these differences (Hainmueller, 2012).<sup>3</sup> Relying on a sample of more than 2,000 firms that went public from 1997–2013, we examine the performance implications of team structure for founder and non-founder firms. Overall, our results suggest that founders' tendency to centralize decision-making (Wasserman, 2017) might lead them to rely *more* on their *own* judgment and *less* on their *team*. As a result, founders centralize decisions that enable them to pursue their objectives, but by so doing they sacrifice the performance benefits of the TMT's expertise. Thus, the irony is that founders are retained to improve the performance of their firm but their very retention may prevent the firm from doing so. Taken together, our findings add to the entrepreneurship, team, and research methods literatures.

## 2 | LITERATURE REVIEW AND HYPOTHESES

### 2.1 | Past literature on the performance effects of team structure

Upper echelons theory argues that there are “few more important subjects to strategy scholars, or for that matter to practitioners, than the link between the people at the strategic apex of the organization and that organization's performance” (Pitcher & Smith, 2001:1). Hence, the influence of the top managers on firm performance is one of the most widely studied topics in strategic management (for a review see Carpenter et al., 2004). This research suggests that organizational outcomes—including firm performance—are directly tied to the experiences, values, personalities, and biases of the TMT (Hambrick & Mason, 1984). Scholars argue that in order to truly understand firm behavior, one must consider the cognitive frames of their most powerful actors (i.e., their top executives) (Hambrick, 2007). However, given the difficulty associated with obtaining psychometric data on top executives of large firms, most studies use demographic and structural characteristics of TMTs (e.g., age, tenure, diversity, size, ownership) as valid, though incomplete and imprecise proxies for executives' cognitive frames (Hambrick, 2007). Using these measures, past research repeatedly finds that the demographic makeup and structural characteristics of TMTs significantly influence organizational outcomes (Boeker, 1997; Carpenter et al., 2004; D'Aveni, 1990).

For example, prior research suggests that a higher average *age* of the TMT provides firms with valuable human capital as a result of individuals' prior experience (Hambrick & Mason, 1984). In addition, past research suggests that longer average *tenure* within the TMT benefits firms through increased tacit knowledge, team cohesion, and transactive memory (Nelson, 2003). Past studies also suggest that functional *diversity* creates benefits for firms possibly by providing nonoverlapping knowledge and increasing innovation and creativity. Prior research that examines the effects of team *size* on firm performance implies that larger teams are subject to more control and coordination costs, thus impacting performance (Amason, Shrader, & Tompson, 2006). Finally, increased equity *ownership* within the team is expected to increase firm performance as equity ownership aligns the interests of managers and shareholders. Overall, although results may differ across contexts, past research

<sup>3</sup>Entropy balancing directly addresses the covariate imbalance between the two groups of firms by reweighting observations in the sample of nonfounder firms such that the distributional moments of the matching variables for the reweighted sample are indistinguishable from the moments of the distributions of these variables for the sample of founder-led firms. By achieving covariate balance, this multivariate matching technique reduces model dependence when subsequently estimating treatment effects. We further elaborate on the benefits of entropy balancing in our methods section.

indicates that the way in which the TMT is structured (along dimensions such as age, tenure, diversity, size, and ownership) affects firm performance in many ways.

## 2.2 | Differences between founder and nonfounder CEOs

Although it is known that team structure affects firm performance, what is not known is whether it affects the performance of founder-led firms in the same way that it affects firms without founder CEOs. This is because most team studies do not distinguish between founder and nonfounder firms when testing relationships between team structure variables and firm performance. But, given the innate differences between founders and nonfounders, we argue that certain team structures are likely to affect these two groups differently. While past literature reveals mixed results as to whether founder CEOs are beneficial for firm performance (Fahlenbrach, 2009; Miller, Le Breton-Miller, Lester, & Cannella Jr, 2007), there is general agreement that founders differ from their nonfounder counterparts across several key dimensions (for more information, see Nelson, 2003; Kroll et al., 2007). We focus here on one of the most relevant and fundamental distinctions, namely, that founders often have (and are able to retain) more *control* of their firms relative to nonfounder executives (Hamilton, 2000). Indeed, research indicates that the reason some individuals become entrepreneurs in the first place is to trade lower earnings for more nonpecuniary benefits such as “being their own boss” and being able to implement their own ideas (Wasserman, 2017).

Several factors fuel a founder's desire to maintain control. First, founder-CEOs hold relatively larger equity holdings in their firms relative to nonfounding CEOs (Certo, Covin, Daily, & Dalton, 2001; Fahlenbrach, 2009; Nelson, 2003). This greater equity position, coupled with a belief that they are uniquely qualified to lead the company to success,<sup>4</sup> suggests that founders view a loss of control as a major threat to their personal wealth. Second, founders are generally more personally invested in and emotionally attached to their firms relative to nonfounders (Cardon, Wincent, Singh, & Drnovsek, 2009; Fauchart & Gruber, 2011; Wasserman, 2006). In fact, many founders refer to their business as their “baby” and use other similar parenting language without even noticing (Dobrev & Barnett, 2005; Wasserman, 2012). This attachment, which stems from the amount of time, energy, and effort that founders put into building the business from its inception, makes founders more strongly identified with and committed to the firm's success (Arthurs & Busenitz, 2003; Gimeno, Folta, Cooper, & Woo, 1997; Smith & Miner, 1983).

In addition to these factors that indicate founders' *desire* greater control of their firms, prior research also indicates several factors that *enable* founders to powerfully influence their firms. First, founders are associated with charismatic and transformational leadership styles, leading employees to more strongly commit to them relative to other managers (Dobrev & Barnett, 2005; Kark, Shamir, & Chen, 2003). For example, Reed Hastings (founder and CEO of Netflix) is said to dominate his company “*by sheer force of personality*” (Economist, November 23, 2017). Such charismatic authority, inherent in the role of the founder, assists founders in building their companies and linking their individual identity with that of the venture (Weber, 1968). Indeed, founders often speak for the firm and so have an extraordinary role in defining their firm's behavior (Nelson, 2003).

Second, corporate governance structures of founder-led firms differ from those of nonfounder firms, often in ways that allow founders to exert significant control in the board room. For example, founders often hold the dual roles of CEO and chairperson of the firm (Nelson, 2003). Further, many

<sup>4</sup>For example, one founder in Wasserman's (2003:153) field work described this feeling as “I'm the one with the vision and the desire to build a great company—I have to be the one to run it. The people here were my hires, and the vision was mine from the beginning.” A more recent example of this mentality is John Schnatter (founder of Papa John's Pizza), who was recently pushed out of his firm but is fighting hard regain control, believing that he is vital to the company's continued success.

founder-led growth firms create dual-class equity structures that enable the founder to maintain control of the firms' decision rights even when the founder holds a reduced portion of the firm's common equity. As one high-profile example, the firm Snap completed an IPO in which it issued new shares that had no voting rights at all, helping its founders retain control of the firm.<sup>5</sup> While venture capitalists (VCs) historically resist investing in firms in which founders retain such power in the boardroom, some industry leaders point to a recent increase in founder-friendly VCs that respect founders' ability to maintain an innovative culture (Blank, 2017).

Given these differences in founder-CEOs' preferences for (and ability to retain) control relative to other CEOs, we argue that founder CEOs are likely to rely *more* on their *own* judgment in decision making and *less* on their *team*.<sup>6</sup> This is consistent with several of the most well-known founder CEOs. To illustrate, Steve Jobs was described as "*not a consensus-builder but a dictator who listened mainly to his own intuition*" (New York Times, 2011). Similarly, Mark Pincus (founder of Zynga) had a reputation for being domineering and did not like being told what to do (Reuters, December 12 2011). Likewise, Jeff Bezos hired Larry Tesler, a famous and renowned user-interface expert, but then allegedly ignored everything Tesler said for the 3 years he was at Amazon (Stone, 2013). Overall, the evidence suggests that founders' desire and ability to retain control may lead them to rely less on their team and more on their own judgment when making important strategic decisions. Because of this, we argue that the performance-related benefits associated with team structure are likely to be moderated (or perhaps even entirely nullified) in founder-led firms. In other words, if founders do not rely on their teams, then the structure of that team should not matter for firm performance. Thus, we formulate the following hypothesis:

**Hypothesis (H1).** *On average, team structure will have a lower impact on performance for founder-led firms relative to non-founder-led firms.*<sup>7</sup>

Our first hypothesis is motivated by the idea that founders (relative to nonfounders) have strong preferences for control, thus causing founder CEOs to rely more on their own judgment and less on that of the team. However, past research suggests that founders face a "control dilemma," (Wasserman, 2017)—that is, a tradeoff between retaining control and growing their business. On the one hand, a founder who elects to maintain control receives more nonpecuniary personal benefits (e.g., "being their own boss" and the freedom to implement their own ideas and strategies) at the expense of decreased firm performance (Hamilton, 2000; Wasserman, 2017). On the other hand, a founder who is willing to cede a portion of the firm's equity to attract key resources (i.e., cofounders, key hires, and investors), is often able to increase the firm's performance. But, doing so is not easy for founders. Founders describe the granting of equity to other individuals as "giving up part of 'their baby'" (Lim, Busenitz, & Chidambaram, 2013) and note that such decisions are some of the "most complicated and tension-filled" decisions they have to make. Still, some founders are willing to make this tradeoff in hopes of growing their business.

As founders decide to give up more of their equity holdings, control of the firm increasingly shifts away from the original owner (the founder) to a dispersed group of individuals. The interests of these

<sup>5</sup>Other well-known founder-led firms that have dual-class equity structures that enable the founder to maintain increased control of the firms' decision rights while holding a reduced portion of the firm's equity include: Facebook, Google, Groupon, LinkedIn, Zillow, and Zynga.

<sup>6</sup>This is also consistent with the literature showing that founder CEOs are generally more overconfident than non-founders (Lee, Hwang, & Chen, 2017), and are thus likely to rely less on others' opinions.

<sup>7</sup>By team structure, we refer to the dimensions of tenure, age, diversity, size, and ownership as discussed earlier.

investors are ultimately represented by the firm's board of directors. Although the board of directors rarely weighs in on the day-to-day operational decisions of a firm, choosing instead to defer those decisions to the CEO,<sup>8</sup> the board is able to exert ultimate control over the firm through its ability to replace the CEO (Goel & Thakor, 2008; Mizruchi, 1983). This leads many founders to worry that they will be involuntarily replaced as CEO if they add shareholders. This concern is not unwarranted, as prior research finds that boards of directors frequently exercise their ability to replace the founder CEO (Boeker & Karichalil, 2002; Gedajlovic et al., 2004; Pollock et al., 2009), with reports that as many as 80% of founders are forced to step down from the CEO position (Wasserman, 2008). However, past research also finds that this is much less likely to occur when the CEO holds a substantial equity stake (Boeker, 1992; Daily & Johnson, 1997).

We argue that founders who retain less equity in the firm (i.e., those willing to give up more control) represent the types of founders who are also more likely to rely on their other team members' opinions and input relative to founders who retain a greater portion of the firm's equity. Further, by retaining a relatively smaller portion of the firm's equity, these founders are likely more accustomed to considering the points-of-view of other major stakeholders (e.g., investors with large equity stakes) when making important decisions for the firm. These behaviors suggest that the moderated performance-related benefits associated with team structure for founder-led firms (i.e., Hypothesis 1) should not extend to include the subset of founder-led firms wherein the founder has ceded control over the firm's decision rights. Thus, our final hypothesis is as follows:

**Hypothesis (H2).** *On average, team structure will have a higher impact on performance for founder-led firms if the founder has relinquished greater control of the firm.*

### 3 | METHODS

We use IPO firms as the context of our analysis. This setting is beneficial for several reasons. First, TMTs are an important determinant of a large firm's success, receiving heavy scrutiny by investors when firms go public (e.g., Cohen & Dean, 2005). Second, IPOs are a milestone event that dramatically increases organizational complexity. While managerial tasks likely exceed a single individual's capacity prior to going public, it is much more likely after firms go public as executives must deal with increased regulatory compliance and a more dispersed shareholder base. Third, IPO firms report extensive amounts of information in filings to the Securities and Exchange Commission (SEC), including detail about the composition and structure of the firm's TMT. This requirement allows us to gather information about each firm, reducing concerns related to selection bias that arise when using seasoned publicly traded firms (Cadman, Klasa, & Matsunaga, 2010; Hendricks & Miller, 2017). Further, because publicly traded firms must also file reports with the SEC at regular intervals after going public, we are able to track each firm's post-IPO performance as measured by a common set of generally accepted accounting principles (i.e., U.S. GAAP).

We use Jay Ritter's IPO data set to obtain a listing of each firm that completed an IPO in the United States from Jan 1, 1997 to Dec 31, 2013. We then use SDC Platinum to identify and exclude:

<sup>8</sup>See Boivie, Bednar, Aguilera, and Andrus (2016) for an extensive review. This research suggests that boards lack effective monitoring over firms for several reasons, including social norms, infrequent board meetings, and restrictions on directors' time due to outside job demands. In addition, past research reports that board members feel beholden or obligated to support managerial initiatives when directors are appointed by the CEO, which is the case for all directors of founder-led firms (Wade, O'Reilly III, & Chandratat, 1990).

unit offers, American depository receipts, carve-outs/spin-offs, reverse leveraged buyouts, partnerships, financial firms, offers priced less than \$5 per share, and filings of less than \$10 million. Finally, we use Compustat, The Center for Research in Security Prices (CRSP), and regulatory filings from the SEC's Electronic Data Gathering, Analysis, and Retrieval (EDGAR) database to obtain detailed information about each firm and its management team. This sample selection process results in 2,098 firms.

### 3.1 | Variable construction: Founder leadership

We use the Management section of each firm's final registration statement to identify whether each firm has a founder CEO. Specifically, we use three approaches. First, we search each firm's registration statement for sentences that include the words "founder," "founded," and "founding" to determine if these key words indicate that the firm's CEO is a founder. Second, we read through the biographical information included in the management section to determine if a substitute phrase is used that identifies the CEO as one of the firm's original founders (e.g., "started the company"). Finally, if the registration statement does not allude to the CEO as being one of the firm's founders, but the individual's tenure begins at or prior to the firm's founding year (as provided by Jay Ritter's website), then we use the firm's name and the word "founder" to conduct a Google search. This commonly returns CEO profile pages from Bloomberg, Forbes, and Wikipedia that provide additional information about the CEO's relation to the firm. As shown in Tables 1, 41% of our sample of 2,098 firms have founder-CEOs at IPO.<sup>9</sup>

### 3.2 | Variable construction: Team structure

We define each firm's TMT as the individuals, other than external board members, included in the "Management" section of each IPO firm's final registration statement filed with the SEC (i.e., 424B). The use of this section to define TMTs is important since it does not constrain teams to only include certain positions or a fixed number of individuals from the firm, but rather considers all key employees (as defined by the firm rather than the researcher). This is a distinct advantage over studies that use Execucomp, a compilation of data from firms' executive compensation disclosures, because firms are only required to disclose information related to the top five executive officers within a company. However, as shown in Table 1 and discussed subsequently, Section 1 of firms' registration statements indicates that there is an average of 7.42 members on firms' TMTs. Thus, the use of the executive compensation section of firms' disclosures to construct measures related to team structure do not include each of the firm's self-defined key employees.

To test our hypotheses, we follow prior research to create several variables that reflect important dimensions of firms' TMT structure. Specifically, we create variables relating to the tenure (*TMT\_Tenure*), age (*TMT\_Age*), diversity (*TMT\_Blaau*), size (*TMT\_Size*), and ownership dispersion (*TMT\_Equity*) of the TMTs for our sample of firms. We define *TMT\_Tenure* as the average employment tenure, defined as the number of years between the firm's IPO and the date the employee began working at the firm, of TMT members. *TMT\_Age* is the average age, in years, of

<sup>9</sup>We note that 41% is slightly lower relative to other studies that have examined founder-leadership in IPO firms. For example, Gao and Jain (2011) report that 48% of firms going public between 1997–2000 went public with a founder-CEO. When limiting our sample to that same time period, we find that 47.3% of the firms in our sample had a founder-CEO. Thus, we attribute the lower percentage of founder-led firms in our study not to differences in classification, but rather to the fact that only 34% of IPO firms have a founder-CEO between the years 2001 and 2013. This declining trend of founder-CEOs at IPO is not only apparent within the time period examined in our study, but also appears to exist prior to the beginning of our study period since Nelson (2003) reports that 64% of the firms that went public in 1991 had a founder-CEO.

**TABLE 1** Descriptive statistics and Pearson correlation coefficients

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Mean	SD	Q1	Mdn	Q3				
<i>Founder</i>	<b>1</b>																						0.41	0.49	0.00	0.00	1.00				
<i>MVE</i>	2	<b>-0.12</b>	<b>1</b>																				5.82	1.05	5.13	5.76	6.43				
<i>BTM</i>	3	<b>-0.05</b>	<b>-0.06</b>	<b>1</b>																			0.16	0.24	0.04	0.13	0.27				
<i>ROA</i>	4	<b>-0.05</b>	<b>0.19</b>	<b>0.28</b>	<b>1</b>																		-0.24	0.50	-0.38	-0.05	0.04				
<i>Abs(ROA)</i>	5	<b>0.07</b>	<b>-0.22</b>	<b>-0.28</b>	<b>-0.95</b>	<b>1</b>																	0.31	0.45	0.04	0.14	0.41				
<i>Growth</i>	6	<b>0.07</b>	0.00	<b>-0.05</b>	<b>-0.13</b>	<b>0.12</b>	<b>1</b>																0.41	1.65	-0.08	0.10	0.35				
<i>Firm_Age</i>	7	<b>-0.32</b>	<b>0.16</b>	<b>0.21</b>	<b>0.33</b>	<b>-0.29</b>	<b>-0.12</b>	<b>1</b>															2.38	0.90	1.79	2.20	2.89				
<i>R&amp;D_Intensity</i>	8	<b>0.04</b>	<b>-0.18</b>	<b>-0.33</b>	<b>-0.66</b>	<b>0.67</b>	<b>0.12</b>	<b>-0.21</b>	<b>1</b>														0.16	0.25	0.00	0.05	0.23				
<i>Startup</i>	9	<b>0.19</b>	<b>-0.39</b>	<b>-0.21</b>	<b>-0.44</b>	<b>0.40</b>	<b>0.13</b>	<b>-0.54</b>	<b>0.38</b>	<b>1</b>													0.56	0.50	0.00	1.00	1.00				
<i>Leverage</i>	10	<b>-0.23</b>	<b>0.22</b>	<b>-0.03</b>	<b>0.20</b>	<b>-0.21</b>	<b>-0.10</b>	<b>0.53</b>	<b>-0.25</b>	<b>-0.58</b>	<b>1</b>												0.37	0.27	0.14	0.31	0.54				
<i>Capital_Intensity</i>	11	<b>-0.12</b>	<b>0.20</b>	<b>0.29</b>	<b>0.25</b>	<b>-0.26</b>	<b>-0.05</b>	<b>0.28</b>	<b>-0.30</b>	<b>-0.36</b>	<b>0.38</b>	<b>1</b>											0.12	0.16	0.03	0.06	0.14				
<i>VC</i>	12	<b>0.16</b>	<b>-0.07</b>	<b>-0.37</b>	<b>-0.27</b>	<b>0.23</b>	<b>0.09</b>	<b>-0.43</b>	<b>0.37</b>	<b>0.43</b>	<b>-0.45</b>	<b>-0.31</b>	<b>1</b>										0.54	0.50	0.00	1.00	1.00				
<i>Underwriter</i>	13	<b>-0.08</b>	<b>0.54</b>	<b>-0.11</b>	<b>0.15</b>	<b>-0.19</b>	<b>-0.02</b>	<b>0.07</b>	<b>-0.04</b>	<b>-0.21</b>	<b>0.49</b>	<b>0.09</b>	<b>0.15</b>	<b>1</b>									7.93	1.57	8.00	8.50	9.00				
<i>CEO_Duality</i>	14	<b>0.33</b>	<b>-0.03</b>	<b>0.97</b>	<b>0.03</b>	<b>-0.03</b>	<b>-0.06</b>	<b>-0.11</b>	<b>0.03</b>	<b>-0.06</b>	<b>-0.02</b>	<b>0.01</b>	<b>-0.07</b>	<b>1</b>									0.47	0.50	0.00	0.00	1.00				
<i>Insider_Board</i>	15	<b>0.15</b>	<b>-0.14</b>	<b>0.08</b>	<b>0.09</b>	<b>-0.05</b>	<b>-0.04</b>	<b>0.02</b>	<b>-0.10</b>	<b>0.04</b>	<b>-0.02</b>	<b>0.00</b>	<b>-0.18</b>	<b>-0.09</b>	<b>0.16</b>	<b>1</b>							0.13	0.33	0.00	0.00	0.00				
<i>Dual_Class_Shr</i>	16	<b>-0.02</b>	<b>0.27</b>	<b>0.12</b>	<b>0.10</b>	<b>-0.10</b>	<b>-0.02</b>	<b>0.13</b>	<b>-0.11</b>	<b>-0.19</b>	<b>0.12</b>	<b>0.11</b>	<b>-0.16</b>	<b>0.09</b>	<b>0.02</b>	<b>0.02</b>	<b>1</b>						0.08	0.27	0.00	0.00	0.00				
<i>ROA<sub>Post</sub></i>	17	<b>-0.08</b>	<b>0.15</b>	<b>0.21</b>	<b>0.55</b>	<b>-0.49</b>	<b>-0.09</b>	<b>0.44</b>	<b>-0.34</b>	<b>-0.50</b>	<b>0.35</b>	<b>0.26</b>	<b>-0.33</b>	<b>0.12</b>	<b>-0.01</b>	<b>0.08</b>	<b>0.10</b>	<b>1</b>					-0.05	0.10	-0.10	-0.02	0.01				
<i>TMT_Age</i>	18	<b>-0.21</b>	<b>0.11</b>	<b>0.09</b>	<b>0.08</b>	<b>-0.07</b>	<b>-0.02</b>	<b>0.44</b>	<b>0.06</b>	<b>-0.32</b>	<b>0.34</b>	<b>0.22</b>	<b>-0.22</b>	<b>0.00</b>	<b>-0.08</b>	<b>-0.06</b>	<b>0.05</b>	<b>0.23</b>	<b>1</b>				45.93	4.85	42.57	46.00	49.53				
<i>TMT_Tenure</i>	19	<b>-0.05</b>	<b>0.02</b>	<b>0.15</b>	<b>0.29</b>	<b>-0.23</b>	<b>-0.09</b>	<b>0.61</b>	<b>-0.17</b>	<b>-0.42</b>	<b>0.39</b>	<b>0.20</b>	<b>-0.33</b>	<b>-0.02</b>	<b>0.05</b>	<b>0.10</b>	<b>0.10</b>	<b>0.38</b>	<b>0.40</b>	<b>1</b>				4.47	3.38	2.08	3.50	5.80			
<i>TMT_Diversity</i>	20	<b>-0.03</b>	<b>0.14</b>	<b>0.01</b>	<b>0.02</b>	<b>-0.03</b>	<b>-0.04</b>	<b>-0.03</b>	<b>-0.13</b>	<b>-0.05</b>	<b>0.06</b>	<b>0.03</b>	<b>-0.02</b>	<b>0.10</b>	<b>0.02</b>	<b>0.00</b>	<b>0.04</b>	<b>0.00</b>	<b>-0.11</b>	<b>-0.09</b>	<b>1</b>				0.62	0.13	0.56	0.64	0.72		
<i>TMT_Size</i>	21	<b>-0.01</b>	<b>0.27</b>	<b>-0.06</b>	<b>0.02</b>	<b>-0.05</b>	<b>0.01</b>	<b>0.02</b>	<b>-0.06</b>	<b>-0.03</b>	<b>0.04</b>	<b>0.05</b>	<b>0.07</b>	<b>0.24</b>	<b>0.04</b>	<b>0.12</b>	<b>0.03</b>	<b>-0.02</b>	<b>-0.12</b>	<b>-0.08</b>	<b>0.24</b>	<b>1</b>				7.42	2.80	5.00	7.00	9.00	
<i>TMT_Equity</i>	22	<b>0.34</b>	<b>-0.22</b>	<b>0.07</b>	<b>0.08</b>	<b>-0.01</b>	<b>-0.02</b>	<b>-0.08</b>	<b>-0.09</b>	<b>0.07</b>	<b>-0.10</b>	<b>-0.06</b>	<b>-0.13</b>	<b>-0.26</b>	<b>0.28</b>	<b>0.33</b>	<b>0.04</b>	<b>0.06</b>	<b>-0.12</b>	<b>0.10</b>	<b>-0.10</b>	<b>-0.24</b>	<b>1</b>				0.03	0.04	0.00	0.01	0.03
<i>TMT_Composite</i>	23	<b>0.10</b>	<b>-0.13</b>	<b>0.11</b>	<b>0.17</b>	<b>-0.11</b>	<b>-0.08</b>	<b>0.34</b>	<b>-0.07</b>	<b>-0.26</b>	<b>0.23</b>	<b>0.10</b>	<b>-0.22</b>	<b>-0.17</b>	<b>0.13</b>	<b>0.10</b>	<b>0.02</b>	<b>0.29</b>	<b>0.53</b>	<b>0.57</b>	<b>0.17</b>	<b>-0.45</b>	<b>0.41</b>			5.35	1.28	4.40	5.20	6.20	

Note. N = 2,098. Table 1 provides descriptive statistics and Pearson correlation coefficients for each variable included in our study, for the pooled sample of firms. Bold values indicate a p-value < 0.10. Each variable is measured at the time of each firm's initial public offering, with the exception of *ROA<sub>Post</sub>* which is the firm's average quarterly return-on-assets for the 3 years subsequent to the firm's initial public offering. All variables are motivated and defined in Section 3 of our paper.

TMT members.<sup>10</sup> *TMT\_Blau* is a measure of the diversity of functional backgrounds on each team.<sup>11</sup> *TMT\_Size* is the number of TMT members. Finally, *TMT\_Equity* is the proportion of TMT members that hold at least 1% of the firm's equity.<sup>12</sup>

As we are primarily interested in exploring the cumulative performance effects of team structure, rather than the performance effects of an individual dimension, we create a composite score that seeks to measure how well each firm's TMT is structured across all five of the team structure dimensions described above.<sup>13</sup> To do so, we first build off prior literature to form expectations about how each of the five dimensions of team structure (age, tenure, diversity, size, and ownership) will relate to the operating performance of our sample of IPO firms. This literature suggests that team age, tenure, diversity, and ownership are positively related to firm performance, and team size is negatively related to firm performance (see Appendix for a thorough discussion of this prior literature).

We then use these expectations to decile-rank firms on each of the five dimensions and take an average of each firm's decile-ranks to arrive at a single value that is expected to have a positive relation with firms' operating performance. This variable, *TMT\_Composite*, is thus constructed in a manner consistent with the literature in corporate governance that equally weights each dimension in the index (i.e., Bebchuk, Cohen, & Ferrell, 2008; Gompers, Ishii, & Metrick, 2003; La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1998).<sup>14</sup> As recognized in this literature, such an approach is not predicated on determining the optimal weights of each dimension. However, its acceptance stems from the fact that it accounts for multiple dimensions of a desired construct in a manner that is straightforward, transparent, easy to interpret, and easily reproducible.<sup>15</sup>

<sup>10</sup>We also note that although our data do not contain a detailed work history that would be required to accurately create measures of variables such as industry experience, team age is likely highly correlated with such a measure (i.e., older individuals have more industry experience). For this reason, and others, we include the average age of top management team members as one of the dimensions in our study.

<sup>11</sup>We use word frequency counts to conclude whether the individual's functional background is best described as: legal, science and technology, sales and marketing, general management, or accounting and finance. After making this mutually exclusive classification for each TMT member, we then sum each of the five classifications by firm and calculate the diversity index (i.e.,  $1 - \sum P_i^2$ , where  $P$  is the proportion of individuals in a functional background and  $i$  is the number of functional backgrounds (i.e., 5)).

<sup>12</sup>We use the proportion of team members holding equity as our measure rather than the average percentage of equity held by the team because we are interested in capturing whether team members' economic interests are aligned with those of the firm. While an average percentage of equity could also be argued to capture this construct, and our results are robust to the use of this alternative measure, it has the downside in our setting in that founders hold such large positions in their firms that their ownership stake will generally surpass the collective ownership of all other TMT members. Thus, to avoid ascribing the founder's aligned incentives with those of the entire team, we construct this measure using the proportion of TMT members that hold equity rather than the percent of their holdings. Also, our use of the 1% threshold (as opposed to ownership above 0%) is due to the SEC's disclosure rules that require firms to identify individuals and organizations that hold more than 1% of the firm's equity at the time of IPO. Thus, we are not able to observe ownership levels that are below this threshold.

<sup>13</sup>While we are primarily interested in the cumulative effect, we do perform robustness tests in which we re-estimate our main analysis using each dimension individually, rather than as part of the composite. These results, included as Table 5 of our paper, yield similar inferences to those made when using the more comprehensive composite variable.

<sup>14</sup>Composite indices are also regularly used in the financial statement analysis literature. In this literature, composite scores are created by equally weighting multiple dimensions of firms' financial statements with the goal of separating firms that are more likely to generate positive future abnormal stock returns from other firms (e.g., Mohanram, 2005; Piotroski, 2000). This research indicates that a better signal of a firm's future performance is obtained by constructing such a measure that considers multiple dimensions.

<sup>15</sup>An alternative approach could be to use principal components analysis (PCA) to reduce the five dimensions into a lesser number of factors. While PCA is a useful tool for data reduction, it often results in variables that are uninterpretable. Further, unlike our composite score that creates a single variable that has a direct link to a construct of interest, PCA results only in the creation of a smaller number of uncorrelated variables that do not consider an ex-ante construct. Nonetheless, we test whether

### 3.3 | Variable construction: Return on assets

We use each firm's 3-year, post-IPO return on assets (ROA) to capture operating performance ( $ROA_{Post}$ ). To calculate this measure, we take the average of the firm's quarterly return-on-assets (i.e., net income scaled by book value of assets) over the twelve fiscal quarters that immediately follow the firm's IPO. We choose this measure of post-IPO performance for several reasons. First, net income is an aggregation of all of the firm's revenues, expenses, gains, and losses.<sup>16</sup> Second, scaling the firm's net income by the firm's book value of total assets explicitly takes into account the amount of assets used to support the firm's business activities. Further, the use of assets as the scalar [ROA] creates a metric with much more desirable distributional properties than either return on equity (ROE) or return on sales (ROS) since assets are strictly positive.<sup>17</sup> Third, we follow seminal papers in the IPO literature (e.g., Carter, Dark, & Singh, 1998; Ritter, 1991) by using 3 years as the long-run horizon over which to examine firm performance. This extended horizon is important for our analysis because it allows a sufficient period of time for firms to realize the benefits associated with investing the IPO proceeds.<sup>18</sup>

### 3.4 | Variable construction: Control variables

We include several firm-specific control variables prior research finds to influence the performance of either IPO or founder-led firms (e.g., Brav & Gompers, 1997; Gao, Ritter, & Zhu, 2013; Jain & Kini, 1995). Specifically, our model includes firm-specific variables, taking into account the proceeds received from the offering as necessary, to control for each firm's market value of equity (*MVE*), book-to-market ratio (*BTM*), prior operating performance (*ROA*, *Abs(ROA)*, *Growth*), position in the firm's life cycle (*Firm\_Age*, *R&D\_Intensity*, and *Startup*), capital structure (*Leverage*), asset intensity (*Capital\_Intensity*), and underwriter prestige (*Underwriter*).

For each of these variables, we use commonly applied definitions. Specifically, we define *MVE* as one plus the natural log of the firm's market value of equity. *BTM* as the firm's book value of equity divided by its market value of equity. *ROA* as the firm's net income over the 12 months prior to IPO scaled by the firm's book value of assets. *Abs(ROA)* as the absolute value of *ROA*. *Growth* as the firm's year-over-year quarterly revenue growth for the quarter immediately preceding its IPO. *Firm\_Age* as the natural log of one plus the number of years the firm has existed prior to going public. *R&D\_Intensity* as the percentage of the firm's research and development expenditures scaled by book value of assets. *Startup* as an indicator variable that takes the value of one if the firm's revenues for the 12 months prior to IPO were below \$50 million (Gao et al. (2013)). *Leverage* as the firm's total

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our findings are robust to the use of PCA. In untabulated analyses, we find that our composite score variable is most strongly correlated with the first principal component (eigenvalue = 1.714, correlation with *TMT\_Composite* = 0.6792). We also find that the inferences drawn from our analyses are qualitatively similar when using the first principal component as opposed to our composite score. However, to facilitate more meaningful interpretation of our results, we tabulate all analyses using the composite score.

<sup>16</sup>While some prior studies exclude taxes, non-recurring items, or minority interest when examining a firm's operating performance, prior studies find these items have important informational properties that correlate to the firm's future cash flows (Doyle, Lundholm, & Soliman, 2003). Further, these items are not populated within Compustat to the same extent as net income, leading researchers to often exclude a non-random portion of the population. Thus, to capture the greatest amount of information about the maximum number of firms, we use each firm's net income as the numerator for ROA.

<sup>17</sup>This distinction is particularly important in our setting since many IPO firms are still in the nascent phase of their life cycle, and thus have large accumulated deficits or insignificant amounts of revenue. Further, the use of ROS does not directly account for the fact that asset-heavy companies need higher levels of net income to support their operations relative to asset-light companies.

<sup>18</sup>Occasionally firms delist (e.g., via acquisition, bankruptcy, etc.) prior to the firm's 3-year anniversary. In such cases, we construct  $ROA_{Post}$  to include all of the firm's quarterly observations prior to delisting.

liabilities divided by total assets. *Capital\_Intensity* as the firm's net property, plant, and equipment scaled by the firm's book value of assets. *Underwriter* as the average Carter-Manaster ranking (as obtained from Jay Ritter's data library) of a firm's underwriters.

We also include several variables to capture differences in firms' corporate governance structures that may influence a CEO's level of control within the firm. Specifically, we include *VC* as an indicator variable that takes the value of one if the firm has venture capital backing prior to IPO. We include *Duality* as an indicator variable that takes the value of one if the firm's CEO is also the Chairperson of the firm's board of directors. We include *Insider\_Board* as an indicator variable that takes the value of one if a majority of the firm's board of directors are employed as current executives for the firm. Finally, we include *Dual\_Class\_Shr* as an indicator variable if the firm has a capitalization structure consisting of two or more classes of common shares. Table 1 includes the descriptive statistics and Pearson correlation coefficients for these and all other variables discussed above.

### 3.5 | Entropy balancing

Table 2 presents descriptive statistics for the 2,098 firms in our study, partitioned by founder leadership. We find that founder-led firms are younger (*Firm\_Age*), less profitable (*ROA*), smaller (*MVE*), and more likely to have CEO duality (*CEO\_Duality*). *t* tests on these variables, and all other control variables described above with the exception of *Dual\_Class\_Shr*, indicate that the firms with founder leadership are not comparable to firms without founder leadership (i.e., *p*-values <0.10). To address this empirical challenge, we employ a recently developed multivariate matching approach referred to as entropy balancing (Hainmueller, 2012).

Entropy balancing differs from propensity score matching, the most frequently used multivariate matching model used in business research, in the process of identifying weights for each control observation. Propensity score matching specifies a first-stage treatment model and then matches observations on the resulting propensity score, assigning a weight of one (zero) if the control observation is matched (excluded). However, in doing so, propensity score matching often accomplishes the exact opposite of its intended goal—that is, it exacerbates differences between the individual variables used in the first stage of the propensity score match (e.g., King & Nielsen, 2016). Entropy balancing solves a constrained optimization problem to identify a set of continuous weights (as opposed to discrete weights used by propensity score matching and other nearest neighbor matching techniques) that, applied to the control sample of firms, are such that the first, second, and possibly higher moments of the distributions of the matching variables for the reweighted control sample are indistinguishable from those same moments of these variables for the treatment sample. By reducing covariate imbalance—the goal of matching—this technique is thus able to reduce the degree of model dependence, and, as a result, reduce inefficiency and bias (e.g., Ho, Imai, King, & Stuart, 2007; Iacus, King, & Porro, 2012).

The effects of reweighting the sample of control firms (i.e., those without founder-CEOs) in our sample are documented as part of Table 2. As shown therein, the application of the continuous weights determined by the entropy balancing process to each of the 1,242 control firms is such that the mean of the firms with founder leadership is exactly equal to the mean of the reweighted sample of firms without founder leadership for every single one of the matching variables. We also observe that the *SD* and skewness of these distributions reveal insignificant differences between the two groups of firms. We also included Fama–French industry classification indicator variables and IPO-year indicator variables into the matching process. Thus, the industry classification and IPO timing between the treatment sample of firms and the reweighted sample of control firms are also now indistinguishable.

**TABLE 2** Descriptive statistics by founder classification, with and without entropy balanced matching

Variable	Full sample					Entropy balancing matched sample					Founder CEO			Nonfounder CEO		
	Founder CEO		Nonfounder CEO			Diff in means		Founder CEO			Mean		SD	Skew		
	n	Mean	SD	Skew	n	Mean	SD	Skew	Value	p-value	Mean	SD	Skew	Mean		
MVE	856	5.67	0.99	0.34	1,242	5.92	1.07	0.32	-0.26	0.000	5.67	0.99	0.34	5.67	1.03	0.22
BTM	856	0.15	0.20	0.38	1,242	0.17	0.27	0.45	-0.02	0.021	0.15	0.20	0.38	0.15	0.22	0.48
ROA	856	-0.27	0.51	-2.20	1,242	-0.22	0.48	-2.67	-0.05	0.021	-0.27	0.51	-2.20	-0.27	0.53	-2.39
Abs(ROA)	856	0.35	0.46	2.74	1,242	0.29	0.44	3.10	0.06	0.002	0.35	0.46	2.74	0.35	0.48	2.94
Growth	856	0.54	1.88	5.06	1,242	0.32	1.46	6.95	0.22	0.003	0.54	1.88	5.06	0.54	2.06	5.11
Firm_Age	856	2.03	0.62	0.16	1,242	2.62	0.98	0.39	-0.58	0.000	2.03	0.62	0.16	2.04	0.78	0.59
R&D_Intensity	856	0.17	0.25	2.39	1,242	0.15	0.25	2.63	0.02	0.099	0.17	0.25	2.39	0.17	0.23	2.35
Startup	856	0.67	0.47	-0.74	1,242	0.48	0.50	0.06	0.19	0.000	0.67	0.47	-0.74	0.67	0.47	-0.74
Leverage	856	0.29	0.23	1.07	1,242	0.42	0.29	0.72	-0.13	0.000	0.29	0.23	1.07	0.29	0.23	1.38
Capital_Intensity	856	0.10	0.14	2.72	1,242	0.14	0.16	1.82	-0.04	0.000	0.10	0.14	2.72	0.10	0.13	2.57
VC	856	0.64	0.48	-0.58	1,242	0.48	0.50	0.09	0.16	0.000	0.64	0.48	-0.58	0.64	0.48	-0.58
Underwriter	856	7.78	1.72	-2.02	1,242	8.03	1.45	-2.46	-0.25	0.000	7.78	1.72	-2.02	7.78	1.75	-2.03
CEO_Duality	856	0.67	0.47	-0.71	1,242	0.33	0.47	0.71	0.34	0.000	0.67	0.47	-0.71	0.67	0.47	-0.71
Insider_Board	856	0.18	0.39	1.63	1,242	0.08	0.28	2.99	0.10	0.000	0.18	0.39	1.63	0.18	0.39	1.63
Dual_Class_Shr	856	0.07	0.26	3.33	1,242	0.08	0.28	3.01	-0.01	0.297	0.07	0.26	3.33	0.07	0.26	3.33

Note. Table 2 provides descriptive statistics for each of the independent variables included in our study, partitioned by founder leadership. Founder CEO (Nonfounder CEO) firms are the partition of firms that go public with (without) a founder CEO. Descriptive statistics for each partition, and the difference between the partitions, are provided for the full sample of firms on the left-hand side of Table 2. *p*-values from two-tailed *t* tests are provided. Descriptive statistics are also provided on the right-hand side of Table 2 for each partition after reweighting the partition of nonfounder CEO firm observations as indicated by the entropy balancing process. Differences and associated *t* tests are not provided for the entropy balancing matched sample since the mean differences between the partitions are, by definition, insignificant. All variables are motivated and defined in Section 3 of our paper.

In addition to improving the covariate balance, entropy balancing also removes the vast majority of researcher discretion that complicates the use of nearest-neighbor matching techniques (e.g., Caliendo & Kopeinig, 2008). This reduction of researcher discretion is particularly important when considering recent research that shows even seemingly innocuous changes in the first stage of propensity score matching can significantly affect sample composition and inferences (Shipman, Swanquist, & Whited, 2017; Smith & Todd, 2005).<sup>19</sup>

## 4 | RESULTS

Hypothesis (H1) seeks to understand whether team structure has a lower impact on performance for founder-led firms relative to that of firms without founder leadership. To examine this hypothesis, we estimate the following equation:

$$\begin{aligned} ROA_{Post} = & \beta_0 + \beta_1 TMT\_Composite + \beta_2 TMT\_Composite * Founder + \beta_3 Founder \\ & + \beta_{4-18} Control\ Variables + Fixed\ Effects + \varepsilon_i \end{aligned} \quad (1)$$

where  $ROA_{Post}$  is described above and proxies for the firm's post-IPO operating performance.  $TMT\_Composite$  proxies for how well each firm's TMT is structured across the five team structure dimensions examined in our study. The interaction of this variable with *Founder*, an indicator variable that takes the value of one if the firm has a founder-CEO at the time of IPO, is our primary variable of interest for Hypothesis (H1). The control variables include each of the fourteen independent variables previously described, and already included in the entropy balancing process to reweight the sample of control firms prior to our estimation of Equation 1. As before, we also include both time and industry fixed effects in the model and cluster-robust the *SEs* by both industry (Fama–French 48) and time (calendar quarter-year).

Table 3 provides the results of estimating Equation 1. In column 1, we initially exclude the interactive variable of interest from the regression to examine the relation between  $TMT\_Composite$  and firm performance ( $ROA_{Post}$ ). Since this variable is intended to capture how well a management team is structured, we expect that it would have a positive relation with firm performance. Consistent with this expectation, Column 1 reveals that  $\beta_1 = 0.0083$  (*p*-value = 0.002). Considering the *SD* for  $TMT\_Composite$  is equal to 1.28, this suggests that a one-*SD* change in  $TMT\_Composite$  is associated with a meaningful change in ROA of 1.06%. Consistent with the prior research referenced in constructing this variable, this finding provides additional evidence that team structure has a meaningful influence on a firm's operating performance.

Column 2 of Table 3, provides the results of estimating Equation 1, inclusive of the  $TMT\_Composite * Founder$  variable.  $\beta_1$ , which captures the sensitivity of firm performance in firms *without* founder leadership to the structure of their TMT, is estimated to be 0.0117 (*p*-value = 0.000).  $\beta_2$  captures the differential performance sensitivity to TMT structure for firms that have founder leadership. Consistent with Hypothesis (H1), we find that this sensitivity to a team's top management structure and composition is reduced in firms with founder leadership (i.e.,  $\beta_3 = -0.0071$ , *p*-value = 0.003). Further, our results indicate that the moderating effect of founder leadership is substantial as the

<sup>19</sup>For more detailed discussion of the entropy balancing method, we refer readers to the original Hainmueller (2012) paper that provides the framework and implementation details surrounding this method. We also reference readers to Imbens and Rubin (2015) and King and Nielsen (2016) for additional discussion of the challenges and shortcomings associated with using propensity score matching.

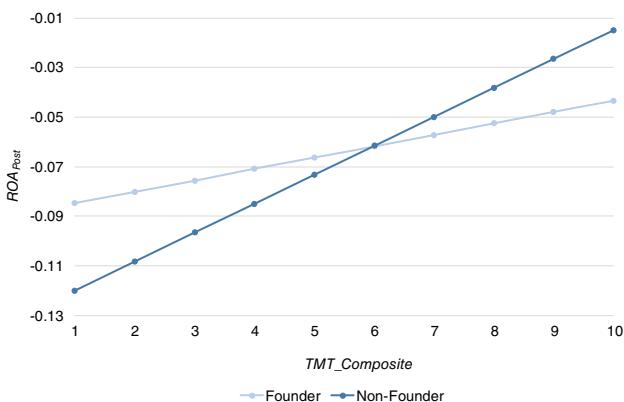
**TABLE 3** Sensitivity of firm performance to TMT structure

<b>Variable name</b>	<b>Hypothesized relation</b>	<b><i>ROA<sub>Post</sub></i></b>		
		(1)	(2)	(3)
<i>TMT_Composite</i>	Prior lit: +	0.0083 (0.002)	0.0117 (0.000)	0.0007 (0.849)
<i>Founder * TMT_Composite</i>	H1: -		-0.0071 (0.003)	
<i>Founder</i>		0.0048 (0.296)	0.0423 (0.001)	
<i>MVE</i>		-0.0028 (0.298)	-0.0030 (0.254)	0.0060 (0.248)
<i>BTM</i>		0.0223 (0.027)	0.0217 (0.050)	0.0176 (0.431)
<i>ROA</i>		0.1117 (0.000)	0.1109 (0.000)	0.1266 (0.000)
<i>Abs(ROA)</i>		0.0450 (0.016)	0.0440 (0.018)	0.0482 (0.001)
<i>Growth</i>		0.0018 (0.429)	0.0018 (0.415)	0.0018 (0.525)
<i>Firm_Age</i>		0.0122 (0.009)	0.0122 (0.009)	0.0185 (0.026)
<i>R&amp;D_Intensity</i>		0.0224 (0.580)	0.0221 (0.582)	0.0320 (0.211)
<i>Startup</i>		-0.0271 (0.000)	-0.0274 (0.000)	-0.0296 (0.002)
<i>Leverage</i>		0.0303 (0.050)	0.0294 (0.048)	0.0457 (0.002)
<i>Capital_Intensity</i>		0.0108 (0.644)	0.0121 (0.604)	0.0140 (0.579)
<i>VC</i>		-0.0043 (0.291)	-0.0041 (0.284)	0.0046 (0.549)
<i>Underwriter</i>		0.0071 (0.029)	0.0071 (0.025)	0.0056 (0.159)
<i>Duality</i>		-0.0042 (0.361)	-0.0042 (0.373)	-0.0054 (0.506)
<i>Insider_Board</i>		0.0161 (0.034)	0.0161 (0.032)	0.0018 (0.835)
<i>Dual_Class_Shr</i>		0.0033 (0.693)	0.0048 (0.569)	-0.0032 (0.762)
<i>Non-Blockholder</i>				-0.0525 (0.044)
<i>TMT_Composite*non-Blockholder</i>	H2: +			0.0085 (0.055)
Industry fixed effects		Included	Included	Included
Time fixed effects		Included	Included	Included
Sample restrictions		None	None	<i>Founder = 1</i>

TABLE 3 (Continued)

Variable name	Hypothesized relation	$ROA_{Post}$		
		(1)	(2)	(3)
Observations		2,098	2,098	856
First-stage entropy balance		<i>Founder</i>	<i>Founder</i>	<i>Non-Blockholder</i>
R-squared		0.427	0.429	0.500

Note.  $N = 2,098$ . Table 3 presents the results from estimating Equations 1 and 2 using the reweighted data as determined by entropy balancing.  $p$ -values from two-tailed tests are shown below each of the estimated coefficients.  $ROA_{Post}$  is the firm's average quarterly return-on-assets for the 3 years subsequent to the firm's initial public offering. *Founder* is an indicator variable that takes the value of one if the founder is CEO at the time of the firm's initial public offering, zero otherwise. *TMT\_Composite* is the firm's average decile ranking across the five dimensions of team structure (i.e., *TMT\_Age*, *TMT\_Tenure*, *TMT\_Blaau*, *TMT\_Size*, and *TMT\_Equity*) examined in our study. This variable proxies for how well each IPO firm's top management team is structured and, based on findings from prior research, is expected to have a positive relation with operating performance. *Non\_Blockholder* is an indicator variable that takes the value of one if the firm's CEO holds 5% or more of the firm's equity, zero otherwise. All other variables are motivated and defined in Section 3 of our paper.



**FIGURE 1** Sensitivity of firm performance to top management team (TMT) structure, by founder classification. Note. This figure depicts the marginal effects of TMT structure on firm performance, by founder classification, as tabulated as column 2 of Table 3.  $ROA_{Post}$  is the firm's average quarterly return-on-assets for the 3 years subsequent to the firm's initial public offering. The light (dark) colored line indicates the firm has (does not have) a founder CEO. We refer the reader to Section 3 of our paper and to Table 3 for additional information regarding each variable and its construction

estimated performance effects associated with a founder-led firm's TMT structure are reduced by 60.7% (i.e.,  $1 - ((0.0117 - 0.0071)/0.0117) = 60.7\%$ ) relative to that of firms without founder leadership.<sup>20</sup>

Figure 1 depicts the results from Column 2 in Table 3, the Y-axis representing  $ROA_{Post}$  and the X-axis showing the range of possible values for *TMT\_Composite* (i.e., range = 1–10, corresponding to the average decile across the five dimensions included in the measure). Thus, the figure plots the marginal effect of *TMT\_Composite*, holding all other variables at their means, for both the group of firms with founder leadership (light colored line) and those without founder leadership (dark colored line). While support for Hypothesis (H1) is provided by the reduced slope of the dark colored line, it is important to consider where the two lines intersect since it is at that value of *TMT\_Composite* at which our results indicate the firm performs equally well regardless of whether or not it has founder leadership. This figure is consistent with founders adding

<sup>20</sup>For transparency, we also estimate Equation 1 using each dimension of team structure independently, rather than as the composite variable. Those results are discussed in the robustness section of our paper and tabulated as Table 5.

significant value to their firms. However, it also indicates that a firm's operating performance is maximized when operating with a well-structured team that is *independent* of the founder's involvement.

As discussed in the development of our hypotheses, one potential reason why the performance of founder-led firms is less sensitive to their TMT is because founders desire to maintain control and will thus place less reliance on the team. We now test this Hypothesis (H2) by exploiting variation in the degree of control that the founder has in the firm. To do so, we first exclude all firms without founder leadership from our sample. We then divide the sample of founder-led firms into two mutually exclusive groups, based on whether the founder-CEO is included as one of the firm's equity blockholders when the firm goes public (i.e., retains at least 5% equity ownership in the firm).<sup>21</sup> We then create a variable (*Non-Blockholder*) that takes the value of one if the founder-CEO fails to meet the 5% equity ownership threshold and alter Equation 1 in the following manner in order to consider how our prior findings are influenced by a founder-CEO's control of the firm:

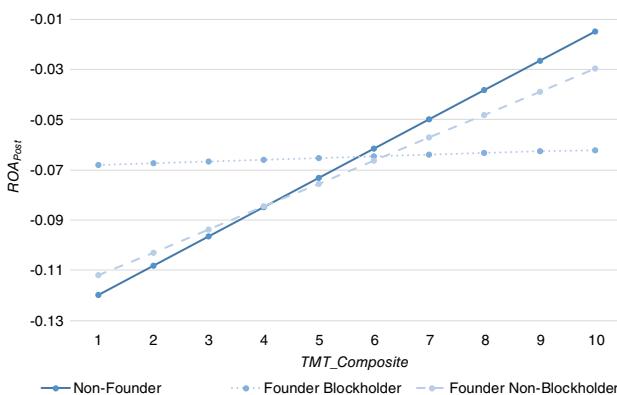
$$\begin{aligned} ROA_{Post} = & \beta_0 + \beta_1 TMT\_Composite + \beta_{2-16} Control\ Variables + \beta_{17} Non\_Blockholder \\ & + \beta_{18} TMT\_Composite * Non\_Blockholder + Fixed\ Effects + \varepsilon_i \end{aligned} \quad (2)$$

where all variables are as previously defined.

Before we estimate Equation 2, we first examine the similarity of the founder-led firms with and without blockholder CEOs. We perform *t* tests to examine the significance of the differences in the mean values between these two sets of firms. As shown in Table 4, we find several large differences between the two sets of firms (i.e., the *p*-values for tests of MVE, BTM, ROA, R&D\_Intensity, VC, Underwriter, CEO\_Duality, and Insider\_Board are all below 0.10). These differences indicate that the set of founder-led firms with Blockholder CEOs are not a good control group for the sample of founder-led treatment firms that do not have a Blockholder CEO. Thus, we again perform entropy balancing to reduce this covariate imbalance. The application of the continuous weights determined by the entropy balancing process to each of the 640 control firms is such that the mean of the founder-led firms with nonblockholding CEOs is now exactly equal to the mean of the reweighted sample of founder-led firms with blockholding CEOs for every single one of the matching variables. As before (i.e., when using this technique to reduce the imbalance between the firms with and without founder leadership [as documented in Table 2]), we also observe increased similarity in the *SD* and skewness of the distributions for these variables between the treatment and control group of firms.

We now estimate Equation 2 using the reweighted sample of control firms in Column 3 of Table 3. Consistent with Hypothesis (H2), we find that the coefficient for our variable of interest is positive (i.e.,  $\beta_{18} = 0.0085$ , *p*-value = 0.055). This effect is perhaps best understood by its depiction in Figure 2. While Figure 1 distinguished firms based only on founder leadership, Figure 2 makes a further distinction for the firms with founder leadership based on the CEO's blockholder status. The solid dark line in Figure 2 is carried over from Figure 1. It represents the marginal effect of

<sup>21</sup>We use 5% ownership as the blockholder threshold to be consistent with current SEC rules, established under the Williams Act of 1968, that require investors to make SEC filings when exceeding this percentage ownership. This requirement also extends to IPO firms that are required to identify any stockholders above the 5% threshold in registration statements that they file with the SEC when attempting to go public. We find that 216 (640) of the founder-CEOs do not meet (do meet) the 5% blockholder threshold at IPO. In untabulated robustness tests, we also find that results are similar when using a 10 or 25% threshold.



**FIGURE 2** Sensitivity of firm performance to top management team (TMT) structure, by founder and blockholder classifications. Note: This figure depicts the marginal effects of TMT structure on firm performance, as tabulated as column 3 of Table 3.  $ROA_{Post}$  is the firm's average quarterly return-on-assets for the 3 years subsequent to the firm's initial public offering. The dark colored line indicates the firm does not have a founder CEO. The dotted (dashed) light-colored line indicates the firm has a founder CEO that is (is not) one of the firm's equity blockholders. We refer the reader to Section 3 of our paper and to Table 3 for additional information regarding each variable and its construction

$TMT\_Composite$  for the group of firms without founder leadership (i.e., slope = 0.0117). We then use two light-colored lines to represent the marginal effects of  $TMT\_Composite$  for the two groups of founder-led firms. As shown by the light-colored dotted line, this effect for the founder-led firms with a blockholding CEO is 0.0007 (i.e.,  $\beta_1$  of Column 3, Table 3). This insignificant slope indicates that a founder-led firms' performance with a blockholding CEO is largely unaffected by team structure. However, this result differs markedly from the light-colored dashed line that depicts the marginal effect of  $TMT\_Composite$  for the founder-led firms with CEOs that do not meet the equity blockholder threshold. That marginal effect is equal to 0.0092 (i.e.,  $\beta_1 + \beta_{18}$ ), which is only 21.4% (i.e.,  $1 - ([0.0117 - 0.0092]/0.0117 = 21.4\%)$  less than the estimated marginal effect of  $TMT\_Composite$  for firms without founder leadership. Taken together, these results provide empirical evidence that the extent of the founder CEO's control of the firm, as opposed to the founder CEO herself or himself, plays a significant role in reducing the operational effects of team structure in founder-led firms.

#### 4.1 | Robustness: Sensitivity of firm performance to individual dimensions of team structure

We used a composite score to examine how founder leadership altered the sensitivity of firm performance to team structure. Yet, the team literature often examines these measures individually rather than collectively. This prompts the question as to which individual team dimensions most differentially influence firm performance for firms with and without founder leadership. To answer this question, we sequentially rotate the five individual dimensions in place of  $TMT\_Composite$  and reestimate Equation 1.

Table 5 documents the results from estimating the modified versions of Equation 1. For brevity, we also include the marginal effect of each of the five dimensions of team structure on firm performance, by founder classification, at the bottom of the Table. The marginal effects for the nonfounder firms are captured by  $\beta_1$  in Equation 1. For firms with founder leadership, the marginal effect is equal to  $\beta_1 + \beta_2$  (statistical significance determined using F-Test). Column 1 reports the marginal effects of  $TMT\_Age$  on  $ROA_{Post}$  by founder classification. As noted earlier, we expect the average age of TMT members to be positively associated with firm performance. While

**TABLE 4** Descriptive statistics of firms with founder-CEOs by blockholder classification, with and without entropy balanced matching

Variable	Full sample of firms with founder-CEOs										Entropy balancing matched sample					
	Non-Blockholders					Blockholders					Non-Blockholders			Blockholders		
	n	Mean	SD	Skew	n	Mean	SD	Skew	n	Mean	SD	Skew	n	Mean	SD	Skew
MVE	216	5.80	0.87	0.38	640	5.62	1.03	0.36	0.18	0.023	5.80	0.87	0.38	5.80	0.86	0.32
BTM	216	0.10	0.25	0.18	640	0.16	0.17	0.89	-0.06	0.000	0.10	0.25	0.18	0.10	0.18	0.07
ROA	216	-0.33	0.52	-2.13	640	-0.25	0.51	-2.24	-0.08	0.047	-0.33	0.52	-2.13	-0.33	0.50	-1.97
Abs(ROA)	216	0.38	0.49	2.44	640	0.34	0.45	2.85	0.03	0.379	0.38	0.49	2.44	0.38	0.47	2.30
Growth	216	0.62	2.12	4.65	640	0.51	1.79	5.21	0.11	0.447	0.62	2.12	4.65	0.62	1.98	4.42
Firm_Age	216	2.04	0.62	0.36	640	2.03	0.62	0.10	0.01	0.902	2.04	0.62	0.36	2.04	0.59	0.25
R&D_Intensity	216	0.23	0.31	1.80	640	0.15	0.23	2.66	0.08	0.000	0.23	0.31	1.80	0.23	0.31	1.90
Startup	216	0.66	0.48	-0.66	640	0.68	0.47	-0.76	-0.02	0.575	0.66	0.48	-0.66	0.66	0.47	-0.66
Leverage	216	0.31	0.24	1.03	640	0.29	0.22	1.08	0.03	0.144	0.31	0.24	1.03	0.31	0.24	1.10
Capital_Intensity	216	0.11	0.15	2.42	640	0.10	0.14	2.83	0.01	0.325	0.11	0.15	2.42	0.11	0.16	2.45
VC	216	0.73	0.45	-1.02	640	0.61	0.49	-0.45	0.12	0.002	0.73	0.45	-1.02	0.73	0.45	-1.02
Underwriter	216	8.10	1.41	-2.72	640	7.68	1.80	-1.85	0.42	0.002	8.10	1.41	-2.72	8.10	1.33	-2.31
CEO_Duality	216	0.50	0.50	0.02	640	0.73	0.45	-1.02	-0.23	0.000	0.50	0.50	0.02	0.50	0.50	0.02
Insider_Board	216	0.11	0.31	2.55	640	0.21	0.41	1.42	-0.10	0.001	0.11	0.31	2.55	0.11	0.31	2.55
Dual_Class_Shr	216	0.06	0.24	3.70	640	0.08	0.26	3.23	-0.01	0.465	0.06	0.24	3.70	0.06	0.24	3.70

Note. Table 4 provides descriptive statistics for each of the independent variables included in our study for the 856 firms with founder-CEOs, partitioned by equity blockholder classification (i.e., owns 5% or more of the firm's common shares). Non-Blockholder (Blockholder) CEOs are the partition of firms with a founder-CEO that does not (does) own 5% or more of the firm's common shares at IPO. Descriptive statistics for each partition, and the difference between the partitions, are provided for the sample of firms on the left hand side of Table 4. *p*-values from two-tailed *t* tests are provided. Descriptive statistics are also provided on the right hand side of Table 4 for each partition after reweighting the partition of Blockholder firm observations as indicated by the entropy balancing process. Differences and associated *t* tests are not provided for the entropy balancing matched sample since the mean differences between the partitions are, by definition, insignificant. All variables are motivated and defined in Section 3 of our paper.

**TABLE 5** Sensitivity of firm performance to individual dimensions of TMT structure

Variable	<i>ROA<sub>Post</sub></i>				
	(1)	(2)	(3)	(4)	(5)
<i>Founder</i>	0.0472 (0.031)	0.012 (0.063)	0.0148 (0.289)	-0.0147 (0.058)	0.0095 (0.047)
<i>TMT_Age</i>	0.0014 (0.057)				
<i>Founder*TMT_Age</i>	-0.0008 (0.147)				
<i>TMT_Tenure</i>		0.0041 (0.001)			
<i>Founder*TMT_Tenure</i>		-0.0015 (0.102)			
<i>TMT_Diversity</i>			-0.0048 (0.834)		
<i>Founder*TMT_Diversity</i>			-0.0104 (0.619)		
<i>TMT_Size</i>				-0.0032 (0.020)	
<i>Founder*TMT_Size</i>				0.0031 (0.007)	
<i>TMT_Equity</i>					0.2466 (0.065)
<i>Founder*TMT_Equity</i>					-0.1303 (0.059)
Estimated marginal effect for each individual <i>TMT Dimension</i>					
Founder firms	0.0006 (0.454)	0.0026 (0.079)	-0.0152 (0.249)	-0.0001 (0.938)	0.1163 (0.103)
Remaining control variables	Included	Included	Included	Included	Included
Industry fixed effects	Included	Included	Included	Included	Included
Time fixed effects	Included	Included	Included	Included	Included
Observations	2,098	2,098	2,098	2,098	2,098
R-squared	0.422	0.425	0.421	0.424	0.424

Notes.  $N = 2,098$ . Table 5 presents the results from estimating a modified version of Equation 1, in which *TMT\_Composite* is sequentially replaced by each of the five individual dimensions of team structure examined in this paper (i.e., *TMT\_Age*, *TMT\_Tenure*, *TMT\_Blaau*, *TMT\_Size*, and *TMT\_Equity*), using the reweighted data as determined by entropy balancing. *p*-values from two-tailed tests are shown below each of the estimated coefficients. For ease of interpretation, we also include the marginal effects of each TMT dimension on firm performance for the firms with founder leadership which is equal to  $\beta_1 + \beta_2$  (statistical significance determined using F-Test). *ROA<sub>Post</sub>* is the firm's average quarterly return-on-assets for the 3 years subsequent to the firm's initial public offering. *Founder* is an indicator variable that takes the value of one if the founder is CEO at the time of the firm's initial public offering, zero otherwise. *TMT\_Age* is the average age, in years, of TMT members. *TMT\_Tenure* as the average employment tenure, defined as the number of years between the firm's IPO and the date the employee began working at the firm, of TMT members. *TMT\_Blaau* is a measure of the diversity of functional backgrounds on each team. *TMT\_Size* is the number of TMT members. *TMT\_Equity* is the proportion of TMT members that hold at least 1% of the firm's equity.

we find that the expected relation exists for firms without founder leadership (i.e., 0.0014, *p*-value = 0.057), we fail to find evidence that age improves firm performance for firms with founder CEOs (i.e., 0.0006, *p*-value = 0.454). These results are consistent with those shown for the

composite variable in that they indicate that performance of the firms with founder leadership is less sensitive to TMT structure.

Looking at the remaining columns of Table 5, we generally continue to observe this same relation. Specifically, for the firms without founder leadership, we observe an estimated coefficient with a *p*-value less than 0.10 consistent with the predicted relation between firm performance and the individual team dimension for each individual dimension of *TMT\_Composite* with the exception of diversity (i.e., Column 3). However, for firms with founder CEOs, we find that the effects with these individual dimensions are moderated. More specifically, *TMT\_Tenure* is the only one of the five dimensions to have a coefficient estimated with a *p*-value below 0.10 (i.e., coefficient = 0.0026, *p*-value = 0.079). For all other dimensions, we fail to find evidence that *TMT\_Age* (0.0006, *p*-value = 0.454), *TMT\_Diversity* (-0.0152, *p*-value = 0.249), *TMT\_Size* (-0.0001, *p*-value = 0.938), or *TMT\_Equity* (0.1163, *p*-value = 0.103) improves firm performance for founder-led firms. Thus, as a whole, Table 5 provides additional evidence in support of Hypothesis (H1) in that it indicates that the sensitivity of firm performance to team structure is reduced in founder-led firms for four out of the five individual dimensions examined in our study. By showing that the general relation of interest in our paper is not only observed in the collective (Table 3), but that it also exists across the individual dimensions of team structure, Table 5 provides added evidence as to the robustness of our main finding.

## 4.2 | Robustness: Alternative matching approach

Coarsened Exact Matching (CEM) is an alternative matching scheme that could be used to reduce the covariate imbalance that exists in our study. While this method is often viewed as doing so in a more efficient manner relative to Propensity Score Matching (Iacus, King, & Porro, 2011; King & Nielsen, 2016), CEM does require the researcher to specify appropriate cutpoints for each variable included in the match. While some variables have cutpoints that are easy to define (e.g., venture capital backing and other indicator or ordinal variables), appropriate cutpoints are not generally as clear when using financial data that is continuous in nature. Thus, we view entropy balancing as being better suited to address the covariate imbalance that exists for our sample of firms while also reducing researcher discretion. Nonetheless, we examine the robustness of our results to using 2, 3, 4, or 5 equally sized bins of each continuous variable in the model and using the original values for the indicator variables included therein. In untabulated results, we find that inferences of our study are unchanged when using CEM rather than entropy balancing.

## 5 | DISCUSSION

As a firm grows and matures, its founders often do not possess the necessary managerial skills that are required to lead the growing firm. Because of this, many founders are replaced by professional management. However, many other firms retain their founders, even as the firm matures. In these cases, the TMT appears to be crucial for the success of the business since the TMT may be able to compensate for the founder's deficiencies. Surprisingly, however, little is known about whether team structure differentially affects the performance of large firms with and without founder leadership, and if so, why. Our study provides insight into these questions.

Our results reveal that although team characteristics such as tenure, age, and diversity affect the performance of nonfounder firms (consistent with prior literature), such a relation is significantly reduced for founder-led firms. We argue that this is because founders' desire to retain control leads

them to rely *more* on their *own* judgment and *less* on their *team*. In other words, founders centralize decisions that enable them to pursue their objectives, but by so doing they sacrifice the performance benefits of the TMT's expertise.<sup>22</sup> Thus, the irony is that founders are retained to improve the performance of their firm but their very retention may prevent the firm from doing so. But, in cases where founders have less control of the organization, we find that the performance of their firms becomes more sensitive to team structure. Collectively, our findings contribute to the literature by revealing stark differences in the benefits that both groups derive from TMTs. More broadly, our findings add fresh contributions to the entrepreneurship and team literatures as well as to research methods.

## 5.1 | Contributions to the entrepreneurship literature

Our study contributes to the literature on the role of founders. While founders govern the majority of firms throughout the world and so are critical to the global economy (Claessens, Djankov, & Lang, 2000; La Porta, Lopez-de-Silanes, & Shleifer, 1999; Nelson, 2003), most of the literature examines founders in relatively small, private, and family run firms (Klotz et al., 2014). Comparatively little research goes beyond these types of firms, leaving many open questions as to how founders might govern in larger, more mature firms. Yet research on this topic is increasingly important, as founder CEOs currently govern or have governed many of the largest and most important firms in the world (Facebook, Amazon, Google, Apple, Microsoft, etc.). The founders of these firms often go from leading small, entrepreneurial ventures to leading large, multi-billion dollar firms within a span of a few years, and their behavior is often very different from their more “professional” counterparts. Our study takes important steps in understanding how these differences might impact firm performance.

More specifically, our study provides further insight into the “control dilemma” faced by founders. Past studies propose that founders face a tradeoff between retaining control and growing their business (Wasserman, 2017). These studies generally focus on the mechanism of resource constraint, suggesting that a founder's insistence on maintaining control may be problematic because it often comes at the expense of obtaining the skills and investment needed to grow. Yet, our study adds to the literature by providing insight into another related mechanism through which founder control may impact firm performance—the value extracted from their TMT. Hence, while prior work suggests that founders' desire to retain control may lead them to resist resources, our study extends this work by showing that even after founders acquire resources (i.e., even after they grow and hire a management team), they may not actually realize the full value of those resources. Therefore, our results reveal that the control dilemma persists even after firms have grown and so is more fundamental than what prior literature indicates.

Finally, and more broadly, our study has implications for how entrepreneurial firms create and maintain competitive advantage. Our results suggest that founder CEOs may impede firm performance if they insist on maintaining a tight grip on decision-making as the firm grows and matures. Leadership of a complex organization generally requires a shared effort, in which management teams help firms achieve competitive advantage by “*applying collective expertise, integrating disparate efforts, and sharing responsibility for the success of the firm*” (Cohen & Bailey, 1997:243). If founder CEOs are unable or unwilling to do so, then it may be best for them to consider withdrawing. This may be difficult for emotionally-attached founders to implement, but it may be necessary for the

<sup>22</sup>There are many examples of this in practice. For instance, critics of Evan Spiegel (founder of Snap) have argued that his firm's performance has suffered greatly due to Spiegel's tendency to ignore his top management team. Snap insiders have even complained that “Spiegel's dictatorial style... [indicates] how the founder's personality [is] managing the firm, rather than good management practices...” (Wired, September 26, 2018)

good of the firm. Overall, it is often in the release of control, not the retention of it, that founders may foster the continued growth and success of their firms.

## 5.2 | Contributions to the team literature

We also contribute to the team literature by unpacking key contingencies. Although extant research finds certain team characteristics to be effective, our findings suggest that they may not be as effective in founder-led firms. For example, while we find that team age and team tenure affect performance in nonfounder firms (consistent with past literature), the performance of founder firms is almost entirely unaffected by team structure. This implies that firms with founder CEOs often do not benefit from their TMTs to the same extent as firms without founder leadership. On the other hand, it also means they are not as adversely affected by a poorly structured TMT. Together, our results suggest that TMT structure may be less important, or perhaps even irrelevant, in founder-led firms, especially when founders retain significant equity ownership of the firm. Future research on TMTs should address differences between founder and nonfounder firms when building their theory and testing hypotheses, as many findings are likely to differ for the two types of teams (Howell, Hendricks, & Bingham, 2019).

At a higher level, our study has implications for Upper Echelons theory. Hambrick (2007:334), in his review and assessment of the theory, explained that “*a focus on the characteristics of the top management team (TMT) will yield stronger explanations of organizational outcomes than will the customary focus on the individual top executive (e.g., CEO) alone.*” Consistent with this view, most Upper Echelons scholars focus attention on executive groups rather than individuals, arguing that it yields better explanations of performance. However, our study contributes by suggesting an important boundary condition on this assumption. Namely, that when the firm is led by a powerful CEO (e.g., a controlling founder), a focus on the top executive may actually yield better explanations of behavior and performance than a focus on the management team as a whole. Thus, in cases where some executives have more control than others, their biases and preferences should be given more weight when predicting TMT behavior.

## 5.3 | Methodological contributions

Our study also makes a methodological contribution by introducing a multivariate matching technique, entropy balancing, into the management literature. While randomized controlled experiments remain standard for drawing causal inferences, such experiments are difficult or even impossible to implement. Thus, researchers in strategic management apply a wide variety of strategies to draw causal inference from observational data. A major limitation of these approaches is that the sample of control observations do not closely resemble the sample of treatment observations because the treatment is not randomly assigned. While propensity score matching is frequently used to match the two groups of observations across several different variables, it often accomplishes the exact opposite of its intended goal and exacerbates differences between the individual variables used in the first stage of the propensity match.

Entropy balancing (Hainmueller, 2012) on the other hand, addresses this problem by weighting the observations in the control sample such that the distributional moments of the matching variables for the reweighted sample of control firms are indistinguishable from the moments of the distributions of these variables for the sample of treatment firms. By achieving covariate balance, this multivariate matching technique reduces model dependency. While this method (and other synthetic control methods like it) is not perfect in assessing causality, Athey and Imbens (2017) note that such

techniques are “*arguably the most important innovation in the policy evaluation literature in the last 15 years.*” Our use of this method not only provides greater assurance as to the causal inferences that can be drawn from our empirical results, it also provides a useful example of how this technique that is rapidly gaining traction in other fields can be applied to important questions within the strategic management literature when restricted to using observational data.

## 6 | CONCLUSION

Founders often do not possess the administrative skills that are required to lead a growing firm; thus, understanding the team that surrounds the founder is essential. We address this gap in the literature by exploring the performance implications of team structure in founder-led firms. Using data from more than 2,000 firms that went public from 1997–2013, we find that although team structure affects the performance of nonfounder firms, those effects are severely moderated for firms led by founders. However, we also provide evidence that this moderating effect of founder leadership is reduced when the founder retains less control over the firm. Overall, our work suggests that prior findings related to TMT structure do not extend equally well to founder-led and nonfounder led firms. More intriguingly, it suggests that because founder CEOs tend to rely more on their own judgment rather than on the expertise of their firm's TMT, the founder may end up preventing the firm's progress instead of propelling it. Hence, bringing in “adult supervision” via professional management may be warranted unless founder CEOs are willing to decrease control.

## ACKNOWLEDGEMENTS

We thank Alfonso Gambardella (editor), Gregory Miller, two anonymous reviewers, and workshop participants at the 2017 Kenan Institute Frontiers of Entrepreneurship Conference, and the 2018 Academy of Management Annual Meeting for constructive comments and suggestions. We also thank Vladimir Janjic and Aubrey Nequinto for excellent research assistance.

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**How to cite this article:** Hendricks B, Howell T, Bingham C. How much do top management teams matter in founder-led firms? *Strat Mgmt J*. 2019;40:959–986. <https://doi.org/10.1002/smj.3006>

## APPENDIX

*Past literature on the performance effects of team structure.* In the paragraphs that follow, we review prior literature on how various characteristics of team structure (age, tenure, diversity, size, and ownership) affect firm performance. As noted in the Section 3, these arguments from prior literature are referenced to create the composite variable used to test our hypotheses.

*Past literature on the effects of team age.* In many cases, the existing organizations literature shows a positive relationship between firm performance and the average age of the top management team (TMT). Since human capital and experience accumulate with age, older managers often have the absorptive capacity to understand the issues facing a firm and effectively deal with them as head of the organization. Other studies suggest that an individual's level of risk tolerance and over-optimism decreases with age (Hambrick & Mason, 1984). This causes younger managers to generally be more innovative and path-breaking, which is necessary in early-stage firms. Older managers, on the other hand, are generally more conservative and stick to the status quo (Jain & Tabak, 2008; Thomas, Litschert, & Ramaswamy, 1991) and are thus likely to perform more consistently over time, which becomes more necessary as a firm goes public such as the firms in our sample. In addition, even in cases where older managers do not actually possess more relevant experience than their younger counterparts, past research suggests that older managers possess more established networks and are *perceived* as being more competent (Cohen & Dean, 2005), which also may be more important for IPO firms who are under intense public scrutiny.

*Past literature on the effects of team tenure.* Extant research in strategy and organization identifies many benefits of team tenure. Teams with longer tenure have more firm-level and industry-level experience that builds valuable tacit knowledge for the firm (Nelson, 2003; Penrose, 1959). Longer tenure means that individuals have been in the position “*long enough to overcome some initial naiveté and learn the ropes and local practices*” (Pfeffer, 1983). In addition, longer tenure also benefits team dynamics by increasing team stability, decreasing goal conflict, and enhancing social cohesion (Hambrick & D'Aveni, 1992). As such, coordination becomes more efficient for teams with longer tenure as it allows the team to develop relationships and shared problem-solving routines (Cohen & Bailey, 1997; Katz, 1982). In general, teams with longer tenure build more transactive memory (i.e., the shared division of cognitive labor with respect to the encoding, storage, retrieval, and communication of information from different domains among team members—Zheng & Mai, 2013). In other words, the longer a team works together, the better they know how to work together (i.e., who does what and how well), which helps to facilitate knowledge assimilation, coordination, and creation among team members (Ren & Argote, 2011).

Past literature on the effects of team diversity. Existing literature finds contrasting evidence on how a team's functional diversity impacts performance. For example, some work suggests that diversity can impede effective communication and introduce damaging conflict with the team (Amason et al., 2006; Bunderson & Sutcliffe, 2002). However, the literature also identifies many ways in which a team's functional diversity can provide important benefits. With respect to decision making, teams only outperform individual decision makers to the extent that information is distributed asymmetrically among team members (Boone & Hendriks, 2009; Brodbeck, Kerschreiter, Mojzisch, & Schulz-Hardt, 2007). Thus, assembling a TMT with different backgrounds can provide the team with the nonoverlapping knowledge and resources necessary to make strategic decisions. Functional diversity can also benefit teams by helping them increase innovation and creativity (Bantel & Jackson, 1989), directly stimulate debate that leads to better decisions (Dahlin, Weingart, & Hinds, 2005), respond more appropriately to environmental threats (Hambrick, Cho, & Chen, 1996), and identify a

wider range of market opportunities (Gruber, MacMillan, & Thompson, 2012). These benefits of diversity are likely to become even more important as a firm matures and transitions from private to public (such as the firms in our sample), as multiple perspectives are needed to deal with the increasing complexity. In addition, other studies find that diversity sends a signal to investors and others that the team has the required skills to make the firm successful (Beckman, Burton, & O'Reilly, 2007), which again may be more important for IPO firms who are under intense public scrutiny. However, given the many benefits discussed above, teams with more functional diversity are generally expected to perform better on average.

*Past literature on the effects of team size.* Past literature identifies many ways in which the size of the TMT can impact performance. Some researchers find an inverse U-shape relationship between team size and performance (Cohen & Bailey, 1997), with very large teams and very small teams performing poorly. Larger teams are sometimes beneficial because they have greater cognitive resources at their disposal (Eisenhardt & Schoonhoven, 1990; Haleblia & Finkelstein, 1993). However, teams that are too large suffer from several inefficiencies. For example, Amason and Sapienza (1997) found that TMT size was positively associated with cognitive and affective conflict, which are both precursors to behavioral conflict. A larger team size also creates more coordination and control costs, which is detrimental in high-technology, high-velocity environments (Cohen & Bailey, 1997). In addition, larger teams are more likely to use formal, bureaucratic procedures that slow down decision-making (Smith et al., 1994). Given that our setting is IPO firms in mostly high-technology and high-velocity environments, smaller teams are likely to lead to better performance on average.

*Past literature on the effects of team ownership.* Extant research reveals several ways in which equity ownership within the TMT affects firm performance. Most of these studies use the lens of agency theory to analyze the effects of managerial ownership, with most concluding that it reduces agency costs. This is because managerial ownership is expected to better align the interests of managers and shareholders, thus improving firm financial performance. More specifically, past research finds that managerial ownership promotes corporate strategies that increase shareholder wealth, such as divestment of unprofitable businesses and efficient restructuring (Bergh, 1995; Bethel & Liebeskind, 1993; Kroll et al., 2007). In addition to resolving agency issues, managerial ownership can provide other benefits as well. For example, past research finds that ownership increases managers' commitment to and psychological ownership of the firm, as well as create unity of purpose within the firm, thereby increasing the willingness of managers to productively work together (Buchko, 1992; Kroll et al., 2007).