

# Entrepreneur—a Jockey or a Horse Owner?

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## Abstract

The business literature has long been concerned with understanding why people become entrepreneurs. This literature, however, has mixed together two important issues—founding a new business and being the right person to operate it. Up until recently, entrepreneurship scholars have largely believed that founders run their ventures personally. Yet it is not clear from either a theoretical or an empirical standpoint why this should be the case. Indeed, a founder may not always be the best person to manage his or her business. Entrepreneurs are often criticized for having limited business expertise and placing personal motives ahead of financial returns. In line with this, recent empirical studies demonstrate that up to 40 percent of start-ups have hired CEOs. Whether founders are optimal managers for their firms strongly depends on their motives for operating the firm personally, i.e., whether their decision is driven by expected non-pecuniary benefits of management or by more strategic considerations. In our paper, we use fine-grained data on entrepreneurs in Denmark to examine what motivates them to operate their firms personally as opposed to hiring a manager. We find that while non-pecuniary motives play a role in the founders' decision to operate their firms personally, opportunity cost of owner-management and relevant prior experience are also important. Thus, entrepreneurs put significant emphasis on the characteristics that would improve firm performance and their overall wealth. Our findings are similar for entrepreneurs in high-technology and low-technology sectors as well as for founders who hire non-family and family managers. We also observe that when founders do not manage their firms personally, they typically work full-time at another firm or play a non-managing role in their own venture. In our subsequent analysis, we investigate how these two types of non-managing founders differ, providing further insights into their behavioral motives.

## **Introduction**

Entrepreneurs represent an important population of firms in both developed and emerging markets. They account for more than 90 percent of all business entities, employ more than 40 percent of the labor force, and generate up to 50 percent of the gross domestic product (GDP) (Campbell 2004; European Commission 2013; Small Business Administration 2014). Given the importance of entrepreneurial firms, the business literature has long been concerned with understanding why people become entrepreneurs and what makes their ventures successful (e.g., Blanchflower and Oswald 1998; Hamilton 2000; Nanda and Sorensen 2010).

The literature that studies an individual's decision to become an entrepreneur has, however, mixed together two important issues—founding a new business and being the right person to operate the firm. Up until recently, entrepreneurship scholars have typically assumed that founders run their ventures personally (e.g., Berglann et al. 2011; Hamilton 2000; Nanda and Sorensen 2010). In line with this expectation, the empirical entrepreneurship research has been largely limited to self-employed individuals and owner-managers of incorporated firms while omitting individuals who founded firms but did not manage them (Van Praag and Versloot 2007). Yet it is not clear from either a theoretical or an empirical standpoint why founders should always run their firms themselves (Beckman and Burton 2008). The literature reports plenty of cases where entrepreneurs have great business ideas but lack operational knowledge and suggests, for example, that entrepreneurs with engineering backgrounds may benefit from hiring managers with business skills (Clarysse and Moray 2004; Muller and Murmann 2016; Wasserman 2003). Recent empirical evidence also demonstrates that a significant share of entrepreneurs delegate firm operation to a hired CEO soon after founding. Beckman and Burton (2008) study the evolution of top-management teams in Silicon Valley high-technology start-ups and note that founders do not always hold top-management positions in their firms. Kaplan et al. (2009) examine a sample of 50 US firms and find that 34 percent of them had hired CEOs at the time of the business plan. Kulchina (2016) and Kulchina and Oxley (2017) show that in Russia close to 40 percent of nascent small businesses have hired CEOs. Similarly, we observe that 10 percent of start-ups in Denmark have hired managers at the time of founding.

The choice of the top manager is a critical decision for entrepreneurs since early managers have profound and long-lasting impact on start-up performance (Beckman and Burton 2008; Graffin et al. 2013). Whether the founder is an optimal manager for his or her firm strongly depends on the founder's motives for retaining managerial control, i.e., whether the founder's decision to operate the firm personally is driven by expected non-pecuniary benefits of management or by more strategic considerations. In our paper, we examine what motivates entrepreneurs to actively engage in operating their firms as opposed to confining themselves to the founding role and hiring a manager.

Agency theory predicts that, all else equal, owners should be the best managers for their firms because their incentives are well aligned with firm performance (Jensen and Meckling 1976). Recent work, however, criticizes this view by saying that in closely held firms, owners may have nonpecuniary motives for retaining control that are not necessarily aligned with profit maximization (Gomez-Mejia et al. 2007; Wasserman 2017). Indeed, a founder may not always be the best person to manage his or her business (Wasserman 2017). Prior literature demonstrates that investors commonly replace founder-CEOs at major firm-development milestones and the transition from owner-management to professional management positively affects investors' valuations and firm performance (Bennedsen et al. 2007; Chang and Shim 2014; Wasserman 2017).

Investors' preference for professional managers is not surprising, given that entrepreneurs are often criticized for having limited business expertise and placing personal motives ahead of financial returns (e.g., Chen and Thompson 2015; Clarysse and Moray 2004; Gomez-Mejia et al. 2007). Wasserman (2017), for example, argues that founders often stick to firm management because they have a strong non-pecuniary preference for control, which limits their ability to mobilize resources and grow. Control allows such founders to derive more non-pecuniary benefits from their ventures since they are less constrained in their actions. Entrepreneurs seeking non-financial benefits may, therefore, operate their firms even when they are not the best managers and lead to lower firm performance.

In this paper, we investigate what motivates entrepreneurs to retain control or delegate firm management to a hired agent at the time of firm founding. We examine the role of the founders' relevant knowledge and skills, opportunity cost of operating a firm personally, and non-pecuniary benefits of owner-management. We have gathered fine-grained demographic and employment history data on founders and top managers of entrepreneurial ventures started in Denmark between 2001 and 2009. Importantly for our study, the dataset allows us to identify whether the founder serves on the firm's top-management team. We anticipate that if non-pecuniary motives are the prime driver of the decision to become a manager, we will observe a strong impact of non-pecuniary benefits on the entrepreneurs' choice and a weak impact of more strategic considerations, such as relevant prior experience and opportunity cost. Our empirical findings, however, do not support this idea. While non-pecuniary motives play a role in the founders' decision to operate their firms personally, opportunity cost and relevant skills are equally or even more important. Thus, entrepreneurs put significant emphasis on the characteristics that would improve firm performance and their overall wealth. Moreover, relevant skills and opportunity cost are important for entrepreneurs in both high-technology and low-technology sectors as well as for founders who hire non-family and family managers. We also observe that when founders do not manage their firms personally, they typically work full-time at another firm or play a non-managing role in their

own venture. In our subsequent analysis, we investigate how these two types of non-managing founders differ from each other, providing further insight into their behavioral motives.

Taken together, our findings make several contributions to the entrepreneurship literature. First, we draw attention to the issues of separation of ownership and control and management in ventures founded by entrepreneurs—organizations in which ownership and control have been traditionally assumed to be aligned. We also open a broad area for future research on what founders do in their firms after founding and how the combination of founders' characteristics and firm-related activities may affect venture outcome. Second, our findings speak to the debate on pecuniary and non-pecuniary motives of entrepreneurs. Moreover, we caution empirical studies to be careful when counting top managers of a start-up as founders (e.g., Sorensen 2007) since some of them may be hired employees and their characteristics may bias our understanding of which individuals become entrepreneurs. Additionally, our findings shed light on the behavior of hybrid entrepreneurs—individuals who do not quit their job when they found a start-up (Folta et al. 2010). This group of founders is believed to be different from traditional entrepreneurs, but their behavior is even less well understood than the behavior of other self-employed individuals. Finally, our work has implications to the literature on the retention of human capital in established organizations. Our results suggest that high opportunity costs distract founders from quitting their jobs to manage their firms personally. If we assume that salary is positively correlated with employee value, more valuable employees seem less likely to leave their employers even after founding own ventures.

## **Theoretical Background**

### *Founders and managers*

Prior studies define a firm founder as a person who discovered an opportunity (Hmieleski et al. 2015), established the firm (Eesley et al. 2014; Klotz et al. 2013; Nelson 2003), and owns a significant share<sup>1</sup> of it (Hvide and Moen 2010; Klotz et al. 2013; Lindquist, Sol, and van Praag, 2015; Ruef et al. 2003). Ownership is a core criterion that has been used in the prior work to distinguish founders from early employees (Hvide and Moen 2010; Lindquist et al. 2015; Roach and Sauerma 2015). However, unlike angel investors, who may have limited engagement in the firm beyond financing it, entrepreneurs are expected to both have “significant financial interest” and “participate actively in the development of the enterprise” (Cooney 2005: 229). Thus, the majority of studies identify a founder as the creator and the owner of the start-up (Lindquist et al. 2015; Roach and Sauremann 2015). Yet the extent of the founders'

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<sup>1</sup> A conservative threshold used in the literature is a 20 percent ownership share (e.g., Villalonga and Amit 2006), but prior studies indicate that founders and co-founders often own more than that. 50 percent and 100 percent founder ownership is quite common (e.g., Hvide and Moen 2010; Kulchina 2016).

engagement with the firm may also vary. While earlier studies have typically assumed that in early years founders operate their start-ups personally, recent work demonstrates that this should not always be the case and it is quite common for founders to delegate firm operation to hired CEOs soon after founding. For example, Beckman and Burton (2008) study the evolution of top-management teams in Silicon Valley high-technology firms from founding to IPO and note that founders do not always hold top-management positions in young start-ups. Kaplan et al. (2009) examine a sample of 50 young US firms in the biotechnology, software, telecommunication, healthcare, and retail industries and find that 34 percent had a hired CEO at the time of the business plan. Kulchina (2016) and Kulchina and Oxley (2017) track the entire population of small businesses in Russia and observe that close to 40 percent of domestic and foreign firms have non-founder managers at the time of first sales. In our sample of Danish small businesses, we observe that one year after founding, 1,695 start-ups or 10 percent of all newly established ventures are run by hired CEOs instead of entrepreneurs themselves. Non-managing founders are still significantly engaged with building the firm and developing its strategy, but they do this together with their hired managers and are less involved in implementing this strategy and running the firm on a daily basis. Coordination of firm operations and hiring of non-management employees are typically delegated to a hired manager (Kulchina 2016). Prior work suggests that top managers in small businesses have a lot of discretion and power (Miller et al. 2013). Yet non-managing founders bear significantly higher risks and rewards associated with the firm than their hired managers (Roach and Sauerman 2015).

Finding the right manager is one of the most important decisions that founders and directors of an organization make. CEOs make significant contributions to a firm's performance, almost as much as the contribution of everything else inside the firm (Mackey 2008). Top-managers are particularly important in young start-ups since they have a lot of discretion and a long-lasting imprinting effect on the venture (Miller et al. 2013). The literature suggests, however, that founders may not always be the best managers for their firms since they may lack business expertise and make strategic decisions based on their personal motives rather than the best interest of the firm (e.g., Chen and Thompson 2015; Clarysse and Moray 2004; Gomez-Mejia et al. 2007). Nevertheless, founders may hold on to the top-management positions in their firms even if they are not the optimal managers because they derive non-pecuniary benefits from owner-management and are unwilling to share control of their ventures with a hired agent (Kulchina 2016; Wasserman 2017).

Entrepreneurs, thereby, face a significant trade-off when hiring an agent-manager. On the one hand, founders benefit from managers' knowledge and social capital. They also free up personal time, which can be spent on other activities outside or inside the firm. For example, non-managing founders can have outside jobs, be employed at a non-management position in their start-ups and focus on engineering,

marketing or financial activities, or, in rare cases, not work at all.<sup>2</sup> On the other hand, founders give up some authority and control over their firms. They are constrained in their ability to make and implement strategic decisions and derive non-financial benefits from their businesses. For example, in many institutional settings, including Denmark, founders are allowed to sign legal documents on behalf of the firm only when they hold a top-management position or serve on the board of directors. Founders' activities within their organizations are also limited, as they have to coordinate with or even report to a hired manager. For example, one of the reasons why Steve Jobs initially left Apple was that he no longer had power to influence company strategy. A hired CEO, John Sculley, was in charge of the firm. Learning his mistake, when Jobs founded a new company, NeXT, he became a founder-CEO instead of delegating managerial authority to someone else (Isaacson 2011).

Whether the founders are optimal managers for their firms strongly depends on how they solve the above dilemma. If entrepreneurs choose to retain managerial control of their firms in pursuit of non-pecuniary benefits, their choice is unlikely to be well aligned with firm performance. Prior studies suggest that this, indeed, may be the case in young, privately owned start-ups and family firms (Clarysse and Moray 2004; Kulchina 2016; Wasserman 2017). Moreover, highly skilled founders may refrain from managing their firms personally if they receive higher financial returns to their skills in alternative employment. They may become hybrid entrepreneurs (e.g., Folta et al. 2010), working full-time outside their start-ups and hiring agents to operate their own ventures. Alternatively, entrepreneurs' choice to operate the firm personally or hire a manager may be driven by the entrepreneurs' relevant knowledge and skills, such that more able founders will be more likely to run their firms personally. In summary, entrepreneurs' choices may be based on different motives, which would have different implications for firm performance. Whereas the skills motive is more strongly aligned with firm success, founders driven by the opportunity cost and non-pecuniary aspects may give up some firm profit in order to increase their personal income and achieve non-financial goals. That is why it is important to understand what motivates founders to retain control of their firms. The knowledge of entrepreneurs' motives for managing their firms personally will help shed additional light on the performance of the new ventures. Given the importance of top managers in young firms, poorly motivated manager choice may at least partially determine why the majority of new ventures fail in the first five years after founding (Campbell 2013; Small Business Administration 2014; Taylor 1999).

Despite the importance of the manager choice and the prevalence of non-managing founders, we still know little about entrepreneurs' motives for retaining operational control of their firms versus hiring

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<sup>2</sup> Theoretically, some non-managing entrepreneurs may not work at all, but empirically we observe very few of such individuals, less than 2 percent of our sample. These are typically people who are retired or are temporarily out of the labor force, such as on parental or medical leave.

a manager. The traditional view in the literature is that in the early years founders operate their firms themselves and may switch to hired managers later in the firm history, often under outside influence. Several recent studies have examined situations when founders resigned under the pressure from outside investors or after realizing that their skills and experience did not match the needs of their firms (Beckman and Burton 2008; Chen and Hambrick 2012; Chen and Thompson 2015; Nelson 2003; Wasserman 2003). These studies have demonstrated that founder-managers are commonly replaced when the firm undergoes initial public offering (IPO), is acquired, goes through a major financing round, or has completed product development cycle (Chen and Hambrick 2012; Nelson 2003; Wasserman 2003). The transition from entrepreneur-management to professional management often happens under the pressure of outside investors and is resisted by founders (Clarysse and Moray 2004; Wasserman 2017). Bennedsen et al. (2007) also study CEO succession decisions in established family firms, after the death or retirement of the original owner. These prior studies provide some indirect guidance regarding the founder-manager assignment in firms as they mature. For example, Wasserman (2017) demonstrates that founder-managers with longer prior work experience are less likely to be replaced by the shareholders. Chen and Thompson (2015) show that founders are more likely to depart firms with very low or very high sales. Bennedsen et al. (2007) suggest that second-generation owner-managers are less educated than hired agents. Only a few studies have examined manager assignment in nascent firms, where the choice of manager is more likely to reflect the motives of founders rather than the influence of external investors. Those studies have focused on the entrepreneurial environment and have found that entrepreneurs are more likely to manage their firms in regions where they personally like to live (Kulchina 2016) and when industry conditions allow them to effectively govern relationships with their managers (e.g., Kulchina and Oxley 2017). Overall, prior studies provide little indication regarding the founders' motives in their decision to manage a firm personally, and their evidence is indirect at best.

We address this gap by taking a comprehensive approach to the determinants of the founders' choice of manager that are internal to the founder and the firm. We focus on the founders' relevant knowledge and skills, their opportunity cost of managing a firm personally, and the non-pecuniary benefits of owner-management. Below, we further elaborate on each of these potential motives. We focus on newly founded firms because in these firms any external influences on a founder's decision to manage a firm personally are limited. Therefore, we are more likely to capture founders' true motives rather than the impact of external stakeholders.

### *Relevant knowledge and skills*

The literature suggests that entrepreneurs with relevant experience and better education have more successful start-ups (Cooper et al. 1994; Hsu, 2007; Hvide and Moen 2010; Shane and Stuart 2002; van

der Sluis and van Praag 2008). While these prior studies have typically focused on founder-managers and self-employed individuals, it is reasonable to believe that a founder's relevant knowledge and experience should benefit the ventures during both the founding process and firm management. Chang and Shim (2015) and Bennedsen et al. (2007), for example, demonstrate that education matters for professional managers of family firms. Indeed, more educated individuals have better knowledge about various aspects of life and science (van der Sluis and van Praag 2008). Longer education helps develop cognitive abilities and teaches commitment to problem-solving (Cooper et al. 1994). Through relevant prior experience founders build skills and tacit knowledge that cannot be learned otherwise (Campbell 2013; Dencker and Gruber 2015). Thus, experience in the target industry provides relevant knowledge about technology, operating processes, successful business strategies, consumers, suppliers, rivals, and government regulations (Dencker and Gruber 2015; Lazear 2005). Prior managerial and founding experiences help an individual learn how to operate a business, staff a firm, and build relationships with investors and other important stakeholders (Campbell 2013; Dencker and Gruber 2015; Shane and Stuart 2002). Experience in the region teaches an entrepreneur the specifics of the region, its consumption potential, and its supply pool (Santarelli and Vivarelli 2007). Moreover, prior experiences allow individuals to build relevant social capital that will help mobilize necessary resources while managing a young business (Dahl and Sorenson 2012; Roberts and Sterling 2012; Shane and Stuart 2002). Thereby, a founder with more relevant experience and longer education will likely make a better manager. Conversely, studies suggest that when entrepreneurs lack management skills and industry knowledge, they may benefit from hiring a manager with relevant business background (e.g., Muller and Murmann 2016). If entrepreneurs aim to maximize profit in their firms, they will be more likely to manage them personally if they have better education and relevant experiences. Otherwise, they will delegate managerial responsibilities to a hired agent who has necessary knowledge and skills.

### *Opportunity cost*

An entrepreneur who operates the firm personally typically needs to spend more time on the firm's business matters than a non-managing founder, who hires a manager and is only involved in the high-level business decisions. Thus, to manage a firm, a founder will need to quit his or her previous job or reduce hours and effort that he or she puts into the outside employment (Hamilton 2000), resulting in lost or reduced income outside of the start-up. For some founders, the lost outside income may be compensated by the value increase in their firm, but for others it may not. This may be particularly true during early start-up years. The higher the entrepreneur's pre-founding salary, the more likely it is that the founder will not be able to fully compensate for it if he or she quits the outside job in order to devote himself or herself to managing the start-up (e.g., Campbell et al. 2012). Personal losses may also come in

the form of reduced job stability or missed future opportunities of career advancement. For example, higher-paying and prestigious positions may be scarce, so future opportunities to find a similar-paying job may be limited, particularly after a break from regular employment (Folta et al. 2010). Also, losing a position at a large established firm may be more costly than quitting a job in a small business (Sorensen 2007). Finally, the loss may also come in the form of reduced leisure time, and some individuals may have very high relative value of leisure. Given such constraints, founders may be more likely to manage their firms personally when they have lower opportunity cost of management.

### *Non-pecuniary motives*

Self-employment and owner-management may also be associated with a variety of positive nonfinancial returns. Such returns may include a satisfaction from the ability to do an interesting job and be one's own boss, a convenience of the schedule flexibility and ability to decide one's own working hours, a pleasure from running a family business, a sense of fulfillment from being "the king" and having control over firm operations and employees, and a satisfaction from the ability to choose a preferred employment location (Dahl and Sorenson 2012; Ehrhardt and Nowak 2003; Hamilton 2000; Moskowitz and Vissing-Jorgensen 2002; Wasserman 2017).

Prior studies have consistently reported that these and other nonfinancial returns play an important role in an individual's decision to become self-employed. Hamilton (2000) and Moskowitz and Vissing-Jorgensen (2002), for example, argue that nonfinancial benefits from self-employment are a major motivating factor for starting a business. Moreover, these and other studies have documented that when choosing an occupation, individuals may be willing to forgo some financial earnings in favor of nonfinancial returns. Stern (2004) argues that individuals with a preference for science accept employment with lower pay in return for the ability to participate in science. Hamilton (2000) compares earnings of self-employed individuals and paid employees and finds that an average individual earns less in self-employment than in paid employment, presumably because an entrepreneur is willing to sacrifice substantial monetary earnings in exchange for nonfinancial returns. Moskowitz and Vissing-Jorgensen (2002) demonstrate that, when adjusted for higher risks, entrepreneurship provides lower monetary earnings than regular employment, presumably because entrepreneurs are compensated with nonfinancial benefits. Surveys conducted among Italian entrepreneurs provide evidence that personal motivations rank above profit expectations in the decision to start a business (Santarelli and Vivarelli 2007). Benz and Frey (2008) and Blanchflower and Oswald (1998) also demonstrate that self-employed individuals rank nonfinancial benefits above financial returns among preferred characteristics of an occupation.

The best way to consume these non-pecuniary benefits to the full extent is by founding *and* managing the firm. When an entrepreneur does not manage the venture personally, he or she often works

full-time at another company (Chen and Thompson 2015) and does not get full benefits of entrepreneurship, such as schedule flexibility, managing other people, autonomy, and doing interesting work. Entrepreneurs who work in their firms in non-management positions are also constrained in receiving such personal benefits because they need to report to or at least coordinate with a hired manager. Thus their autonomy and hours flexibility may be constrained by the hired CEO. There are numerous stories of founders who no longer have the autonomy and the full control of their firms after firm supervision has been delegated to a hired manager (e.g., Livingston 2008). In order to retain non-pecuniary benefits of management, founders may even be willing to accept lower firm performance. Wasserman (2017) provides an example of the founder of Steria, an information-technology systems and services company, who in his desire “to remain independent and master of his own destiny” remained the company CEO, but “the company’s growth was slowed markedly.” (Wasserman 2017: 257)

Not all entrepreneurs, however, are equally sensitive to non-pecuniary returns to owner-management. Parents of small kids, for example, may value flexibility in work hours more strongly than single individuals (Hamilton et al. 2014). Also, entrepreneurs with greater financial stability, such as high family wealth or significant spousal income, may place higher value on non-financial benefits of owner-management. Individuals assigning higher value to the non-financial aspects of owner-management will be more likely to manage their firms personally, all else equal.

## **Data**

Our dataset includes all private start-ups that were founded in Denmark between 2001 and 2009. We use four databases to construct our sample: the Board Database, the Firm Database, the Personal Database, and the Integrated Database for Labor Market Research (referred to by its Danish acronym, IDA). The databases draw from official national registers in Denmark and are maintained by Statistics Denmark. The statistics office collects annual information on all individuals residing in Denmark and all business entities registered in the country. It also provides individual and firm identifiers that allow linking individuals to firms that they have founded or where they are employed. IDA and other data collected by Statistics Denmark have been intensively used in academic research (e.g., Dahl and Sorenson 2012; Nanda and Sorensen 2010).

The Personal Database provides annual information on founders’ demographic characteristics and backgrounds, such as gender, age, nationality, marital status, education, income, and kids. The Firm Database provides annual firm information, including accounting variables. The Firm Database excludes pseudo firms, i.e., businesses that were registered but never operated. The Board Database identifies the founders of each new firm together with other key individuals including members of the board of directors and top managers. The IDA provides annual employer-employee information and thus allows us

to merge firm and founder data and track employer-employee relations over time. Together, these data provide a unique setting for investigating the characteristics of founders who manage their firms personally and those who do not. First, whereas prior studies have often been unable to observe founder's position in the start-up, our dataset allows us to identify whether the founder serves on the firm's top-management team or the board of directors, is employed in the firm at a non-management position, or is employed somewhere outside the start-up. We can also track founders' employment history over time, which gives us information about their relevant experience, prior occupation, and salary. Moreover, in addition to the entrepreneurs' personal characteristics, such as gender, nationality, age, and others, we can track down their family composition, which helps us identify whether any family members manage the start-up in place of the founder. Finally, we can effectively control for the characteristics of the new ventures, such as industry, location, founding year, and size.

In line with prior work (e.g., Kulchina 2016), we define an entrepreneurial firm as a small business owned by one or several individuals and employing up to 500 employees.<sup>3</sup> Also similarly to the prior studies (e.g., Dahl and Sorenson 2012), we limit our population of firms to the new ventures with at least one employee<sup>4</sup> and for which we have information on their founders and top managers. This allows us to exclude self-employed individuals without real firms, who are at a very low risk of hiring a manager. To avoid inactive ventures, we focus on the companies that meet the minimum functional requirements and appear in the Firm Database in the year of the firm's registration or the year after. We further reduce our population of start-ups to the firms founded by a single founder (76% of the sample). This allows us to focus on the binary choice between managing a firm personally and hiring a manager, rather than complicating it with the option of delegating firm management to a co-founder and having to account for the co-founders' characteristics and fit with the firm. Our final sample consists of 17,144 entrepreneurs and their firms. We observe these entrepreneurs in a cross-sectional dataset, where founders' characteristics are measured in the year of firm founding or, where appropriate, in the year before, and the characteristics of their start-ups are captured in the year of founding or the year after, depending on when the firm started operating.

Our sample has broad industry composition: 21 percent of the firms have main operations in the trade sector (retail and wholesale), 47 percent in services, 7 percent in manufacturing, 22 percent in construction, and 3 percent in other industries (agriculture, forestry, fishery, and extraction). Since we focus on entrepreneurial start-ups, at the time of observation the majority of these firms are relatively small (mean firm size at the time of founding is 5 employees).

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<sup>3</sup> We apply the employment threshold used by the US Small Business Administration to define a small business. Most of the firms in our sample (99%) have fewer than 50 employees, and when we limit our analysis to such firms, our results are identical to the findings from the complete sample.

<sup>4</sup> At least one employee in addition to the founder if the founder is also a top manager.

## Dependent Variable

In line with the prior work (e.g., Kulchina 2016), our main dependent variable, *founder-manager*, equals 1 when the founder serves on the top-management team of the new venture and 0 otherwise. To identify a managing founder, we check if the founder appears as a top manager in the Board Database. Firms report their top managers once a year, in October, and it may take founders several months to hire managers after they have registered the firm. Therefore, we determine that a firm has a founder-manager if the founder is still reported on the top-management team a year after the firm registration. If the founder is no longer a part of the top-management team at that point, we consider that the firm does *not* have a founder-manager.<sup>5</sup> In our sample, 10 percent of founders delegate firm operation to hired managers and 90 percent run their firms themselves.

## Independent Variables

While researchers can rarely measure founders' motives directly, they can more easily observe human characteristics of entrepreneurs that, based on the prior literature, can be broadly attributed to one of the three groups of motives for running a firm personally. Our independent variables are designed to help us identify a founder's motives to manage a firm personally as opposed to delegating firm operation to a hired agent. We broadly group variables into four categories: founder's characteristics that are likely to be positively associated with the extent of *relevant knowledge and skills*; founder's characteristics that are likely to reflect *opportunity cost* of management; founder's characteristics that are likely to reflect greater preference for *non-pecuniary benefits* at the time of firm founding; and *control variables* that may be simultaneously associated with the probability of owner-management and our variables of interest. We examine whether these characteristics have a significant association with the founder's decision to manage a firm personally as opposed to delegating managerial authority to a hired agent. Below, we describe which variables are included in each category. A summary of variable definitions can also be found in Appendix 1.

### *Relevant knowledge and skills*

In line with prior studies (e.g., Dahl and Sorenson 2012; McKenzie and Woodruff 2016; Folta et al. 2010), we use six variables to capture the extent of the founder's relevant knowledge and skills: *education*, *ln(founding experience)*, *ln(management experience)*, *ln(broad industry experience)*, *ln(related industry experience)*, and *ln(region tenure)*. Entrepreneurship studies have found that these six characteristics are positively associated with the individuals' transition into entrepreneurship and

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<sup>5</sup> The average number of top managers in our firms is one.

subsequent performance of their firms (Agarwal et al. 2004; Boden 1996; Dahl and Sorenson 2012; Hvide and Moen 2010; McKenzie and Woodruff 2016; Ozcan and Reichstein 2009). Relevant experience helps a founder to gain practical knowledge and build relevant human and social capital, which are likely to make the founder a better manager of a young firm.

We measure a founder's relevant experience (founding, top-management, and industry) in the 10 years preceding the start-up founding. Recent experience is more relevant and is likely to have a stronger impact on the firm, since the actuality of prior experience diminishes with time (Fern et al. 2012). Prior literature has used similar observation horizons for evaluating a founder's experience (e.g., Dahl and Sorenson 2012; Sorensen 2007). **Founding experience** is the number of years of entrepreneurial experience. **Top-management experience** is the number of years a founder has worked as a top-manager prior to founding the start-up. **Industry experience** is the number of years a founder worked in the focal industry. In line with Dahl and Sorenson (2012), **related industry experience** is defined as experience in the same four-digit industry as the current firm. **Broad industry experience** refers to the experience in different four-digit industry segment, but the same two-digit industry in which the start-up operates. **Region tenure** is defined as the number of years that the founder has lived in the municipality in which he or she founded the new business.<sup>6</sup> Denmark is divided into 98 municipalities with an average population of 58,236 people.<sup>7</sup> Using this fine-grained level of analysis for regional experience is consistent with prior studies (e.g., Dahl and Sorenson 2012).

A higher level of education is also positively associated with firm performance in the entrepreneurship literature (van der Sluis and van Praag, 2008). In addition to advanced knowledge, education helps a person to develop cognitive skills and critical thinking—capabilities that are important for success as a firm leader. Similar to prior work (e.g., Hvide and Moen 2010; van der Sluis and van Praag 2008), we measure **education** as the total number of years the founder has spent in formal education by the time of the start-up founding.<sup>8</sup>

We expect that the work experience variables, region tenure, and education will be positively associated with the founder's decision to manage the firm personally.

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<sup>6</sup> Entrepreneurs with longer region tenure may potentially found firms in the region to stay close to family and friends. If so, *region tenure* may capture some non-pecuniary benefits. However, it is unclear if such non-pecuniary benefits only relate to founding a firm or also extend to managing it personally. Moreover, Dahl and Sorenson (2012) demonstrate that the positive effect of local knowledge and social capital generated by longer region tenure dominate any possible negative effects of home-region attractiveness.

<sup>7</sup> As of 2016.

<sup>8</sup> Unlike experience, we track education through the entire founder's life, beyond the most recent 10 years prior to founding.

### *Opportunity cost*

Since a founder often needs to quit his or her outside job or reduce work hours in order to manage a new firm, we use variables reflecting the value of the founder's recent occupation before founding to capture some opportunity cost of owner-management. Specifically, we focus on the most recent *salary*, prior *unemployment* status, and *parent-firm survival*.

Prior research demonstrates that individuals earning higher wages are less likely to live their jobs and become entrepreneurs (Ozcan and Reichstein 2009), despite the fact that high salary at a previous employment is positively associated with start-up performance (Elfenbein et al. 2010; Hvide and Moen 2010). We measure salary,  $\ln(\text{salary})$ , as the natural logarithm of the founder's wage income in the year prior to founding (t-1).<sup>9</sup>

Our next indicator of the opportunity cost is based on the idea that it is more costly for a founder to leave an active parent firm than a firm that is about to die. To capture this, we use a dummy variable *parent-firm death*, which equals 1 if the firm where the founder was employed in the year prior to founding (parent firm) exited in the year of the start-up founding (t) or the year after (t+1).

Finally, we expect that individuals who are unemployed and have difficulty finding a new job will have lower opportunity cost of managing a new firm personally. They do not need to quit an existing job or reduce work effort and may have fewer alternative employment options than individuals with stable jobs. Indeed, prior work has found that unemployed individuals are more likely to become entrepreneurs (e.g., Folta et al. 2010), even though their firms do worse than other businesses (Dencker and Gruber 2015; Santarelli and Vivarelli 2007; Taylor 1999). To measure founders' prior employment status, we use variable  $\ln(\text{unemployment duration})$ . This variable captures the share of time that the founder was unemployed in the year prior to the year of founding (t-1).<sup>10</sup> Founders with longer unemployment spells are likely to have less stable employment and lower opportunity cost of managing their start-ups personally.

We expect that prior salary size will be negatively associated with the probability of founder-management, whereas parent-firm death and unemployment status will be positively associated with it.

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<sup>9</sup> Salary may also potentially capture some founder's skills but the possibility of this is reduced by controlling for the experience variables. Also prior studies demonstrate a negative effect of salary on the probability of transitioning into entrepreneurship. This suggests that the negative effect of opportunity costs captured by salary dominates any confounded positive effect of skills, particularly when skills are more directly accounted for by the experience variables.

<sup>10</sup> As a robustness check, we have used a dummy variable that equals 1 if a founder was unemployed for any period of time in the year prior to founding, and our findings remain consistent with the main results. We have also made sure that using a dummy variable for entrepreneurs who were unemployed for more than 50 percent of the year prior to the year of founding does not change our findings.

### *Non-pecuniary motives*

We use two approaches to capturing non-pecuniary motives of entrepreneurs. Prior literature suggests that key non-pecuniary benefits of self-employment are autonomy and schedule flexibility (Hamilton 2000; Parasuraman and Simmers 2001). Georgellis and Yusuf (2016) report that many individuals are attracted to self-employment exactly by these benefits and their level of satisfaction, particularly the satisfaction with work hours, is high in the first year of entrepreneurship. Regular employment rarely allows flexibility in work hours, whereas entrepreneurial activities can often be conveniently distributed throughout the day (Hyytinen and Ruuskanen 2007; Seva and Oun 2015). For example, an entrepreneur can review financial documents in the evening or do business calls from home rather than office. Founders who do not manage their firms and have an outside job will have less autonomy and schedule flexibility than founder-managers working in their start-ups. Founders who manage their firms personally are also likely to have more flexibility and autonomy than their counterparts who work in their start-ups at non-managing positions and have to report to hired managers. Such non-managing founders often need to coordinate decisions, activities, and work hours with their hired CEOs.

Entrepreneurship research has found that individuals with small kids assign particularly high value to schedule flexibility and autonomy (Boden, 1996). Small kids require more parental attention during the day than older children, but they typically go to bed early, so parents may prefer to schedule their work such as to spend some time with their small children during the day and then work in the evening, when the kids are asleep. This is particularly true for men, who are typically not primary caregivers but often need to help their wives with some daytime activities, such as taking a baby to a doctor, driving a kid to a sport practice, or attending a kindergarten event. This is especially relevant for individuals who have more than one small child. In line with this logic, prior studies have found that individuals with kids are more likely to become entrepreneurs (e.g., Boden 1996; Folta et al. 2010). To proxy for the extent to which a founder may value work-schedule flexibility, we use the variable *small kids*. In line with the prior literature (e.g., Parasuraman and Simmers 2001), we define it as the number of kids 5 years or younger.<sup>11</sup> To capture the difference between less independent and more independent children, we also control for the number of kids who are 6 years or older, using variable *big kids*.<sup>12</sup>

Furthermore, Dahl and Sorenson (2009) report that individuals prefer to work and found firms in the municipalities where they live as they receive personal satisfaction from staying close to family and friends. In line with this logic, we expect that an individual whose employer is located farther from their

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<sup>11</sup> Using a dummy variable that equals 1 when a founder has any small kids procures very similar results.

<sup>12</sup> One may worry that entrepreneurs with kids may place high value on the supplementary benefits of regular employment, such as health insurance. If so, a parent-entrepreneur may prefer to stay with his or her employer and hire a manager to operate his or her start-up. However, social security in Denmark is high and health care is available to all free of charge. Thus, social security and health care considerations are believed to have limited impact on the individual's decision to keep outside employment.

place of living, i.e., in a different municipality, will benefit from switching from such a remote job to managing a start-up located close to home. To capture this, we use a dummy variable *distant parent firm*, which equals 1 if in the year prior to founding the founder was working at a firm located outside of his or her home municipality.<sup>13</sup>

We expect that having small kids and working in a distant firm prior founding will be positively associated with probability of founder-management.

In addition to the three proxy variables above, we use survey data that allows us to more closely capture the non-pecuniary motives of entrepreneurs. Individuals often become entrepreneurs in order to get autonomy and flexible work hours (Georgellis and Yusuf 2016; Hamilton 2000). In 2008 Statistics Denmark conducted a survey where it asked entrepreneurs who founded businesses in 2004 how important certain factors were for their decision to start a business. The survey included 201 entrepreneurs from our sample.<sup>14</sup> They were asked about the importance of (1) “the desire to be my own employer” and (2) “the desire to decide the working hours” for their decision to start their own business. Respondents could answer “very important,” “important,” “not important,” and “don’t know.” We construct two dummy variables,<sup>15</sup> *autonomy* and *flexibility*, which equal 1 when an entrepreneur reported that these characteristics were very important or important for his or her decision to start a business and 0 otherwise.<sup>16</sup>

We anticipate a positive association between the desire for autonomy and flexibility and the probability of founder-management.

### *Control variables*

In line with prior literature (e.g., Folta and Wennberg 2010; Guerra and Patuelli 2016; McKenzie and Woodruff 2016; Nanda and Sorensen 2010; Ozcan and Reichstein 2009; Sorensen 2007), we also control

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<sup>13</sup> The distance to the place of previous employment may also capture the cost of travel. To test that this is not the case, we examine whether the effect of a distant parent firm is stronger for female founders. The cost of travel is the same for male and female individuals, so we should find no moderating effect of gender. However, female founders typically carry more household responsibilities and may have a stronger personal preference for employment close to home. Our findings are consistent with the latter expectation, suggesting that *distant parent firm* is more likely to capture the personal inconvenience rather than financial cost of travel.

<sup>14</sup> The survey was conducted for a different project. The sampling of entrepreneurs was random and not correlated with our outcome variable. To evaluate the generalizability of the results, we compared entrepreneurs who completed the survey and those who did not participate in it. Participants and non-participants are not significantly different on the majority of characteristics, except age (participants are on average 1.6 years younger), marital status (participants are 6 percentage points more likely to be married), and start-up size (on average, non-participants’ firms have 2 more employees).

<sup>15</sup> Our findings are robust to using continuous measures of autonomy and flexibility in place of the dummy variables.

<sup>16</sup> We group “don’t know” together with “not important” since we expect that when something is truly important to a person, he or she recognizes this.

for observed founder and firm characteristics that may be correlated with the choice of manager and any of our variables of interest.

First, one might wonder if entrepreneurs may manage their firms personally because they cannot afford paying a salary to a hired manager, whereas founders would manage their firms for free. While this may be true in some cases, in general we find little evidence of such behavior. Prior studies observe that entrepreneurs typically pay themselves a salary when they work for their own firms (Lindquist et al. 2015). In our setting, an average salary of a founder-manager is comparable to that of a hired manager. In our empirical analysis, we go a step further and account for the entrepreneur's financial resources that may reflect whether he or she can afford hiring a manager. In line with the prior work (e.g., Ozcan and Reichstein, 2009), we use the natural logarithms of the founder's non-salary income, spouse's income, and family wealth measured in the year prior to firm founding: *ln(non-wage income)*, *ln(spouse income)*, and *ln(family wealth)*. Spouse's income includes both wage and non-wage income. Family wealth captures the value of family assets. Income and wealth variables are measured in the year prior to the firm founding (t-1).

Additionally, we account for the firm size at founding, measured as the natural logarithm of the number of employees, *ln(employees)*. We find it useful to also control for the number of firm managers at the time of founding, *N managers*, since if founders hiring other top managers are less likely to manage their firms out of financial necessity, this may be less true in firms with multiple managers. We expect that individuals founding larger firms and firms with multiple managers are likely to have sufficient financial capital to afford paying managers' salaries.

All our models also control for the founder's demographic characteristics, such as *ln(age)*,<sup>17</sup> *married* status, *Danish* citizenship,<sup>18</sup> and *female* gender, as well as include dummy variables for the new firm's *industry* (two-digit level),<sup>19</sup> *founding year*, and the *municipality* of location. Additionally, we account for whether the founder serves on the start-up's board of directors (*on board*), whether at least one of the founder's parents has been an entrepreneur in the period since 1980 (*parent entrepreneur*), and whether the founder has any other active start-ups in addition to the new firm (*multiple start-ups*).

Finally, in the models for the opportunity cost, we control for the previous employer's return on assets (ROA) (*parent firm ROA*), and the natural logarithms of the employer's age (*parent firm age*) and employment (*parent firm size*). Parent-firm variables are observed a year prior to the new firm founding (t-1). In the model with relevant experience, we account for the logged total length of the founder's labor-market experience by the time of founding (*work experience*).

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<sup>17</sup> In line with Elfenbein et al. (2010), we use log-linear rather than inverted-U-shape specification for age.

<sup>18</sup> As a robustness check, we also used a dummy variable indicating whether the founder was born outside of Denmark, and the results were very similar.

<sup>19</sup> Using more fine-grained industry sectors does not change our findings.

## **Descriptive Statistics**

Our founders are on average 41 years old, with 95 percent of them between 22 and 60 years of age; 84 percent are male; 63 percent are married; almost 60 percent have children living at home; and only 2.5 percent of entrepreneurs have non-Danish citizenship at the time of founding. On average, founders in our sample have 13 years of education, almost 4 years of prior entrepreneurial experience, 1 year of broad and 3 years of related industry experience, but only about 3 months of top-management experience. Their mean tenure in the new firm's municipality is 6.7 years (reported experience and tenure values are raw averages rather than unlogged means). Table 1 provides descriptive statistics for these and other key variables of interest.

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Insert Table 1 about here  
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We also observe that founders who manage their firms personally are quite different from the founders who do not. On the basic demographic characteristics, founder-managers are 21 percentage points more likely to be male and 3 percentage points less likely to be married. In addition, managing entrepreneurs have more small kids, which may lead to their higher preference for flexibility and autonomy. Founder-managers are also less likely to own other start-ups but are 7 percentage points more likely to have parents who have also been entrepreneurs. Founder-managers have higher non-wage income and their spouses earn more, but their family wealth is still the same as for non-managing founders. Founder-managers are less likely to have worked for a distant parent firm. Their previous employer is smaller, younger, and more profitable, but surprisingly also more likely to exit in the near future. Moreover, managing founders have lower salary prior to founding the start-up. Together with the higher probability of the parent-firm death, these observations point to the lower opportunity cost of management for founders who choose to manage their firms personally. Founder-managers are also more experienced than non-managing entrepreneurs, which suggests that they likely have better knowledge and skills.

## **Empirical Model**

Our empirical analysis consists of five main parts. In the first part, we examine how entrepreneurs who manage their firms personally are different from those who delegate firm operations to a hired manager. We determine whether observed patterns are consistent with any of the motivations for retaining management position that have been proposed in the theoretical section. In the second part, we examine whether founders who hire family managers and founders hiring non-family managers may have different motives for hiring a manager. Additionally, we investigate whether the motivation for managing a firm

differs between male and female founders. To further explore the heterogeneity of the founders' motives, we compare founder-management choices in high-technology and low-technology firms. Finally, we explore what founders do when they choose not to operate their firms personally, i.e., whether they serve on the start-up's board of directors and whether they work outside of their firms or are employed at a non-management position in their own ventures.

To examine how our key independent variables are associated with the founders' decision to manage their firms personally, we estimate a set of Probit models that have the following general specification:

$$Pr(\text{Founder} - \text{manager}_i = 1) = \beta_0 + \beta_n X_{in} + \beta_p Z_{ip} + I_j + R_r + Y_t + \varepsilon_i, \quad (1)$$

The dependent variable in these models, *founder – manager<sub>i</sub>*, is a dummy variable that equals 1 when the founder serves on the top-management team of the firm and 0 otherwise; *X<sub>in</sub>* is a vector comprising the independent variables related to the three potential founder's motivations, i.e., relevant knowledge and skills, opportunity cost, and non-pecuniary motives; *Z<sub>ip</sub>* is a vector of control variables. *I<sub>j</sub>*, *R<sub>r</sub>* and *Y<sub>t</sub>* are start-up's industry, municipality of location, and founding-year dummy variables respectively;  $\varepsilon_i$  is an error term; *i* is the founder; *j* is the firm, *r* is the municipality where the firm is located; *t* is the year when the firm is founded. Standard errors are robust to heteroscedasticity.

### Founder-Managers Versus Non-managing Founders

Tables 2 and 3 estimate the probability that a founder will manage a firm personally rather than delegate firm management to hired agents. Table 2 shows the baseline model with main control variables. Table 3 focuses on the key independent variables associated with the three motives for founder-management, i.e., relevant skills, opportunity cost, and non-pecuniary benefits. Model 2 of Table 2 and Model 5 of Table 3 report marginal effects of changing independent variables by one unit from the mean.

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 Insert Table 2 about here  
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The results for the key control variables suggest that compared to non-managing entrepreneurs, founders who manage their firms personally are younger, more likely to be male, less likely to be married, and less likely to own other start-ups, and their parents are more likely to be former or current entrepreneurs. Being a female is associated with a 14.5 percentage point lower probability of owner-management.<sup>20</sup> Married founders are 1.6 percentage points less likely than single individuals to manage their firms personally. Ownership of other start-ups seems to reduce the probability of managing a new venture by 2.8 percentage points. Founders with entrepreneurial parents are 1.7 percentage points more

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<sup>20</sup> The magnitudes of the effects are reported from Model 2 (other variable are taken at their means) and additional calculations by the authors based on Model 1 (available on request).

likely to manage their firms personally. For age, moving one standard deviation above the sample mean is associated with a 1 percentage point decrease in the probability of owner-management.

Founder-managers are also less likely to serve on the board of directors of their firms. Board presence is associated with a 12 percentage point decrease of the probability of management. The start-ups with managing founders have more top managers. The average number of top managers in our firms is one. Adding one additional manager seems to increase the probability of founder-management by 1.5 percentage points. Owner-managed firms also seem slightly larger than the start-ups of non-managing founders. Moving one standard deviation above the mean logged number of employees is associated with a 2.4 percentage point increase in the probability of owner-management. Going from the minimum to the maximum number of employees in our sample changes the probability of founder-management by 9.8 percentage points.

Moving one standard deviation above the mean on the founder's non-salary income is associated with 1.7 percentage point increase in the probability of founder-management. Spouses' income and family wealth seem to have little impact on the manager choice. Only spouse's income has a significant coefficient, but the magnitude of the effect is very small: moving 1 standard deviation above the mean increases the probability of founder-management by 0.5 percentage points. Taken together, the small but positive coefficients for firm size and founder's non-wage income contradict the idea that entrepreneurs operate their firms personally because they cannot afford to hire a manager—if that were true, we would have observed wealthier entrepreneurs and founder of larger firms being less likely to run their firms themselves, which is contrary to our findings.

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Insert Table 3 about here  
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Models 1 and 4 of Table 3 point to a consistent positive association between the likelihood of founder-management and the entrepreneur's top-management experience, industry experience, and municipality tenure. Municipality tenure and related (four-digit) industry experience seem to be the most impactful on the founder's decision to run a firm personally, whereas broad industry experience and top-management experience are less important. Thus, moving from no experience to 10 years of experience (or moving one standard deviation above the mean) is associated with 8.3 (2.2) percentage point increase in the probability of founder-management for municipality tenure; 7.2 (2.5) for related industry experience; 3.2 (1.1) for the broad industry experience; 2.5 (0.6) for the top-management experience; and 4.1 (0.9) for the general work experience.<sup>21</sup>

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<sup>21</sup> The magnitudes of the effects are reported from Model 5 (other variable are taken at their means) and additional calculations by the authors based on Model 4 (available on request).

The impact of entrepreneurial experience is less consistent. The positive association observed in Model 1 disappears once we add other characteristics of entrepreneurs. These findings are, however, consistent with prior studies that have found mixed results for the impact of prior founding experience on firm success. Thus, some studies have found a positive effect of prior entrepreneurial experience on firm performance, whereas others have demonstrated no effect or even a negative impact on firm outcome and product quality (Roberts et al. 2013; Shane and Stuart 2002; Campbell 2013). These studies suggest that whereas prior entrepreneurial experience may be good because it builds general human capital through exposure to different tasks and responsibilities, being a founder of a failed start-up may be bad for the new firm (Campbell 2013). Perhaps the majority of our founders with prior entrepreneurial experience had failed ventures, which revealed their suboptimal management skills. Therefore, they may now avoid managing their firms personally.

Also, contrary to our expectations, we find that founders with more years of education seem less likely to run their firms personally.<sup>22</sup> These findings may be due to education capturing both relevant skills and some opportunity cost of management (perhaps long-term career prospects, which are not accounted for by the prior salary). More educated individuals have better knowledge, skills, problem-solving ability, and motivation. Therefore, they will be better at coping with problems. However, they may also have better outside opportunities and long-term career expectations, which would lead to higher opportunity cost of owner-management (Cooper et al. 1994). If the opportunity-cost effect dominates the skills effect, the net impact of education on the founder's management choice will be negative.

Overall, however, our findings in Models 2 and 5 are largely in line with the expectation that entrepreneurs' decision to operate their firms personally is motivated, at least partially, by their relevant knowledge and skills obtained through prior work and region experience.

Models 2 and 4 examine whether founders who presumably have higher opportunity cost of management are less likely to run their firms themselves and more likely to use hired managers. Our results for the founder's salary prior to founding a firm are consistent with this idea. Moving one standard deviation above the mean in salary is associated with a 1.3 percentage point decrease in the probability of founder-management. Working in an organization that stopped existing soon after the start-up founding is associated with a 3.5 percentage point increase in the probability of having a managing founder. Interestingly, unemployment does not seem to have a significant impact on the decision to manage a firm personally. Individuals with longer unemployment spells during the year prior to founding, who are presumably less likely to have stable employment, are no more likely to manage their firms than other entrepreneurs. This suggests that individuals who are more likely to be need-based entrepreneurs are not

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<sup>22</sup> Negative 3.6 percentage points when moving from minimum to maximum years of education, and negative 0.5 percentage points when moving one standard deviation up from the mean.

rushing into managing their firms. The lack of significant finding may be due to previously unemployed entrepreneurs having lower abilities (Taylor 1999) but realizing such a limitation and hiring agent-managers whenever necessary. The positive opportunity-cost effect and the negative ability effect thus compensate each other.

Overall, with the exception of unemployment, our findings are consistent with the idea that opportunity cost (how much the founder is losing by managing the firm personally) are important considerations in the founder's decision whether to operate the start-up personally or hire a manager.

Finally, Models 3 and 4 address the issue of non-pecuniary motives. We find that entrepreneurs with small kids are more likely to manage their firms personally. Moving from having no small kids to having one small child is associated with a 1.1 percentage point increase in the probability of founder-management (3.4 percentage points for moving from zero to four small kids, sample maximum). Having older kids, however, does not have any significant impact on the decision to manage a firm. Interestingly, the coefficient for the distant parent firm is initially negative, but turns positive (the expected direction) in the complete model, which controls for a larger number of entrepreneur's characteristics. The effect size of working at a distant parent firm is 1.1 percentage points.

To further investigate the impact of non-pecuniary benefits, we turn to the survey responses and examine whether individuals who are strongly motivated to become entrepreneurs by the desire to become own employer and the desire to decide the working hours are more likely to manage their firms personally, since firm management presumably gives them better opportunity to gain such nonpecuniary benefits of entrepreneurship. Since only a small part of our sample participated in the survey, we limit the number of control variables that we use in these models to the key demographic characteristics. The coefficient for autonomy in Table 4 is positive but not statistically significant at any conventional level. The coefficient for flexibility is positive and significant. Founders who are strongly attracted to self-employment by the desire to decide the working hours are 7.4 percentage points more likely to manage their firms personally.

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Insert Table 4 about here  
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Taken together, our findings for the number of small kids, distant prior employment, and the significance of schedule flexibility are consistent with the idea that founders who value non-pecuniary benefits of entrepreneurship higher than others are more likely to manage their firms personally.

In summary, our findings suggest that all three motives (relevant knowledge and skills, opportunity cost, and non-pecuniary benefits) play a role in the entrepreneurs' decision to manage a firm personally rather than delegate firm operation to hired managers. The magnitudes of the effects are economically significant. And while the impact of non-pecuniary factors seems relatively strong, the

effects of relevant knowledge and skills and opportunity cost are comparable in size to the impact of non-pecuniary motives.

In the following sections, we further explore the heterogeneity across founders and examine whether certain motives are more or less important for certain groups of entrepreneurs.

### **Family-Managers Versus Non-family Managers**

In this section, we move the focus of our attention from the decision to manage a firm personally to its opposite—the choice to delegate firm operation to hired managers. Specifically, we are interested in understanding if entrepreneurs’ motives differ when they hire managers who are family members versus outsiders. One may wonder if some entrepreneurs may found firms in part to provide employment to their relatives. In such a case, entrepreneurs’ skills, opportunity costs, and perhaps even non-pecuniary benefits may play a smaller role in their decision to hire a manager or operate the firm personally.

We define family members broadly, including founder’s spouse, children, siblings, and parents, as well as spouse’s own children, parents, and siblings.<sup>23</sup> Out of the 10 percent of non-managing founders, 4 percent hire family members as top managers (40% of all non-managing founders); of those 4 percent, 3.6 percent hire spouses or parents, and the remaining 0.4 percent hire children, siblings, and relatives in-law. For comparison, among founders who operate the firm personally, only 3 percent hire family members as additional managers.<sup>24</sup>

In Models 1 and 2 of Table 5, we use a dependent variable *hired manager* that equals 1 when a firm has a hired manager and 0 when it has a founder-manager. This variable is an opposite to the founder-manager dummy variable. In Model 1, we compare founders who hired family members as top managers to founder-managers. In Model 2, we compare non-managing founders who hired outside managers to founder-managers. We test whether the coefficients for the key variables associated with founders’ motives are different in these two models. Model 4 directly compares non-managing founders who hired family and non-family managers (the dependent variable turns 1 when at least one family manager is hired, and 0 for all non-family managers).

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Insert Table 5 about here  
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In regard to the baseline demographic characteristics, non-managing entrepreneurs who hire family managers are older, more likely to be women, more likely to be married, less likely to own other firms, more likely to have spouses with higher income, and are less likely to serve on the board of

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<sup>23</sup> We have also tried to limit our definition of family members to more close relatives (the most restrictive definition including only founder’s spouse and parents). However, the results remained very similar.

<sup>24</sup> This is 27 percent of managing founders who have more than one top manager in their firms.

directors. The last observation suggests that founders hiring family managers likely influence firm strategy through more informal mechanisms rather than through the formal position of a director. They also have slightly less related industry experience and are more likely to have been previously employed at larger and older organizations. (The results are not reported and available from the authors on request.)

As a next step, we look at the variables of interest that are presumably correlated with the founders' motives to delegate firm operations to a hired agent. In general, the motives for hiring family and non-family managers are quite similar and consistent with our main findings. Both family and non-family managers are hired when founders have lower relevant skills, higher opportunity cost of management (more stable and lucrative prior jobs), and care less about the convenience of self-employment (have fewer small kids and proximate jobs). However, there are some differences in the magnitudes of these effects. Conditional on hiring a manager, family managers are more likely to be hired by founders with lower education, shorter related industry experience, and higher region tenure. Such founders also typically come from larger and older organizations. These observations are in line with the idea that founders who have difficulty finding managers outside of their family circles<sup>25</sup> are more likely to hire family members. Conversely, since members of the same family are more likely to have similar region tenure, founders who have little regional experience are more likely to hire non-family managers in the search for local social capital and knowledge.

### **Male Founders Versus Female Founders**

Our sample includes 14,327 (84%) male and 2,817 (16%) female entrepreneurs. On average, compared to male entrepreneurs, female entrepreneurs have slightly less experience (the average differences for the four work-experience variables vary from four months to a year), have slightly longer region tenure, are more likely to have worked close to home and in a less stable employment, have lower income, are more likely to have parents-entrepreneurs, and are less likely to serve on the board of directors in their firms. Female entrepreneurs are also more likely to start firms in trade and services and less likely to found firms in manufacturing and construction than male entrepreneurs.

In general, female founders are significantly less likely to operate their firms personally (78% versus 92% of male founders) and are more likely to hire family managers. Among non-managing founders, 76 percent of females hire family managers, as opposed to only 19 percent of males. However, the motives driving the decision of whether to run the firm personally or delegate managerial responsibilities to someone else are similar for female and male entrepreneurs. Only region tenure, the closure of a previous work place, and education have significantly larger magnitudes for male founders;

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<sup>25</sup> They know fewer educated people and people working in the start-up's industry, and their co-workers are less likely to take a job in a small business.

all other coefficients related to the three driving motives seem to be similar for female and male entrepreneurs (see Table 5).<sup>26</sup> Thus, in their decision of whether to operate the firm personally or not, female and male founders seem to be quite similar, with the exception that male founders seem to be more sensitive to the stability of their employer and their relevant region experience.

### **High-Technology Versus Low-Technology Firms**

In this section, we examine whether entrepreneurs who founded high technology ventures are different from all other entrepreneurs in the motives that drive their choice to manage a firm personally. We define a firm as a *high-technology venture* if it operates in at least one of the following industries: electronics manufacturing, telecommunication, information technology, manufacturing of motorized vehicles, manufacturing of electronic equipment and other parts of motorized vehicles and motorcycles, research within biotechnology, and manufacturing of pharmaceutical raw materials and drugs. For simplicity, we refer to all other ventures that do not fall in the above category as *low-technology firms* or *other firms*.<sup>27</sup>

We have 1,056 high-technology ventures, which constitute 6.16 percent of the sample firms. On average, compared to other firms, high-technology start-ups are smaller: the difference is approximately 3 employees (on average, high-technology firms start with 2 employees, whereas other new firms have 5). The founders of high-technology firms are younger, more likely male, have slightly more education (the average difference is 1 year), have more broad (two-digit) industry experience (+1 year), but less related (four-digit) industry experience (-2.5 years), are more likely to come from small, distant, and less stable organizations, have higher non-salary income, and are less likely to have parent-entrepreneurs. Furthermore, 88 percent of high-technology firms have founder-managers, as opposed to 90 percent of other firms, but the difference is not statistically significant.

The associations of the baseline demographic characteristics (control variables) and the probability of founder-management are very similar for high-technology and low-technology firms. The two exceptions are start-up size and the presence of the founder on the board of directors. The start-up size is negatively associated with the probability of founder-management in the high-technology firms and positively in the low-technology firms. Also, serving on the board of directors is more negatively associated with the probability of managing a firm for the founders of high-technology than low-technology firms. This suggests that the founders of high-technology firms are more likely to use board presence and top-management position as substitutes.

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<sup>26</sup> The associations between the baseline demographic characteristics (control variables) and the probability of founder-management are very similar for female and male founders.

<sup>27</sup> Our results are also robust to using a more narrow definition of high technology ventures, which includes only electronic manufacturing, telecommunication, and information technology. Such definition would reduce our share of high-technology firms from 6.16 percent of the sample to 6.01 percent, or by 26 firms.

In regard to our key variables of interest that are presumably associated with the three types of founder-managers' motives, founders who found high-technology firms and low-technology firms are similar (see Table 5). They seem to be quite equally motivated by the same factors. The only exception is region tenure, which seems to have a significantly larger association with the probability of founder-management in high-technology firms than in other firms. Some of the other variables lose their significance in the high-technology subsample, but this is likely due to the significant reduction of the sample size rather than the difference in the observed associations, since the differences in coefficients between high-technology and low-technology firms are not statistically significant.

### **What Do Non-managing Founders Do?**

The final question that we want to explore in our study is what founders do when they do not manage their firms personally. We focus on two types of activities. First, we examine whether non-managing founders are likely to serve on the board of directors. While being on the board does not perfectly substitute for being a CEO of the firm, it can give a non-managing founder more control over the firm and more non-pecuniary benefits of control than having no formal leadership position in the start-up. Second, we examine whether non-managing founders work outside of their firms or are employed at non-management positions inside their own ventures. While the first option may provide founders with greater financial and career opportunities, working in their own firms will allow them to be more engaged with the business and gain more non-pecuniary benefits. Founders who feel that they do not have enough skills or aspiration to manage their firms personally may still want to contribute to the firm as engineers, marketing specialists, or other professionals outside of the top-management team.

#### *Joining the board of directors*

In general, 19 percent of firms in our sample had boards of directors at the time of founding. The shares are very similar for the high-technology (18%) and low-technology (19%) firms. The average number of board members is 3, but the number can range from 1 to 15. In line with our expectations, firms with non-managing founders are more likely to have boards of directors (39% versus 17% for firms with founder-managers). Conditional on having a board, non-managing founders have slightly larger boards, but the difference is only 0.4 people on average.

We expect that non-managing founders serving on the board of directors can significantly impact the strategy of the firm; therefore, their skills are important. However, non-managing founders joining the board do not need to give up alternative employment and do not have work-schedule flexibility or full autonomy. Therefore, opportunity cost and non-pecuniary benefits should play a small role in motivating non-managing founders to join a board of directors.

In Model 1 of Table 6, we examine how non-managing founders who serve on the board of directors differ from the ones who do not.<sup>28</sup> Having longer relevant work experience (entrepreneurial, top-management, and industry) has a positive association with serving on the board, whereas region tenure reduces the probability of being on the board of directors. The negative association with the region tenure is perhaps due to the fact that founders with local experience may find it easier to engage other qualified local experts to take their place on the board. Thus, moving from the mean level of experience to one standard deviation above the mean is associated with the following increases in the probability of serving on board: 10 percentage points for the entrepreneurial experience; 5 percentage points for the top-management experience; 8 percentage points for the related industry experience; and negative 3 percentage points for the region tenure. Non-managing founders who serve on the board also have higher prior salary, more small kids, are more likely to be male. For example, being a female founder is associated with a 22 percentage point lower probability of being a board member (a drop from 34% to 12%); moving one standard deviation above the mean on salary is associated with a 5 percentage point increase; and having at least one small child is associated with a 4.7 percentage point increase. The positive coefficient for salary is likely driven by the fact that since founders do not need to quit their alternative employment to join the board, prior salary is capturing just the positive impact of skills, rather than the net of the opportunity cost and skills. Firms where non-managing founders serve on the board have more employees at entry (average difference is 3 employees), but slightly fewer top managers (the average difference is only 0.02 people). Such founders also seem to come from smaller and less profitable, but older, organizations. Overall, our findings are consistent with the idea that non-managing founders prefer to serve on the board when they have more knowledge and skills and have founded larger firms.

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 Insert Table 6 about here  
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Consistent with our predictions, these results imply that the decision to join the board is driven more heavily by relevant knowledge and skills, whereas opportunity cost and non-pecuniary benefits play a smaller or no role at all in this decision. This is different from the decision to manage a firm, which is driven by all three motives. We observe such a difference presumably because managing founders have to give up or reduce their alternative employment but gain some non-pecuniary benefits, whereas non-managing founders joining the board do not need to give up their alternatives jobs, but gain less in non-pecuniary benefits than they would receive through firm management. Moreover, we observe that

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<sup>28</sup> Here we include firms with and without boards of directors, assuming that the founder can always build the board if he wants to join one. However, our results also hold if we limit our sample to firms that already have boards of directors at the time of observation and examine whether the founder serves on that board.

different types of relevant experience have different importance for the decision to manage and firm and for the decision to join the board. The top-management experience and founding experience are significantly more important for the decision to join the board than the decision to manage a firm. This is perhaps due to the fact that members of the board are more engaged in the high-level business-strategy decisions where the prior entrepreneurial and top-management experiences have the highest value.

In Model 4, we turn our attention to founder-managers and examine whether their choice to join the board of directors is motivated by the same factors as for non-managing founders. This is indeed the case, and, with a few exceptions, our findings for founder-managers and non-managing founders are very similar for founder-managers. Top-management experience is still the most important driving factor of the decision to join the board, but it is less important than for non-managing founders. Industry experience is no longer important at all. This is likely because founder-managers can contribute their relevant knowledge through management rather than through the board. Prior salary is negatively associated with joining the board, perhaps because board-related activities reduce the time that founder-managers can spend earning supplementary income outside of the firm. Similarly, small kids reduce the probability of joining the board, perhaps because serving on the board may reduce the time that founder-managers spend with their families.

#### *Alternative employment*

Finally, we would like to examine whether non-managing founders still work in their own firms at non-management positions or hold primary employment outside of their firms, in some other organizations. To do so, we examine primary occupation of non-managing founders one year after they have founded their firms ( $t+1$ ). If a founder holds a formal position inside or outside his or her firm, such position is typically listed as the founder's primary occupation. We have also examined secondary occupations of founders, but none of the founders lists a secondary occupation other than "being an entrepreneur" or "being outside of the labor force."<sup>29</sup>

Among non-managing founders, 38 percent are employed in their firms in non-management positions, 60 percent work outside their firms, in other organizations, and the remaining 2 percent are out of the labor force. For comparison, only 15 percent of founder-managers have another job outside of their start-ups. Based on the prior literature, entrepreneurs who also hold jobs outside of their firms can be considered hybrid entrepreneurs (e.g., Folta et al. 2010). While we do not observe exact job titles of entrepreneurs who work outside of their firms, we know whether they work as blue-collar, white-collar, or top-management employees, or if they are listed as founders of other ventures. Table 7 reports occupational distributions of managing and non-managing founders who work outside of their start-ups or

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<sup>29</sup> This is equivalent to having no secondary occupation.

are outside the labor force (typically, on leave from formal employment or retired). We can see that non-managing founders are more likely to have white-collar and top-management jobs, whereas founder-managers who also work outside their firms are more likely to hold blue-collar positions in outside organizations.

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Insert Table 7 about here  
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In Models 2 and 3 of Table 6, we examine which non-managing founders are more likely to work at non-management positions inside their own start-ups and which non-managing founders are more likely to work in other organizations. Our dependent variable equals 1 when the non-managing founder works in his or her start-up and 0 when he or she works in some other organization.<sup>30</sup> We exclude from our estimation sample 37 non-managing founders who do not work anywhere (outside of the labor force); they constitute 2 percent of all non-managing founders. Based on their occupation codes, the majority of these founders are on temporary or permanent leave from regular employment due to retirement or parental, medical, and other issues.

Our results suggest that non-managing founders who still work in their start-ups rather than in any outside organizations are less educated, have less general work experience and entrepreneurial experience, but have more years of the relevant industry experience.<sup>31</sup> Their salary and family wealth are lower and they are more likely to come from smaller and less stable organizations. Their start-ups are larger by, on average, 2 people.<sup>32</sup> Founders themselves are more likely to also serve on the board of directors. Moreover, non-managing entrepreneurs who founded high-technology start-ups are significantly more likely to work in their firms rather than outside. Founding a high-technology start-up increases the probability that a non-managing founder will work in his or her start-up by 17 percentage points. Another interesting observation is that while we have not found unemployed individuals to rush into managing their firms personally, we observe that non-managing founders with a longer unemployment spell prior to founding are more likely to work in their firms at non-management positions rather than seek employment in other organizations. Going one standard deviation above the mean unemployment duration is associated with a 2.3 percentage point increase in the probability of working inside the own start-up rather than outside of it.

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<sup>30</sup> In theory, non-managing founders could do both, but empirically we observe no cases of non-managing founders who simultaneously hold a formal position in their own start-up and work in an outside organization.

<sup>31</sup> Moving one standard deviation above the mean for these characteristics is associated with the following changes in the probability of working inside the start-up: -5 percentage points for education, -11 percentage points for the entrepreneurial experience, -6 percentage points for the general work experience, +17 percentage points for the related industry experience, and -12 percentage points for salary.

<sup>32</sup> They also seem to have fewer top managers, but the difference is very small (0.05 people).

Overall, our results imply that non-managing founders prefer to work outside when they have more stable and more lucrative prior employment and higher level of general skills, but are more likely to work in their start-ups when they have better industry-specific skills and their firms are larger and operate in the high-technology sector. In terms of non-pecuniary benefits, we did not find any significant association between the number of small kids or distant parent firm and the probability of working in the start-up. However, we have observed that 43 percent of non-managing founders who value schedule flexibility work in their start-ups as opposed to 10 percent of non-managing founders who assign low value to such flexibility.

In sum, these findings suggest that the factors motivating non-managing founders' decision to work in their firms versus outside are quite similar to the motives of the original decision of whether to manage the start-up personally or not. One key difference is that whereas unemployed individuals do not rush to manage their firms personally, they still have a stronger tendency to work in their firms at non-management positions than founders with more stable prior employment. The same is true for the founders of high-technology ventures. They are no more likely to manage their firms personally than the founders of low-technology start-ups, but they are significantly more likely to work in their firms at non-management positions. Prior salary also seems to play a greater role in the decision to work in own firm. This suggests that the opportunity costs are even more important for the decision to join own start-up than the decision to operate it. Conversely, region tenure seems to play a less significant role, perhaps since local social capital of founders matters less when they just work in their start-ups versus manage them.

In Models 5 and 6, we focus on founder-managers and examine what motivates them to work just in their own start-ups versus taking a second job somewhere outside. The findings for the opportunity cost and non-pecuniary motives are similar to the ones for non-managing founders. Thus, for example, founder-managers with higher opportunity cost of management are more likely to take another job outside of their firms. The impact of relevant experience is even more pronounced than for non-managing founders: Founder-managers with greater industry and region experience are more likely to work only in their firms, whereas founder-managers with greater top-management experience are more likely to seek outside jobs.

### **Additional Robustness Checks**

We make sure that our findings are robust to the changes in the sample specifications and are not driven by any representative population of firms (see Table 8). First, we make sure that the results hold when we exclude firms that have more than one establishment (134 firms, or 0.78% of the sample). Second, we test if our results hold when estimated separately for small firms (20 employees or fewer) and larger ventures

(more than 20 employees), and the results are consistent with the main sample. Moreover, our findings are robust to excluding female entrepreneurs and founders who are 60 years of age or older.<sup>33</sup>

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Insert Table 8 about here  
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One might also wonder if founders receiving external funding for their start-ups may be forced by external investors to hire managers for their firms. In Denmark, venture capital funding of such early ventures is quite rare and none of our firms is directly funded by venture capitalists or angel investors. Other landing institutions may potentially also interfere with the founder's manager choice. To account for such influence, we control for the logged value of the firm's liabilities, where available, in Model 7 of Table 8. We find that founders are more likely to manage firms with large liabilities. All other effects, however, remain the same.

## **Conclusion**

The business literature has long been concerned with the questions of why people found new firms and what makes their ventures successful. The key person in the firm is the founder, and the success of the firm depends not just on the quality of the founder's business idea, but also on the founder's engagement with the firm after its founding. One of the most important roles that a founder can play in a start-up is the role of the top manager. However, founders are being criticized for taking such a role to gain personal non-pecuniary benefits, even when they are not the best managers for their ventures.

In our paper, we have examined more closely which factors may motivate the founder to operate the firm personally versus to delegate firm management to a hired agent. Our findings are consistent with the idea that while non-pecuniary motives play a role in the decision to manage a firm personally, relevant knowledge and skill and opportunity cost are also important drivers of the entrepreneur's choice. Founders are particularly likely to manage their firms themselves when they have longer region tenure and longer experience in the start-up's industry segment (at the four-digit level). These findings imply that founders are, perhaps, more strongly motivated by firm performance and their overall financial income than suggested by the prior literature. However, since owner-management choice is not solely driven by the founders' relevant experience, their decision to operate the firm personally is not perfectly aligned with the start-up performance. Thus, founders with high opportunity cost of management may avoid managing their firms personally even when they would be good managers for their firms, whereas entrepreneurs who assign high value to the flexibility of work hours may operate their ventures themselves even when they are not best managers for their businesses.

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<sup>33</sup> Further limiting our sample to founders younger than 50 years old does not change the findings.

Our subsequent analyses suggest that the motives for managing a firm personally are largely the same for entrepreneurs in high-technology and low-technology sectors and for male and female founders. Founders who hire family and non-family managers are also similarly driven by the founders' lack of relevant experience, high opportunity cost, and low non-pecuniary benefits.

As a next step, we have investigated what founders do when they do not manage their firms personally. First, we have studied their choice to join the new firm's board of directors. Our results are in line with the notion that founders' relevant experience is an important driver of this decision. However, whereas management choice is significantly driven by the related industry experience and region tenure, the decision to join the board is more heavily based on the founder's top-management experience. Moreover, since entrepreneurs do not need to quit their alternative employment to join the board, their prior salary and the stability of prior employment do not play a role in their decision to join the board.

Finally, we examine whether non-managing founders work outside of their start-ups or are employed in their own firms at non-management positions. We find that all three motives—relevant knowledge and skills, opportunity cost, and non-pecuniary benefits—play a role in the non-managing founder's decision to work in his or her own firm rather than take a job in an outside organization. Non-managing entrepreneurs with longer related (four-digit) industry experience and founders of high-technology firms are particularly likely to work in their own ventures. Moreover, while unemployed individuals and individuals with less stable employment do not rush into managing their firms personally, they are still more likely to work in their start-ups at non-management positions than founders with more stable jobs. We also find that when non-managing entrepreneurs work outside of their start-ups, more than a half of them are employed as white-collar workers and top managers.

From the theoretical point of view, our results are consistent with the notion that entrepreneurs are more likely to manage their firms personally when they have better relevant skills, have low opportunity cost of management, and value non-pecuniary benefits of owner-management, such as schedule flexibility. In future work, however, it would be useful to examine how much of the firm profit they are willing to give up to gain non-financial benefits of owner-management and to retain their alternative employment. It would also be helpful to further explore under which conditions founders may be more or less heavily driven by different motives of owner-management. Whereas we have examined the heterogeneity of founder types and firm technology intensity, the relative importance of management motives may also depend on the institutional environment of start-ups. For example, in countries with no public health insurance and lower social security benefits, the negative impact of opportunity cost on the founder-management choice may be stronger. In countries with high family values, the positive impact of non-pecuniary benefits, such as schedule flexibility, may be more significant. However, while we would

welcome replication of our findings in other institutional environments, we expect that on the theoretical level our results would still be important even if the magnitudes of the effect may vary in other settings.

Taken together, our findings make several contributions to the entrepreneurship literature and open multiple areas for future research. First, we draw attention to the issue of separation of ownership and control and management of young small businesses founded by entrepreneurs. While the literature has primarily assumed that such a separation typically happens later in the firm history, often under the pressure of the outside stakeholders (e.g., Beckman and Burton 2008; Chen and Hambrick 2012; Wasserman 2017), our paper is one of the first to demonstrate that a significant share of founders delegate managerial control of their firms to hired agents from the time of founding. We also show that entrepreneurs are systematically different in regard to this decision. Moreover, our study informs growing research on hybrid entrepreneurs (e.g., Folta et al. 2010)—individuals who found start-ups while continuing to hold outside employment—since the majority of the non-managing founders can be considered hybrid entrepreneurs.

Second, our findings speak to the debate on pecuniary and non-pecuniary motives of entrepreneurs (e.g., Gomez-Mejia et al. 2007; Hamilton 2000; Wasserman 2017) by demonstrating that in their decision to operate the firm personally entrepreneurs are also heavily driven by strategic considerations that are aligned with firm performance and personal wealth. One of the limitations of the current study is that we do not directly observe founders' motives but infer them from the founders' demographic characteristic and backgrounds. In future work, it may be helpful to do a survey of entrepreneurs, which would allow researchers to develop a more nuanced understanding of the founders' motivation to run a firm personally or delegate firm operation to a hired agent.

In addition, our paper opens a broad area of future research on the role of founders in the new ventures. Founders are the most important players in their firms, particularly in the early years of firm operation. Therefore, firm success significantly depends on what founders do in their ventures. However, we still know little about founders' engagement with their firms. Our study opens this black box by looking at whether the founder plays management role in his or her business. Yet we need to develop even more nuanced understanding of how much founders are involved in product development, financing, marketing, customer relations, investor engagement, and other activities within their firms. We need to understand whether founders with particular demographic characteristics and backgrounds are better at certain activities and are more likely to engage in them, and how the combination of founders' characteristics and engagement may be associated with venture performance. This would contribute to the debate on why certain new ventures grown into successful businesses while others die in the first few years after founding (e.g., Gimeno et al. 1997; Geroski et al. 2010).

Moreover, while prior empirical studies sometimes counted every person present in the firm or managing it in its early years as an entrepreneur (e.g., Sorensen 2007), our study suggests that this may be a risky approach. Some of these people may be hired managers and their characteristics may be significantly different from the characteristics of real founders. Also, some of the true entrepreneurs may be omitted from the analysis. Such an approach may bias our understanding of which individuals are more likely to become entrepreneurs.

Finally, our work has implications to the literature on human capital in established organizations (e.g., Campbell et al. 2012). Established firms often hesitate to encourage their employees to be creative and entrepreneurial in the fear that employees will leave to start their own ventures. Our findings suggest that not all employees who start their firms will leave their prior employers. If we believe that salary is positively correlated with skills and value, more skillful and valuable employees are less likely to leave their employers even after founding own ventures.

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Table 1. Descriptive Statistics

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	All		Founder-managers		Non-managing founders		(3) - (5)
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Difference in means
Founder-manager	0.90	0.30					
Education	13.20	2.39	13.19	2.35	13.35	2.72	-0.1581***
Ln(founding experience)	1.13	0.98	1.16	0.97	0.80	0.98	0.3610***
Ln(management experience)	0.12	0.40	0.12	0.40	0.12	0.42	-0.0074
Ln(broad industry exp)	0.42	0.74	0.43	0.75	0.28	0.65	0.1577***
Ln(related industry exp)	1.01	1.00	1.08	1.00	0.40	0.78	0.6724***
Ln(region tenure)	1.72	0.97	1.76	0.94	1.27	1.12	0.4934***
Ln(work experience)	2.50	0.69	2.49	0.68	2.53	0.72	-0.0411**
Ln(salary)	6.83	6.16	6.54	6.17	9.48	5.31	-2.9379***
Ln(unemployment duration)	0.14	0.64	0.13	0.63	0.19	0.75	-0.0556***
Parent-firm death	0.51	0.50	0.54	0.50	0.25	0.43	0.2920***
Ln(parent-firm size)	2.61	2.32	2.50	2.24	3.59	2.81	-1.0897***
Parent-firm ROA	23.81	32.44	24.75	33.09	15.28	24.14	9.4665***
Ln(parent-firm age)	2.20	0.99	2.18	0.99	2.41	1.01	-0.2327***
Small kids	0.37	0.67	0.38	0.67	0.27	0.59	0.1113***
Big kids	0.78	0.99	0.77	0.99	0.81	1.02	-0.0361*
Distant parent firm	0.31	0.46	0.30	0.46	0.39	0.49	-0.0885***
Ln(age)	3.69	0.25	3.68	0.24	3.72	0.28	-0.0395***
Female	0.16	0.37	0.14	0.35	0.35	0.48	-0.1643***
Married	0.63	0.48	0.63	0.48	0.66	0.47	-0.0329***
Danish	0.98	0.15	0.98	0.15	0.97	0.16	0.0015
Multiple start-ups	0.35	0.48	0.34	0.47	0.39	0.49	-0.0547***
Ln(non-wage income)	10.13	4.44	10.28	4.38	8.80	4.76	1.4776***
Ln(spouse income)	10.08	4.88	10.10	4.86	9.88	5.05	0.2254**
Ln(family wealth)	14.00	2.01	14.00	1.97	13.95	2.35	0.0537
Parent entrepreneur	0.37	0.48	0.38	0.49	0.31	0.46	0.0722***
Ln(employees)	1.03	1.02	1.06	1.02	0.79	1.01	0.2735***
On board	0.16	0.37	0.15	0.36	0.30	0.46	-0.1497***
N managers	1.08	0.30	1.08	0.30	1.08	0.31	-0.0026
N obs.	17,144		15,449		1,695		

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 2. Baseline Model with Main Control Variables

	(1)	(2)
Variable	Baseline	Marginal effects
Dependent variable	Founder-manager	
Ln(age)	-0.272 <sup>***</sup> (0.073)	-0.036 <sup>***</sup> (0.010)
Female	-0.760 <sup>***</sup> (0.036)	-0.145 <sup>***</sup> (0.009)
Married	-0.124 <sup>***</sup> (0.040)	-0.016 <sup>***</sup> (0.005)
Danish	-0.110 (0.094)	-0.014 (0.011)
Multiple start-ups	-0.199 <sup>***</sup> (0.031)	-0.028 <sup>***</sup> (0.005)
Ln(non-wage income)	0.033 <sup>***</sup> (0.003)	0.004 <sup>***</sup> (0.000)
Ln(spouse income)	0.009 <sup>**</sup> (0.004)	0.001 <sup>**</sup> (0.000)
Ln(family wealth)	0.006 (0.008)	0.001 (0.001)
Parent entrepreneur	0.134 <sup>***</sup> (0.031)	0.017 <sup>***</sup> (0.004)
Ln(employees)	0.209 <sup>***</sup> (0.018)	0.028 <sup>***</sup> (0.002)
On board	-0.661 <sup>***</sup> (0.037)	-0.121 <sup>***</sup> (0.009)
N managers	0.115 <sup>**</sup> (0.052)	0.015 <sup>**</sup> (0.007)
Constant	1.967 <sup>***</sup> (0.335)	
Region (98 dummies)	Yes	Yes
Industry (80 dummies)	Yes	Yes
Entry year (9 dummies)	Yes	Yes
<i>N</i>	17,144	17,144
pseudo $R^2$	0.150	

All regressions are Probit models. Robust standard errors in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 3. Founder-Managers Versus Non-managing Founders

Variable	(1) Skills	(2) Opportunity cost	(3) Non-pecuniary benefits	(4) All	(5) Marginal effects
Dependent variable	Founder-manager				
Education	<b>-0.027<sup>***</sup></b> (0.007)			<b>-0.025<sup>***</sup></b> (0.007)	<b>-0.003<sup>***</sup></b> (0.001)
Ln(founding experience)	<b>0.126<sup>***</sup></b> (0.024)			<b>-0.011</b> (0.029)	<b>-0.001</b> (0.003)
Ln(management experience)	<b>0.132<sup>***</sup></b> (0.038)			<b>0.132<sup>***</sup></b> (0.039)	<b>0.014<sup>***</sup></b> (0.004)
Ln(broad industry exp)	<b>0.176<sup>***</sup></b> (0.023)			<b>0.158<sup>***</sup></b> (0.024)	<b>0.016<sup>***</sup></b> (0.002)
Ln(related industry exp)	<b>0.361<sup>***</sup></b> (0.020)			<b>0.313<sup>***</sup></b> (0.020)	<b>0.032<sup>***</sup></b> (0.002)
Ln(region tenure)	<b>0.257<sup>***</sup></b> (0.016)			<b>0.267<sup>***</sup></b> (0.016)	<b>0.027<sup>***</sup></b> (0.002)
Ln(work experience)	0.137 <sup>***</sup> (0.026)			0.127 <sup>***</sup> (0.027)	0.013 <sup>***</sup> (0.003)
Ln(salary)		<b>-0.014<sup>***</sup></b> (0.004)		<b>-0.020<sup>***</sup></b> (0.005)	<b>-0.002<sup>***</sup></b> (0.000)
Ln(unemployment duration)		<b>-0.004</b> (0.022)		<b>0.011</b> (0.023)	<b>0.001</b> (0.002)
Parent-firm death		<b>0.466<sup>***</sup></b> (0.040)		<b>0.340<sup>***</sup></b> (0.040)	<b>0.035<sup>***</sup></b> (0.004)
Ln(parent-firm size)		-0.025 <sup>***</sup> (0.007)		-0.018 <sup>**</sup> (0.008)	-0.002 <sup>**</sup> (0.001)
Parent-firm ROA		0.000 (0.001)		0.000 (0.001)	0.000 (0.000)
Ln(parent-firm age)		-0.023 (0.016)		-0.024 (0.016)	-0.002 (0.002)
Small kids			<b>0.108<sup>***</sup></b> (0.027)	<b>0.115<sup>***</sup></b> (0.028)	<b>0.012<sup>***</sup></b> (0.003)
Big kids			0.009 (0.016)	0.009 (0.017)	0.001 (0.002)
Distant parent firm			<b>-0.186<sup>***</sup></b> (0.032)	<b>0.111<sup>***</sup></b> (0.036)	<b>0.011<sup>***</sup></b> (0.003)
Constant	2.799 <sup>***</sup> (0.370)	2.251 <sup>***</sup> (0.347)	1.712 <sup>***</sup> (0.352)	2.259 <sup>***</sup> (0.392)	
Control variables	All variables included in Table 2 (including industry, region, and founding year dummies)				
<i>N</i>	17,144	17,144	17,144	17,144	17,144
pseudo <i>R</i> <sup>2</sup>	0.228	0.184	0.154	0.245	0.245

All regressions are Probit models. Robust standard errors in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 4. Non-pecuniary Motives: Autonomy and Flexibility

	(1)	(2)
Variable	Autonomy	Flexibility
Dependent variable	Founder-manager	
Autonomy	<b>0.131</b> <b>(0.360)</b>	
Flexibility		<b>0.498**</b> <b>(0.249)</b>
Ln(age)	-1.507*** (0.535)	-1.546*** (0.578)
Female	0.232 (0.330)	-0.040 (0.328)
Married	-0.045 (0.304)	0.121 (0.299)
Constant	6.863*** -2.141	6.744*** -2.113
<i>N</i>	199	201
pseudo $R^2$	0.056	0.088

All regressions are Probit models. Robust standard errors in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 5. Heterogeneous Founders

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Variables	Family manager	Non-family manager	(1) vs. (2)	Family vs non-family manager	Female	Male	(5) vs. (6)	High-tech	Low-tech	(8) vs. (9)
Dependent variable	Hired manager			Family manager	Founder-manager			Founder-manager		
Education	<b>-0.012</b> (0.010)	<b>0.046</b> <sup>***</sup> (0.009)	***	<b>-0.047</b> <sup>**</sup> (0.019)	<b>-0.004</b> (0.014)	<b>-0.035</b> <sup>***</sup> (0.009)	*	<b>-0.052</b> (0.033)	<b>0.001</b> (0.007)	ns
Ln(founding experience)	<b>0.080</b> <sup>*</sup> (0.042)	<b>-0.015</b> (0.034)	*	<b>0.083</b> (0.080)	<b>-0.064</b> (0.063)	<b>-0.008</b> (0.033)	ns	<b>-0.039</b> (0.140)	<b>-0.025</b> (0.029)	ns
Ln(management experience)	<b>-0.082</b> (0.059)	<b>-0.127</b> <sup>***</sup> (0.044)	ns	<b>-0.022</b> (0.101)	<b>0.192</b> <sup>*</sup> (0.112)	<b>0.118</b> <sup>***</sup> (0.042)	ns	<b>0.177</b> (0.187)	<b>0.155</b> <sup>***</sup> (0.039)	ns
Ln(broad industry exp)	<b>-0.195</b> <sup>***</sup> (0.038)	<b>-0.125</b> <sup>***</sup> (0.027)	ns	<b>-0.061</b> (0.066)	<b>0.224</b> <sup>***</sup> (0.060)	<b>0.120</b> <sup>***</sup> (0.027)	ns	<b>0.296</b> <sup>***</sup> (0.101)	<b>0.177</b> <sup>***</sup> (0.023)	ns
Ln(related industry exp)	<b>-0.292</b> <sup>***</sup> (0.029)	<b>-0.297</b> <sup>***</sup> (0.025)	ns	<b>-0.127</b> <sup>**</sup> (0.063)	<b>0.231</b> <sup>***</sup> (0.047)	<b>0.299</b> <sup>***</sup> (0.024)	ns	<b>0.482</b> <sup>***</sup> (0.181)	<b>0.333</b> <sup>***</sup> (0.020)	ns
Ln(region tenure)	<b>-0.048</b> <sup>*</sup> (0.027)	<b>-0.356</b> <sup>***</sup> (0.019)	***	<b>0.374</b> <sup>***</sup> (0.043)	<b>0.121</b> <sup>***</sup> (0.036)	<b>0.317</b> <sup>***</sup> (0.019)	***	<b>0.650</b> <sup>***</sup> (0.080)	<b>0.243</b> <sup>***</sup> (0.016)	***
Ln(work experience)	-0.124 <sup>***</sup> (0.040)	-0.088 <sup>***</sup> (0.032)		-0.101 (0.085)	0.114 (0.070)	0.116 <sup>***</sup> (0.031)		0.041 (0.135)	0.092 <sup>**</sup> (0.027)	
Ln(salary)	<b>0.022</b> <sup>***</sup> (0.007)	<b>0.015</b> <sup>***</sup> (0.005)	ns	<b>0.003</b> (0.013)	<b>-0.032</b> <sup>***</sup> (0.011)	<b>-0.013</b> <sup>**</sup> (0.005)	ns	<b>0.009</b> (0.023)	<b>-0.021</b> <sup>***</sup> (0.005)	ns
Ln(unemployment duration)	<b>0.007</b> (0.031)	<b>-0.012</b> (0.029)	ns	<b>-0.010</b> (0.057)	<b>-0.044</b> (0.036)	<b>0.026</b> (0.032)	ns	<b>-0.011</b> (0.104)	<b>-0.000</b> (0.023)	ns
Parent-firm death	<b>-0.131</b> <sup>**</sup> (0.057)	<b>-0.453</b> <sup>***</sup> (0.051)	***	<b>0.264</b> <sup>**</sup> (0.113)	<b>0.049</b> (0.084)	<b>0.477</b> <sup>***</sup> (0.049)	***	<b>0.613</b> <sup>***</sup> (0.204)	<b>0.346</b> <sup>***</sup> (0.041)	ns
Ln(parent-firm size)	0.055 <sup>***</sup> (0.011)	-0.021 <sup>**</sup> (0.010)		0.086 <sup>***</sup> (0.019)	-0.041 <sup>***</sup> (0.014)	0.010 (0.010)		-0.034 (0.037)	-0.013 <sup>*</sup> (0.008)	
Parent-firm ROA	-0.000 (0.001)	-0.001 <sup>*</sup> (0.001)		0.001 (0.002)	-0.001 (0.001)	0.001 <sup>*</sup> (0.001)		0.000 (0.003)	0.000 (0.001)	
Ln(parent-firm age)	0.040 <sup>*</sup> (0.024)	0.012 (0.020)		0.098 <sup>**</sup> (0.045)	-0.030 (0.033)	-0.027 (0.020)		-0.017 (0.077)	-0.023 (0.017)	
Small kids	<b>-0.053</b> (0.044)	<b>-0.096</b> <sup>***</sup> (0.033)	ns	<b>0.018</b> (0.078)	<b>0.029</b> (0.061)	<b>0.139</b> <sup>***</sup> (0.033)	ns	<b>0.162</b> (0.129)	<b>0.123</b> <sup>***</sup> (0.029)	ns
Big kids	-0.029 (0.023)	0.012 (0.020)		-0.049 (0.046)	-0.021 (0.034)	0.033 (0.020)		-0.022 (0.084)	0.011 (0.017)	
Distant parent firm	<b>-0.119</b> <sup>**</sup> (0.055)	<b>-0.089</b> <sup>**</sup> (0.042)	ns	<b>-0.163</b> (0.102)	<b>0.031</b> (0.072)	<b>0.102</b> <sup>**</sup> (0.043)	ns	<b>0.075</b> (0.165)	<b>0.137</b> <sup>***</sup> (0.037)	ns
Constant	-5.278 <sup>***</sup> (0.661)	-0.842 <sup>*</sup> (0.464)		-6.445 <sup>***</sup> (-1.156)	1.794 <sup>**</sup> (0.901)	2.022 <sup>***</sup> (0.463)		1.293 (-1.711)	1.500 <sup>***</sup> (0.372)	
Control variables	All variables included in Table 2 (including industry, region, and founding year dummies)									
<i>N</i>	16,116	16,477		1,695	2,817	14,327		1,056	16,088	
pseudo <i>R</i> <sup>2</sup>	0.343	0.272		0.473	0.273	0.253		0.415	0.221	

All regressions are Probit models. Robust standard errors in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$   
*ns* stands for non-significant at any conventional level.

Table 6. What Do Non-managing Founders Do?

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Non-managing founders			Managing founders			Non-managing vs. managing	
Variable	On board	Working in own firm vs. outside		On board	Working in own firm only vs. also working outside		(1) vs. (4)	(3) vs. (6)
Dependent variable	On board	Working in own firm	Working in own firm	On board	Working in own firm only	Working in own firm only		
Education	<b>-0.031*</b> (0.016)	<b>-0.070**</b> (0.017)	<b>-0.063***</b> (0.016)	<b>0.006</b> (0.007)	<b>0.000</b> (0.007)	<b>0.022**</b> (0.006)	**	***
Ln(founding exp)	<b>0.154**</b> (0.067)	<b>-0.173**</b> (0.075)	<b>-0.147**</b> (0.071)	<b>0.093***</b> (0.027)	<b>-0.258***</b> (0.027)	<b>-0.288***</b> (0.027)	ns	*
Ln(management exp)	<b>0.401***</b> (0.095)	<b>0.146</b> (0.098)	<b>0.156</b> (0.095)	<b>0.132***</b> (0.034)	<b>-0.084**</b> (0.035)	<b>-0.084**</b> (0.034)	***	**
Ln(broad industry exp)	<b>0.101*</b> (0.059)	<b>0.066</b> (0.061)	<b>0.101*</b> (0.058)	<b>-0.031</b> (0.020)	<b>0.177***</b> (0.021)	<b>0.188***</b> (0.020)	**	ns
Ln(related industry exp)	<b>0.224***</b> (0.055)	<b>0.430***</b> (0.060)	<b>0.394***</b> (0.055)	<b>0.001</b> (0.017)	<b>0.271***</b> (0.017)	<b>0.279***</b> (0.016)	***	**
Ln(region tenure)	<b>-0.116***</b> (0.039)	<b>0.049</b> (0.042)	<b>0.041</b> (0.040)	<b>-0.068***</b> (0.017)	<b>0.110**</b> (0.016)	<b>0.119***</b> (0.016)	ns	*
Ln(work experience)	0.088 (0.074)	-0.280** (0.082)	-0.259** (0.079)	0.010 (0.025)	0.052* (0.027)	0.033 (0.026)		
Ln(salary)	<b>0.024**</b> (0.011)	<b>-0.057***</b> (0.012)	<b>-0.048***</b> (0.011)	<b>-0.012***</b> (0.004)	<b>-0.044**</b> (0.004)	<b>-0.045***</b> (0.004)	***	ns
Ln(unemployment duration)	<b>0.075</b> (0.055)	<b>0.099*</b> (0.055)	<b>0.098*</b> (0.053)	<b>-0.019</b> (0.028)	<b>0.063**</b> (0.025)	<b>0.053**</b> (0.024)	ns	ns
Parent-firm death	<b>-0.085</b> (0.100)	<b>0.440***</b> (0.100)	<b>0.442***</b> (0.095)	<b>0.005</b> (0.034)	<b>0.410***</b> (0.036)	<b>0.443***</b> (0.035)	ns	*
Ln(parent-firm size)	-0.057*** (0.019)	-0.075*** (0.020)	-0.079*** (0.019)	0.016* (0.034)	-0.055*** (0.008)	-0.052*** (0.008)		
Parent-firm ROA	-0.004** (0.002)	-0.000 (0.002)	-0.000 (0.002)	-0.002*** (0.000)	0.001** (0.001)	0.001** (0.001)		
Ln(parent-firm age)	0.105** (0.046)	0.064 (0.047)	0.072 (0.045)	0.055*** (0.017)	0.068*** (0.016)	0.071*** (0.016)		
Small kids	<b>0.145**</b> (0.070)	<b>0.007</b> (0.075)	<b>0.016</b> (0.070)	<b>-0.047**</b> (0.023)	<b>0.007</b> (0.024)	<b>0.020</b> (0.024)	***	ns
Big kids	-0.097** (0.042)	-0.059 (0.046)	-0.049 (0.043)	0.010 (0.014)	-0.022 (0.015)	-0.015 (0.015)		
Distant parent firm	<b>-0.153*</b> (0.088)	<b>-0.086</b> (0.092)	<b>-0.056</b> (0.087)	<b>-0.043</b> (0.037)	<b>0.115***</b> (0.035)	<b>0.125***</b> (0.035)	ns	ns
High-technology			<b>0.451***</b> (0.141)			<b>0.200***</b> (0.064)		ns
Constant	-0.253 (0.924)	1.756* (0.977)	1.164 (0.857)	-1.199*** (0.365)	1.926*** (0.372)	1.473*** (0.339)		
Control variables	All variables included in Table 2 (including industry, region, and founding year dummies)							
<i>N</i>	1,695	1,552	1,552	15,449	14,666	14,666		
pseudo <i>R</i> <sup>2</sup>	0.242	0.292	0.260	0.170	0.198	0.175		

Robust standard errors in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . ns stands for non-significant at any conventional level.

Table 7. Occupation Type for Founders Who Work Outside of Their Firms or Are Outside of the Labor Force

Occupation type	Non-managing founders	Managing founders
Blue-collar	41%	51%
White-collar	29%	20%
Top manager	25%	24%
Entrepreneur	2%	2%
Outside of the labor force	3%	3%
N obs.	1,043	2,266

Table 8. Robustness Tests

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variable	W/o multiple establishments	≤20 employees	>20 employees	Excluding female	Age <60	Restricted high-tech	With liabilities
Dependent variable	Founder-manager						
Education	<b>-0.025***</b> (0.007)	<b>-0.022***</b> (0.007)	<b>-0.109</b> (0.091)	<b>-0.035***</b> (0.009)	<b>-0.031***</b> (0.008)	<b>-0.039</b> (0.035)	<b>-0.026***</b> (0.008)
Ln(founding experience)	<b>-0.009</b> (0.029)	<b>-0.008</b> (0.029)	<b>-0.829**</b> (0.393)	<b>-0.008</b> (0.033)	<b>-0.008</b> (0.030)	<b>-0.130</b> (0.144)	<b>-0.041</b> (0.030)
Ln(management experience)	<b>0.136***</b> (0.039)	<b>0.129***</b> (0.040)	<b>0.356</b> (0.547)	<b>0.118***</b> (0.042)	<b>0.166***</b> (0.043)	<b>0.095</b> (0.185)	<b>0.147***</b> (0.041)
Ln(broad industry exp)	<b>0.157***</b> (0.024)	<b>0.164***</b> (0.024)	<b>-0.213</b> (0.279)	<b>0.120***</b> (0.027)	<b>0.168***</b> (0.025)	<b>0.271**</b> (0.106)	<b>0.151***</b> (0.025)
Ln(related industry exp)	<b>0.316***</b> (0.021)	<b>0.302***</b> (0.021)	<b>1.459***</b> (0.391)	<b>0.299***</b> (0.024)	<b>0.329***</b> (0.021)	<b>0.675***</b> (0.179)	<b>0.311***</b> (0.022)
Ln(region tenure)	<b>0.266***</b> (0.016)	<b>0.262***</b> (0.017)	<b>1.137***</b> (0.320)	<b>0.317***</b> (0.019)	<b>0.270***</b> (0.017)	<b>0.593***</b> (0.084)	<b>0.275***</b> (0.017)
Ln(work experience)	0.126*** (0.027)	0.126*** (0.028)	-0.183 (0.296)	0.116*** (0.031)	0.137*** (0.029)	-0.082 (0.140)	0.136*** (0.029)
Ln(salary)	<b>-0.019***</b> (0.005)	<b>-0.018***</b> (0.005)	<b>-0.153***</b> (0.051)	<b>-0.013**</b> (0.005)	<b>-0.020***</b> (0.005)	<b>0.012</b> (0.025)	<b>-0.025***</b> (0.005)
Ln(unemployment duration)	<b>0.012</b> (0.023)	<b>0.013</b> (0.023)	<b>0.186</b> (0.409)	<b>0.026</b> (0.032)	<b>0.001</b> (0.023)	<b>0.003</b> (0.108)	<b>0.015</b> (0.024)
Parent-firm death	<b>0.351***</b> (0.041)	<b>0.340***</b> (0.041)	<b>1.061***</b> (0.404)	<b>0.477***</b> (0.049)	<b>0.308***</b> (0.042)	<b>0.748***</b> (0.207)	<b>0.302***</b> (0.042)
Ln(parent-firm size)	-0.017** (0.008)	-0.019** (0.008)	-0.083 (0.134)	0.010 (0.010)	-0.019** (0.008)	-0.044 (0.038)	-0.015* (0.008)
Parent-firm ROA	0.000 (0.001)	0.001 (0.001)	-0.002 (0.008)	0.001* (0.001)	0.001 (0.001)	-0.001 (0.003)	0.001 (0.001)
Ln(parent-firm age)	-0.023 (0.016)	-0.025 (0.017)	-0.096 (0.262)	-0.027 (0.020)	-0.028 (0.017)	0.012 (0.081)	-0.027 (0.017)
Small kids	<b>0.113***</b> (0.028)	<b>0.116***</b> (0.029)	<b>0.980**</b> (0.403)	<b>0.139***</b> (0.033)	<b>0.117***</b> (0.029)	<b>0.191</b> (0.137)	<b>0.108***</b> (0.030)
Big kids	0.010 (0.017)	0.009 (0.017)	0.243 (0.197)	0.033 (0.020)	-0.010 (0.017)	-0.036 (0.088)	0.006 (0.018)
Distant parent firm	<b>0.107***</b> (0.036)	<b>0.107***</b> (0.037)	<b>2.200***</b> (0.669)	<b>0.102**</b> (0.043)	<b>0.105***</b> (0.037)	<b>0.056</b> (0.165)	<b>0.132***</b> (0.037)
Ln(liabilities)							0.080*** (0.015)
Constant	2.235*** (0.393)	2.081*** (0.398)	7.978* -4.340	2.022*** (0.463)	1.808*** (0.419)	-0.347 -1.738	1.473*** (0.451)
Control variables	All variables included in Table 2 (including industry, region, and founding year dummies)						
N	17,010	16,487	657	14,327	16,354	1,030	15,332
pseudo R <sup>2</sup>	0.246	0.247	0.592	0.253	0.249	0.408	0.249

All regressions are Probit models. Robust standard errors in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

## Appendix 1. Variable Definitions and Expected Associations Between the Variables of Interest and the Probability of Founder-Management

Variable	Definition	Sign
Founder-manager	Dummy variable=1 if the founder is on the top-management team of the firm, 0 otherwise	
Education	Founder's years of education at the time of founding	+
Ln(founding experience)	Log of the founder's years of entrepreneurial experience at the time of founding	+
Ln(management experience)	Log of the founder's years of management experience at the time of founding	+
Ln(broad industry experience)	Log of the founder's years of work experience in the two-digit industry segment of the new firm at the time of founding (excludes experience in the four-digit segment of the new firm)	+
Ln(related industry experience)	Log of the founder's years of work experience in the four-digit industry segment of the new firm at the time of founding	+
Ln(region tenure)	Log of the number of years that the founder has lived in the new firm's municipality by the time of founding	+
Ln(salary)	Log of the founder's annual salary in the year before founding	-
Parent-firm death	Dummy variable=1 if the organization where the founder worked prior to founding (parent firm) died in the year of founding or the year after	+
Ln(unemployment duration)	Log of the percent of the time that the founder was unemployed in the year preceding the year of the firm founding (t-1)	+
Small kids	The number of kids 5 years or younger living with the founder at the time of founding	+
Big kids	The number of kids of 6 years of older living with the founder at the time of founding	
Distant parent firm	Founder's prior employer (parent firm) is located outside of the founder's home municipality	+
Ln(non-wage income)	Log of the founder's non-wage income in the year prior to founding	
Ln(spouse income)	Log of the spouse's income (wage and non-wage) in the year prior to founding	
Ln(family wealth)	Log of the family asset value in the year prior to founding	
Ln(employees)	The number of the firm employees in the year of founding	
N managers	The number of the firm's top managers in the year of founding	
Ln(age)	Log of the founder's age at the time of founding	
Married	The founder was married at the time of founding	
Danish	The founder is a Danish citizen at the time of founding	
Female	Dummy variable=1 if the founder is female and 0 if male	
Industry	Dummy variable for the firm industry at the two-digit SIC code level	
Year	The year when the firm was founded	
Municipality	The municipality where the firm is located	
On board	Founder serves on the firm's board of directors	
Parent entrepreneur	At least one of the founder's parents has been an entrepreneur	
Multiple start-ups	The founder owns at least 1 other firm at the time of founding	
Parent-firm ROA	Founder's parent-firm's return on asset in the year prior to the new firm founding (t-1)	
Ln(parent-firm age)	Log of the founder's parent-firm age in the year prior to the new firm founding (t-1)	
Ln(parent-firm size)	Log of the number of employees at the founder's parent firm in the year prior to the new firm founding (t-1)	
Ln(work experience)	Log of the founder's work experience in years by the time of firm founding (t=0)	
Autonomy	Dummy variable=1 if the founder answered "very important" or "important" to the "autonomy" question on the survey; 0 if the founder answered "not important" or "don't know"	+
Flexibility	Dummy variable=1 if the founder answered "very important" or "important" to the "flexibility" question on the survey; 0 if the founder answered "not important" or "don't know"	+

*Notes:* The year of firm founding is t=0; the year before founding is t-1; the year after founding is t+1; all monetary values are in Danish Kroner adjusted for inflation to the 2005 values; founding, management, and industry experience and region tenure are tracked for 10 years prior to founding; "firm" refers to the new venture started by the founder.