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SHOULD I QUIT MY DAY JOB?: A HYBRID PATH TO ENTREPRENEURSHIP

JOSEPH RAFFIEE
University of Wisconsin–Madison

JIE FENG
University of Wisconsin–Madison

Research suggests that the risk and uncertainty associated with entrepreneurial activity deters entry and contributes to the high rates of new business failure. In this study, we examine how the ability to reduce these factors by means of hybrid entrepreneurship—the process of starting a business while retaining a "day job" in an existing organization—influences entrepreneurial entry and survival. Integrating insights from real options theory with logic from the individual differences literature, we hypothesize and find that individuals who are risk averse and have low core self-evaluation are more likely to enter hybrid entrepreneurship relative to full-time self-employment. In turn, we argue and find that hybrid entrepreneurs who subsequently enter full-time self-employment (i.e., quit their day job) have much higher rates of survival relative to individuals who enter full-time self-employment directly from paid employment. Adding support to our theory that the survival advantage is driven by a learning effect that takes place during hybrid entrepreneurship, we find that the decrease in exit hazard is stronger for individuals with prior entrepreneurial experience. Taken together, our findings suggest that individual characteristics may play a greater role in determining the process of how (rather than if) entrepreneurial entry occurs, and that the process of how entrepreneurial entry transpires has important implications for new business survival.

Research indicates that entrepreneurial activity is a key driver of economic growth, but only if entrepreneurial entrants are able to avoid early exodus (Santarelli & Vivarelli, 2007). Not surprisingly, therefore, understanding the determinants of entrepreneurial entry and dynamics of venture survival has attracted the interest of numerous organizational scholars (e.g., Elfenbein, Hamilton, & Zenger, 2010; Evans & Leighton, 1989; Geroski, Mata, & Portugal, 2010; Ozcan & Reichstein, 2009; Patel & Thatcher, 2012). As evidenced by the high frequency of new business failure (Shane, 2003), understanding entry implies explaining why some individuals opt to start businesses despite the risky and uncertain returns associated with doing so (Kihlstrom & Laffont, 1979). Likewise, understanding survival entails identifying how and why some entrepreneurs are able to overcome these risks to survive (Santarelli & Vivarelli, 2007). As such, pinpointing ways in which the risk and uncertainty associated with entrepreneurship can be managed or reduced should offer further insight regarding how these processes unfold (see Folta, 2007).

One such way is through hybrid entrepreneurship—the process of initiating a business while simultaneously remaining employed for wages (Folta, Delmar, & Wennberg, 2010). By launching a business while retaining their "day job," hybrid entrepreneurs implicitly reduce (or eliminate) the opportunity cost (i.e., earnings from paid employment) associated with starting the venture (Folta, 2007; Folta et al., 2010). As such, by reducing what is put "at risk," starting a business via hybrid entrepreneurship is inherently less risky than doing so full time. Recognizing this, scholars have recently noted that hybrid entrepreneurs represent a

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significant and growing component of total entrepreneurial activity (Burke, FitzRoy, & Nolan, 2008; Folta et al., 2010; Petrova, 2012). According to the U.S. Bureau of Labor Statistics, in 2011, roughly 10 percent of self-employed workers were also employed by existing firms. Going a step further, research shows that many hybrid entrepreneurs ultimately decide to commit to their ventures full time (Folta et al., 2010). Indeed, anecdotal evidence indicates that some of the world's most innovative and successful entrepreneurs started their companies as hybrid entrepreneurs. For example, Steve Wozniak remained an employee at Hewlett–Packard long after co-founding Apple (Wozniak & Smith, 2006), Pierre Omidyar launched eBay while working for the software development company General Magic (Cohen, 2002), and, with the help of investors, Henry Ford founded the Detroit Automobile Group while employed by the Edison Illuminating Company (Ford & Crowther, 1922). In 1997, 20 percent of CEOs on *Inc.* magazine's 500 fastest-growing private companies list indicated that they continued to work a paying job long after founding their organization (Inc. staff, 1997). Yet, despite these observations, extant entrepreneurship theory largely assumes that entrepreneurial entry is an all-or-nothing phenomenon (Folta et al., 2010), and, because empirical testing is driven by theory, the treatment of labor force status as a mutually exclusive dichotomy is generally considered "uncontroversial" in the literature (Sørensen & Fassiotto, 2011: 1,323).[1]

In this article, we depart from this trend and add to an emerging stream of literature (e.g., Burke et al., 2008; Folta et al., 2010; Petrova, 2012) by considering the theoretical implications of hybrid entrepreneurship for theories of entrepreneurial entry and survival. For example, extant theory suggests entrepreneurs have high tolerances for risk (Kihlstrom & Laffont, 1979) and/or perceive less risk due to greater confidence in their abilities (Moore, Oesch, & Zietsma, 2007). However, considering hybrid entrepreneurship reduces (or eliminates) the need for risk-bearing when starting a business, these theories may not adequately explain entry. Likewise, once an individual enters hybrid entrepreneurship, the uncertainty surrounding the future returns and viability of the business lessens (Folta et al., 2010). As a result, hybrids that opt to enter full-time self-employment do so under conditions of greater certainty (relative to those who enter directly from paid employment). However, despite numerous theoretical explanations (e.g., Geroski et al., 2010; Santarelli & Vivarelli, 2007), scholars have yet to consider how staged entry into full-time self-employment via the pathway of hybrid entrepreneurship influences venture survival.

To reconcile these issues, we turn to logic from real options theory (Trigeorgis, 1996). Conceptualizing hybrid entrepreneurship as analogous to the establishment of a real option—a small initial commitment that creates the right, but not the obligation, to subsequently commit full time to the venture (Folta et al., 2010; Wennberg, Folta, & Delmar, 2006)—we integrate insights from real options theory with logic from the individual differences literature (Funder, 2001) to theorize that risk-averse and less confident individuals will be more likely to enter hybrid entrepreneurship relative to full-time self-employment. In turn, using real options logic that emphasizes the benefits of learning from small investments (Roberts & Weitzman, 1981), we argue staged entry into full-time self-employment through hybrid entrepreneurship will relate positively to venture survival. Finally, emphasizing the inherent heterogeneity among real options decision makers (e.g., Barnett, 2008), we posit that individual characteristics (cognitive ability and entrepreneurial experience) that influence the hybrid entrepreneur's ability to evaluate the prospects of their venture during hybrid entrepreneurship will moderate this relationship.

The present study makes several contributions. First, acknowledging that hybrid entrepreneurship implicitly reduces the risk associated with starting a business (Folta et al., 2010), our study suggests for the first time that individual characteristics pertaining to risk preferences and risk perception may influence *how* rather than *if* entrepreneurial entry occurs. Second, despite a substantial literature on venture survival (Santarelli & Vivarelli, 2007) and mounting evidence that entry into full-time self-employment is endogenous to hybrid entrepreneurship (Folta et al., 2010), the current study is the first

[1] Hybrid entrepreneurship is common in academic entrepreneurship (e.g., Jain, George, & Maltarich, 2009), where academics often form firms to commercialize research while retaining their academic position (as opposed to exiting the institution to pursue the venture full time) (Nicolaou & Birley, 2003a). However, perhaps due to the uniqueness of the university setting, few studies have accounted for this distinction theoretically or empirically (see Nicolaou & Birley, 2003a, 2003b for notable exceptions). Ultimately, this broadens the contributions of our study.

to argue and show that entering full-time self-employment incrementally via hybrid entrepreneurship increases the odds of survival. Third, we extend recent research (Autio & Acs, 2010; Folta et al., 2010; O'Brien, Folta, & Johnson, 2003) by testing predictions from real options theory using individual characteristics as explanatory and moderator variables. By doing so, our work contributes to the real options literature by theoretically arguing and empirically demonstrating that individual characteristics influence both the likelihood and efficacy of real options reasoning.

THEORY AND HYPOTHESES

Motivated by the importance of the phenomenon, scholars from a variety of backgrounds, including sociology (Sørensen, 2007), economics (Hamilton, 2000), and psychology (Hmieleski & Baron, 2009), have sought to explain entrepreneurial activity. While the multidisciplinary approach has greatly contributed to our understanding of the entrepreneurial process (Shane, 2003), it has also led to areas of disagreement, particularly with regards to how entrepreneurship should be conceptualized and defined (see Sørensen & Fassiotto, 2011). In this article, our interest is in understanding entrepreneurship in terms of labor force status (i.e., self-employment versus paid employment). Defined this way, entrepreneurship encompasses the entire array of entrepreneurial activity, ranging from the small self-employed sole proprietor to the large venture-backed start-up, making the implications of our theory generalize to all entrepreneurial entrants, not just those with a specific type or viable entity (Yang & Aldrich, 2012). Accordingly, to remain consistent with prior hybrid entrepreneurship studies (e.g., Folta et al., 2010), we use the terms "entrepreneurship" and "self-employment" interchangeably.

Despite the definitional divergence, there exists a relative consensus within the literature that entrepreneurial activity involves risk and uncertainty (Folta, 2007; McMullen & Shepherd, 2006). For example, even if entrepreneurs are able to shift all financial risk to other actors (e.g., investors), "in every case, the entrepreneur risks the opportunity costs associated with starting the venture" (Folta, 2007: 98). Thus, by entering self-employment, it is typically assumed that individuals transform their source of income from a relatively safe asset (i.e., earnings in paid employment) into a more risky asset (i.e., returns to self-employment), as reflected by the high dispersion in self-employed earnings (Hamilton, 2000) and likelihood of business failure (Shane, 2003). In turn, the risk associated with this transformation has been argued to be a key deterrent of entrepreneurial entry (Amit, Muller, & Cockburn, 1995). However, this logic overlooks the fact that individuals can circumvent this trade-off by means of hybrid entrepreneurship (Folta et al., 2010). Hence, by starting a business without quitting one's day job, hybrid entrepreneurs need not put their "certain" earnings from paid employment at risk. Accordingly, recognizing that hybrid entrepreneurship represents a smaller-scale and less risky (i.e., less sunk commitment) entrepreneurial entry path, scholars at the forefront of the hybrid entrepreneurship literature have argued that real options theory is a theoretical perspective well-suited to provide insights into the hybrid phenomenon (Folta et al., 2010; Wennberg et al., 2006). In the next section we briefly review real options theory and its link to hybrid entrepreneurship.

Real Options Theory and Hybrid Entrepreneurship

Real options theory is a framework for making investments in risky and uncertain contexts (Dixit & Pindyck, 1994). In real options theory, the "option" typically refers to a small initial investment that creates the possibility, but not the obligation, to make subsequent larger investments (McGrath, 1997). A key benefit of investing in real options is that it allows decision makers to gather information and learn, thereby reducing the uncertainty surrounding the investment, prior to making larger commitments (Majd & Pindyck, 1987; Roberts & Weitzman, 1981; Weitzman, Newey, & Rabin, 1981). Should the information generated from the option appear favorable (unfavorable), subsequent commitments can be made (ceased). Thus, because the potential upside gain has no ceiling, but the downside loss (i.e., risk) is limited to the cost of the option, real options become more valuable in situations characterized by high uncertainty (i.e., high variance in returns) (McGrath, 1997). Accordingly, while real options theory predicts that high uncertainty dissuades large commitments, it also suggests that it can encourage small commitments in the form of real options. For instance, O'Brien et al. (2003) find the likelihood of full-time entrepreneurial entry is lower in industries characterized by greater uncertainty. Ziedonis (2007) concludes

that firms interested in university technology are more likely to purchase an option contract (small commitment) prior to committing to a licensing agreement (large commitment) when the uncertainty embedded in the technology is high.

The commonalities between real options and hybrid entrepreneurship are twofold. First, as noted by O'Brien et al. (2003), it is difficult to surmise a context in which risk and uncertainty are more salient than entrepreneurship. Second, much like a real option, hybrid entrepreneurship allows individuals to start a business on a smaller scale with less sunk costs and downside risk (Folta et al., 2010). Empirical findings support this connection. For example, in accord with real options theory, Wennberg et al. (2006) find that individuals are more likely to enter hybrid entrepreneurship as opposed to full-time self-employment in more uncertain industries. Similarly, noting that hybrid entrepreneurship is akin to a real option to invest, Folta et al. conclude that many hybrid entrepreneurs ultimately enter full-time self-employment, indicating that hybrid entrepreneurship is often used as a means to "test the entrepreneurial waters" prior to committing to the venture full time (Folta et al., 2010: 253).[2] Hence, as these studies demonstrate, real options theory has the power to explain both entrepreneurial entry and entrepreneurial outcomes. On the one hand, real options theory suggests that the ability to reduce the risk associated with starting a business can entice entrepreneurial entry (Lee, Peng, & Barney, 2007). On the other hand, the learning benefits associated with hybrid entrepreneurship (Roberts & Weitzman, 1981) imply that starting a business through a pathway of paid employment → hybrid → full-time self-employment should be associated with positive outcomes. As a result, real options theory provides a single unifying framework suitable to explain the entire entrepreneurial process. However, given its emphasis on the effects of investment risk and uncertainty, real options theory is built on the assumption of a risk-neutral and preference-free decision maker (Dixit & Pindyck, 1994). Yet, in most real-world scenarios, these assumptions are unrealistic, leading to a scholarly push for researchers to incorporate decision maker characteristics and preferences into real options theory (e.g., Barnett, 2008). For instance, O'Brien et al. argue it is time to "shift the focus of research away from macroeconomic measures and towards using firm-specific (or even *individual-specific*) determinants of entry thresholds" (O'Brien et al., 2003: 515, emphasis added). We do so in this study, beginning by using individual characteristics that influence individual thresholds for risk and uncertainty to generate real options predictions regarding entrepreneurial entry.

[2] Folta et al. (2010) also conclude that individuals may enter hybrid entrepreneurship to generate non-monetary benefits, but found no indication that people become hybrids to earn supplemental income. Similar findings were reported by Petrova (2012), who concluded that part-time entrepreneurs are not impacted by financial constraints.

Risk Aversion, Core Self-Evaluation, and Entry into Hybrid Entrepreneurship

Given that entrepreneurial activity is generally assumed to include the bearing of risk and uncertainty, the notion that entrepreneurs are comfortable with risk has a long theoretical tradition in the academic literature (Kihlstrom & Laffont, 1979; Knight, 1921). Nevertheless, empirical evidence regarding risk preferences and entrepreneurial entry is largely mixed (see Brockhaus, 1980; Cramer, Hartog, Jonker, & Van Praag, 2002; Miner & Raju, 2004). The majority of studies, however, do not theoretically or empirically account for the fact that entry into hybrid entrepreneurship inherently involves less downside risk. As a result, it is possible that risk aversion influences the process of how, rather than if, an individual decides to start a new business. Along these lines, operating on the logic that established businesses are less risky than start-up ventures, Block, Thurik, van der Zwan, and Walter (2013) find that risk-averse individuals are more likely to purchase an existing business rather than start a new venture from scratch. Likewise, by acknowledging the fact that hybrid entrepreneurship allows individuals to reduce what is put at risk (i.e., earnings from paid employment) when starting a new venture (Folta et al., 2010), logic from real options theory can provide a more nuanced picture regarding the relationship between risk aversion and entrepreneurial entry.

A central prediction of real options theory is that high levels of risk and uncertainty dissuade large commitments (O'Brien et al., 2003). However, theories of risk aversion highlight heterogeneity with regards to individual comfort thresholds for risk and uncertainty. As a result, we expect that investment behavior of a risk-averse individual should be similar to the behavior of a risk-neutral decision maker facing high levels of exogenous uncertainty.

Thus, extending insights from real options theory to incorporate risk preferences would suggest that, in accordance with traditional equilibrium models of risk aversion and self-employment (Kihlstrom & Laffont, 1979), risk-averse individuals should be less willing to make the large commitments associated with entry into full-time self-employment. In other words, risk aversion effectively increases the value associated with deferring full-time entry (Hugonnier & Morellec, 2007). However, as uncertainty rises, so too does the value of holding a real option (McGrath, 1997). Thus, while real options theory suggests individuals with high risk aversion should be less likely to make the large commitments associated with direct entry into full-time self-employment, they should be more willing to make smaller commitments associated with entry into hybrid entrepreneurship. Indeed, by entering hybrid entrepreneurship, risk averse individuals can start a business and reduce what is at risk/the amount of risk-bearing. Thus, we suggest the following:

Hypothesis 1. Individuals with higher risk aversion are more likely to enter hybrid entrepreneurship in comparison to full-time self-employment.

In addition to risk aversion, a number of other individual characteristics have been argued to influence entrepreneurial entry. For instance, building on the notion that entrepreneurs are highly confident (Knight, 1921), researchers have shown that internal locus of control (Evans & Leighton, 1989), self-efficacy (Zhao, Seibert, & Hills, 2005), and emotional stability (Zhao, Seibert, & Lumpkin, 2010) relate positively to entrepreneurial entry. However, various elements of personality are often treated as entirely separate constructs, with little (if any) discussion regarding the interrelationships among traits or acknowledgement that related elements of personality may all be tapping the same higher-order construct (Judge, Erez, Bono, & Thoresen, 2003; Judge, Locke, & Durham, 1997). To that end, our study focuses on core self-evaluation (CSE), a broad dispositional trait manifested by four elements of personality: self-esteem, generalized self-efficacy, locus of control, and emotional stability (Judge et al., 1997).

Independent of context and time, CSE is theorized to reflect the fundamental appraisals individuals make about themselves, their capabilities, and their competence (Judge et al., 1997). For example, Chang, Ferris, Johnson, Rosen, and Tan write that CSE is "proposed to be the most fundamental evaluations people hold, reflecting a baseline appraisal that is *implicit in all other beliefs and evaluations*" (Chang et al., 2012: 83, emphasis added). Thus, CSE represents an individual's overarching general evaluations, not specific evaluations regarding any particular context (e.g., organizational, entrepreneurial, etc.). Accordingly, research has demonstrated CSE to have predictive validity regarding a wide variety of work- and life-related outcomes (Chang et al., 2012). Anchored in a real options framework, we add to this literature by developing theory to explain how CSE influences real options reasoning and the process of entrepreneurial entry.

Given that individuals high in CSE are confident in their ability to successfully complete tasks and control their environment (Judge et al., 2003), these individuals should be less deterred by the risk and uncertainty associated with starting a business. Stated differently, because individuals high in CSE are confident in their capabilities, they should perceive entering self-employment as less risky and uncertain (i.e., perceive less variance in outcomes). In contrast, individuals with low CSE tend to be unsure of themselves and their capabilities, making them more likely to perceive entering self-employment as a high-risk endeavor (i.e., perceive more variance in outcomes). Accordingly, a predisposition to perceive entry into self-employment as more risky and uncertain would, in effect, raise the value associated with using an option approach. Thus, consistent with Caves (1998), who argued that less confident entrepreneurs will tend to start their businesses on a smaller scale, our logic suggests that individuals with low CSE who enter self-employment will be more likely to do so incrementally via hybrid entrepreneurship.

The upper echelons literature provides some support for our reasoning. For example, Hiller and Hambrick (2005) argue that CEOs high in CSE are more likely to launch large-scale, quantum strategic initiatives, while CEOs low in CSE favor a smaller, incremental approach. Chatterjee and Hambrick (2007) found support for a positive relationship between the CSE of a firm's CEO and the likelihood that the firm pursues entrepreneurial opportunities. Simsek, Heavey, and Veiga (2010) conclude that CEO CSE is positively related to a firm's entrepreneurial orientation. As we detailed above, we expect a similar relationship regarding entrepreneurial entry. Accordingly, we suggest the following:

Hypothesis 2. Individuals with low core self-evaluation are more likely to enter hybrid entrepreneurship in comparison to full-time self-employment.

Staged Entry into Full-Time Self-Employment and Survival

The previous section uses insights from real options theory and the individual differences literature to predict hybrid entry. However, for many individuals, entry into hybrid entrepreneurship represents just the first step on the path to full-time self-employment. For example, Folta et al. (2010) argue that entry into full-time self-employment is endogenous to hybrid entrepreneurship, concluding that hybrid entrepreneurs are thirty-eight times more likely than wage earners to enter full-time self-employment. A prediction from real options theory is that hybrid entrepreneurs will enter full-time self-employment only when they perceive the option to do so to be "in the money" (Trigeorgis, 1996). Indeed, a key benefit of real options is the ability to postpone decision making until the uncertainty surrounding the investment has been resolved (Dixit & Pindyck, 1994). In the context of entrepreneurship, the uncertainty resolved during the option period (i.e., hybrid entrepreneurship) is typically endogenous—meaning that it can be reduced by actions of the entrepreneur (see Folta, 1998, for a detailed discussion). In other words, by entering hybrid entrepreneurship, individuals are able to learn about their venture, thereby reducing the uncertainty surrounding its prospects, prior to deciding if they want to increase commitment (Roberts & Weitzman, 1981). As such, because individuals enter self-employment after considering the relative costs and benefits (Muller & Arum, 2004), absent positive information, hybrid entrepreneurs should see no reason to forego the benefits associated with their job in paid employment (Becker, 1960). The underlying logic is driven by the fact that real options entail less sunk cost. As a result, options that do not yield favorable information can be quickly abandoned while those that appear promising can be exercised (O'Brien & Folta, 2009). Specifically, we focus on information hybrid entrepreneurs accrue that reduces the uncertainty surrounding two components of a sustainable business: (1) the quality of the business idea and (2) the entrepreneur's skills, capabilities, and fit within the entrepreneurial context.[3]

First, hybrid entrepreneurs benefit from the ability to learn about the quality, potential, and feasibility of their business idea. Indeed, prior to the introduction of a new product (or service), it is difficult to know with certainty if one will be able to physically produce the product or if the product will meet the characteristics of market demand (Autio, Dahlander, & Frederiksen, 2013). Over time, however, the uncertainty surrounding the value and feasibility of the venture lessens, making the prospects of the business more salient (Sorenson & Stuart, 2001). In other cases, business ideas may be difficult to fully understand without actually "starting the commercialization process" (George & Bock, 2012: 69). As such, the only way to determine the value and feasibility of these ideas is to go forth and attempt to exploit them.

Second, hybrid entrepreneurs benefit from the ability to learn about their entrepreneurial skills, capabilities, and fit within the entrepreneurial context (Folta et al., 2010). Indeed, a lack of fit between founder and company is a major reason for new business failures (Holmes & Schmitz, 1995). Much like determining the prospects of a business idea, only by starting the business are individuals able to fully evaluate if they have the necessary skills required to run the business (Jovanovic, 1982). However, even if the hybrid entrepreneur does not possess these skills ex ante, hybrid entrepreneurship provides a low-risk setting where the necessary capabilities can be learned prior to committing to the venture full time. Furthermore, hybrid entrepreneurship provides a realistic preview of life as an entrepreneur, illuminating that many of the glamorous portrayals of entrepreneurship are largely myths (Shane, 2008) and that being self-employed is a time-consuming and challenging process.

Given that hybrid entrepreneurs have no obligation to enter full-time self-employment (McGrath, 1997), that the cost of abandoning the venture has less sunk cost (O'Brien & Folta, 2009), and that hybrid entrepreneurs learn about the merits of their venture idea, skills, and entrepreneurial fit prior to

[3] As an aside, it is crucial to note that the learning benefits associated with hybrid entrepreneurship apply to *all* hybrid entrepreneurs, including those with no ex-ante intention to enter full-time self-employment (Folta et al., 2010). For example, when Omidyar founded eBay, he had no intention of ever quitting his day job. However, after a positive market reaction, he felt he had no choice but to focus on eBay full time (Cohen, 2002).

committing to the business full time (Roberts & Weitzman, 1981), real options theory suggests that hybrid entrepreneurs who "exercise" the option and enter full-time self-employment have reason to believe their business is sustainable and holds promise (i.e., the option is in the money). Accordingly, we suggest the following:

Hypothesis 3. Individuals who transition into full-time self-employment in a staged entry process via hybrid entrepreneurship will survive longer than individuals who transition into full-time self-employment directly from paid employment.

Moderators of the Staged Entry–Survival Relationship

In the previous section, we use logic from real options theory to argue that hybrid entrepreneurs exercise the option to enter full-time self-employment when they believe the option to be in the money. However, unlike financial options where proper exercise thresholds are intuitive, determining if real options are in the money is subjective, less straightforward, and heavily reliant on decision-maker insight (e.g., Barnett, 2008). As such, we expect that the survival benefit associated with staged entry into full-time self-employment will vary with the hybrid entrepreneur's ability to make effective assessments regarding the venture's potential. Specifically, we focus on two characteristics that influence this ability: (1) cognitive ability (i.e., general intelligence) (Schmidt & Hunter, 2004) and (2) specific knowledge accumulated through prior (entrepreneurial) experience (Cohen & Levinthal, 1990; Zahra & George, 2002).

Cognitive Ability

Cognitive ability is conceptualized as the general ability to think abstractly, learn from experiences, comprehend surroundings, and "figure things out" (Lubinski, 2004). Indeed, not all individuals are able to learn, process, and apply new knowledge equally (Hunter, 1986). Empirical research has demonstrated that individuals with high general intelligence are better able to assimilate information to apply it in new situations (Jensen, 1998) and acquire new skills (Gottfredson, 1997). As a result, Schmidt and Hunter (2004) argue that general mental ability is the primary factor responsible for turning experience into knowledge and the single most important attribute explaining variance in job performance.

Surprisingly, however, studies regarding the relationship between intelligence and entrepreneurial activity are rare (Baum & Bird, 2010; Vinogradov & Kolvereid, 2010). Nevertheless, scholars have long hinted that cognitive ability plays an important role in entrepreneurial process. For example, Knight (1921) argued that intellectual ability would lead to the identification of more valuable opportunities. Similarly, Vinogradov and Kolvereid (2010: 153) suggest that, since intelligence represents a "broader and deeper capability for comprehending surroundings," it should be particularly useful when evaluating new opportunities. Along these lines, while scholars have argued that creativity is important for generating business ideas, analytical intellectual ability is most important when assessing an idea's merits and potential (Baum & Bird, 2010). For example, entrepreneurial researchers have noted that intelligence increases the ability to see value embedded within new information (Shane, 2003), and that analytical ability is particularly helpful when interpreting and making sense of complex information in an entrepreneurial setting (Baum & Bird, 2010). As a result, the benefit of cognitive ability should be particularly salient during hybrid entrepreneurship, where hybrid entrepreneurs accrue a wealth of information about their business that can be used to determine if the business is worth pursuing full time (i.e., if they should exercise the option). Stated differently, because intelligence increases a hybrid entrepreneur's ability to "analyze and evaluate multiple and complex courses of action" (Baum & Bird, 2010: 399), we expect intelligent hybrid entrepreneurs to make better exercise decisions, being more likely to exercise the option when it is in the money and abandon it when it is not. Thus, we suggest the following:

Hypothesis 4. Cognitive ability moderates the positive relationship between staged entry and full-time self-employment survival such that the relationship is stronger for individuals with high cognitive ability.

Entrepreneurial Experience

The ability to assess, assimilate, and make sense of new information is also a function of an organization or individual's prior experience and stock of knowledge (Cohen & Levinthal, 1990; Zahra & George, 2002). Given that repeat entrepreneurs are able to draw on their prior experiences founding ventures, scholars have posited that entrepreneurial experience should be particularly useful when evaluating the prospects of a new business (Wright,

Westhead, & Sohl, 1998). For instance, Toft-Kehler, Wennberg, and Kim (2014) argue that experienced entrepreneurs are able to use their knowledge regarding past entrepreneurial ventures to make more effective connections and deduce inferences regarding the prospects of a new venture. Similarly, the literature on entrepreneurial cognition suggests experienced entrepreneurs develop expert scripts and knowledge structures allowing them to use information more effectively than inexperienced entrepreneurs (Mitchell et al., 2007). Indeed, research suggests that experienced entrepreneurs think differently than novice entrepreneurs when evaluating and assessing opportunities (Baron & Ensley, 2006; Ucbasaran, Westhead, & Wright, 2009). For example, Baron and Ensley (2006) find that experienced entrepreneurs emphasize more mundane characteristics indicating venture feasibility and the likelihood of positive financial returns, while novice entrepreneurs focus on characteristics reflecting a greater degree of novelty and excitement.

Despite this evidence, empirical studies linking entrepreneurial experience and venture survival have generally reported mixed findings (Delmar & Shane, 2006; Gimeno, Folta, Cooper, & Woo, 1997; Jørgensen, 2005). One explanation is that the relationship is more complex than a simple main effect. In other words, ex ante, the outcomes of the founding process remain highly uncertain even for repeat entrepreneurs (Aldrich, 1999). However, given the chance to amass information about their venture through hybrid entrepreneurship, repeat entrepreneurs can utilize their knowledge regarding what worked and what did not when assessing the new venture's prospects (Toft-Kehler et al., 2014). Moreover, the opportunity characteristics experienced entrepreneurs look for when assessing the quality of business ideas, such as positive cash flow, high margins, and the ability to quickly generate revenue (Baron & Ensley, 2006), are more salient and quantifiable once the business has actually been started. Accordingly, by drawing on prior business experiences and focusing on quantifiable metrics that indicate business feasibility, we expect experienced entrepreneurs to make more effective exercise decisions, exercising the option to commit full time to the business when the option is in the money and abandoning the option when it is not. Accordingly, we suggest the following:

Hypothesis 5. Entrepreneurial experience moderates the positive relationship between staged entry and full-time self-employment survival such that the relationship is stronger for experienced entrepreneurs.

METHODS

Data

We use data from the National Longitudinal Survey of Youth, 1979 cohort (NLSY79). The NLSY79 survey is sponsored and directed by the U.S. Bureau of Labor Statistics and conducted by the Center for Human Resource Research at The Ohio State University. Interviews are conducted by the National Opinion Research Center at the University of Chicago. The data has been used by management scholars to study issues such as self-employment (Schiller & Crewson, 1997), employee turnover (Lee, Gerhart, Weller, & Trevor, 2008), and career outcomes (Judge & Hurst, 2007, 2008). The NLSY79 consists of a nationally representative sample of 12,686 men and women aged between 14 and 22 years when first surveyed in 1979. The cohort was interviewed annually until 1994, and biennially thereafter.

Several features of the NLSY79 make it particularly attractive to test our hypotheses. First, it contains rich information on individual preferences, attitudes, and socioeconomic status. Second, the data contain comprehensive employment histories for each participant. During each survey, participants are allowed to report up to five jobs. For each job, the date (month/day/year) when the job began as well as the date if/when the job ended is recorded. Hence, by comparing job start and stop dates, we can determine if any participant held two jobs simultaneously (i.e., if a new job begins before an existing job ends). This allows us to overcome a major challenge when studying hybrid entrepreneurship—the ability to identify true hybrids (Folta et al., 2010).[4] The NLSY79 codes jobs into the fol-

[4] In many datasets used to study self-employment, labor force status or income is reported on an annual basis. Therefore, in a given year, if the data indicate that a person was employed in both paid and self-employment, it is unclear if the person entered hybrid entrepreneurship or if they transitioned from paid employment to self-employment sequentially. To overcome this issue, Folta et al. (2010) identified individuals as hybrids only if they reported the same paid job and same self-employed job for two consecutive years. Although conservative, a limitation of this approach is that individuals with short stints in hybrid entrepreneurship are potentially excluded.

lowing employment categories: government, private company, self-employed in own business, non-profit, and family business. We treat participants who report being self-employed in their own business as entrepreneurs. We consider all participants holding jobs not classified as self-employed to be in paid employment. Figure 1 provides an example of the data structure and how we treat labor status transitions.

Sample Construction

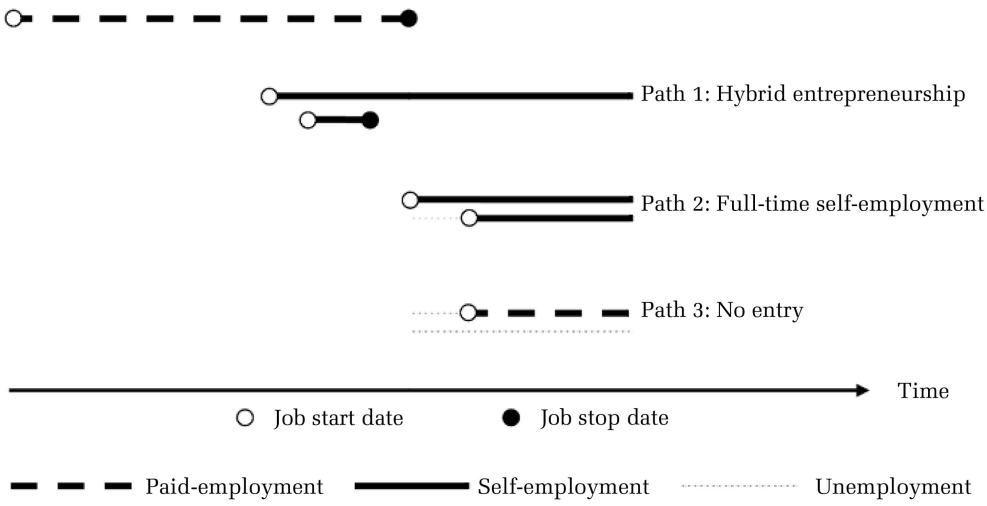
Since we hypothesize both the determinants of entrepreneurial entry and factors influencing survival, testing our hypotheses required the construction of two samples. For each sample, we eliminated non-respondents to key questions: participants who worked fewer than 30 hours per week and participants with cognitive ability below the 10th percentile. For all hypothesis tests, we used data from 1994 to 2008, representing a 14-year sample window. We started analysis in 1994 because one of our key predictor variables (risk aversion) was not available until 1993. To avoid complications due to left censoring, we followed the recommendations of Allison (1984) and dropped spells where participants began jobs (paid or self-employed) prior to 1994. Thus, we focus our analysis on newly employed (self-employed) participants, observing each participant as soon as they become at risk to enter hybrid or full-time self-employment (Hypothesis 1 and Hypothesis 2) or at risk to exit full-time self-employment (Hypotheses 3 to 5).

Since Hypotheses 1 and 2 are related to entrepreneurial entry, we constructed a sample of participants who were employed in a paid job and did not hold any self-employed jobs. The sample to test Hypotheses 1 and 2 consisted of 5,299 unique participants, representing 31,919 paid job spells. Hypotheses 3 to 5 relate to full-time self-employment survival. To test these hypotheses, we constructed a sample consisting of self-employed participants who held no additional paid jobs (i.e., fully self-employed). The sample to test Hypotheses 3 to 5 consisted of 1,093 unique participants, representing 2,198 full-time self-employed job spells.

Estimation Strategy

We use continuous survival analysis to test our hypotheses. Survival analysis models the amount of time one "survives" before an event occurs. A key advantage of survival analysis is the ability to handle issues of right censoring, which occurs when a study window ends prior to an event occurring or if a participant exits the sample for alternative reasons (Allison, 1984). Unless these cases occur randomly, failure to statistically account for them can threaten internal validity and

FIGURE 1
Examples of Entry Paths into Self-Employment from Paid-Employment[a]



[a] As indicated by the dashed line in Path 2, given the continuous nature of the data, few participants report starting a self-employed business on the exact day they quit their job in paid employment (i.e., there is usually a gap between jobs). As such, in our primary analysis, we treated participants who started a self-employed business within a three-month window of exiting their paid job as entering full-time self-employment. Our results are robust to shorter and longer windows.

biases estimates (Cook & Campbell, 1979). Survival analysis considers information up to the point of censoring, thereby minimizing such concerns (Allison, 1984).

To test Hypotheses 1 and 2, we used a competing-risks framework. In a competing-risks model, individuals are assumed to be at risk to experience a number of potential events. In the context of this study, participants who hold paid jobs are at risk to enter hybrid entrepreneurship or full-time self-employment. Therefore, we model the amount of time a participant survives at a given paid job prior to entering hybrid entrepreneurship (Path 1 in Figure 1) or full-time self-employment (Path 2 in Figure 1). Participants who remained at their paid job at the end of the survey window, exited their paid job to take another paid job, or entered unemployment were treated as right censored (Path 3 in Figure 1). Once a participant entered self-employment (or was censored), he or she was removed from the risk set until they began a new paid job, at which time they again became at risk to enter self-employment. We estimate separate event-specific survival models (hybrid versus full-time entry), thereby allowing us to test the equality of parameters across models via the test statistic developed by Narendranathan and Stewart (1991).

To test Hypotheses 3 to 5, we used a single-risk framework to model the amount of time a participant survives in a full-time self-employed job. For participants who transitioned into full-time self-employment from hybrid entrepreneurship (i.e., staged entry), survival time does not include the time spent as a hybrid entrepreneur. Moreover, since research has demonstrated that entrepreneurs who hold a secondary paid job are able to persist for longer periods in self-employment (Gimeno et al., 1997), we treated participants who began a secondary paid job as if they exited full-time self-employment.[5] Participants who remained in their self-employed job at the end of the survey window were treated as right censored. Once a participant exited their full-time self-employed job, he or she was removed from the risk set until they began a new full-time self-employed job, at which time they re-entered the risk set.

We use Cox semiparametric proportional hazards models to test our hypotheses. Since participants can experience multiple employment (self-employment) spells, we used robust estimators to calculate standard errors clustered by each participant (Lin & Wei, 1989) and the Efron method in cases of event ties. Cox proportional hazards models produce both hazard ratios and regression coefficients. Exponentiating the unstandardized regression coefficient (using the formula: $100 * [e^{\beta} - 1]$) from a Cox model eases interpretation by producing the percent change in risk of experiencing an event associated with a one-unit change of the predictor variable.

When testing Hypotheses 3 to 5, we addressed the possibility of selection effects (Shaver, 1998) by estimating a shared frailty model (Gutierrez, 2002), specifying the frailty to be shared among participants who entered full-time self-employment from hybrid entrepreneurship (i.e., staged entry). The shared frailty captures the effects of unobserved characteristics common among individuals who transitioned from hybrid entrepreneurship into full-time self-employment, which would also influence survival time (Allison, 2009; Song, 2010). An advantage of the shared frailty model is that it does not rely on the use of instruments (as Heckman's (1979) selection correction does), thereby avoiding the problem of identifying instruments that properly satisfy theoretical assumptions (Puhani, 2000). The likelihood ratio test from the shared frailty model failed to reach statistical significance ($p > .5$), suggesting that unobserved heterogeneity was not present (Gutierrez, 2002). Accordingly, we report results without the frailty.

Measures

Independent variables. We followed Barsky, Juster, Kimball, and Shapiro (1997) and measured *risk aversion* using an index based on responses to three hypothetical occupational income gambles (see Appendix). Participants were asked the income gamble questions in the 1993, 2002, 2004, and 2006 surveys. We constructed a time-varying measure using the responses from each of the four surveys. Specifically, we used responses from the 1993 survey from 1994 to 2002, the 2002 responses until 2004, the 2004 responses until 2006, and the 2006 responses until 2008. Results were unchanged when we used the 1993 measure as a time-invariant trait and when we limited our sample to the 2002–2006 surveys where risk aversion is updated biennially.

For *core self-evaluation*, we followed Judge and Hurst (2007, 2008) and used 12 questions from the

[5] Results were unchanged when the stop date of the full-time self-employed job was used.

NLSY79 to measure CSE. Since the NLSY79 does not include a measure of CSE, these questions were selected because they reflect the 12 items on the CSE scale developed by Judge et al. (2003). The measure demonstrates high construct validity, content validity, discriminant validity, and reliability (see Judge & Hurst, 2007, 2008, for extensive scale validation procedures). CSE is time invariant.

We measured staged entry two ways. First, we used a dummy variable to indicate whether a participant transitioned into full-time self-employment from hybrid entrepreneurship ("1" = transition occurred). We call this measure the *staged entry dummy*. Second, for those who entered full-time self-employment from hybrid entrepreneurship (i.e., staged entry = "1"), we calculated the amount of time, measured in years, each participant spent in hybrid entrepreneurship immediately prior to transitioning into full-time self-employment. Participants who transitioned to full-time self-employment directly from paid work (i.e., direct entry) were coded as "0." We call this measure the *staged entry duration*.

We measured *cognitive ability* with the Armed Forces Qualifications Test (AFQT), which measures quantitative and verbal skills. Prior studies have demonstrated the AFQT to be a reliable measure ($\alpha > .9$) (Bock & Moore, 1986), correlating highly (.95 or higher) with the *g* factor, an alternative measure of cognitive ability (Stauffer, Ree, & Carretta, 1996), and stable over time (Gottfredson, 1986). Cognitive ability is time invariant.

For entrepreneurial experience, we followed recent research (e.g., Eesley & Roberts, 2012; Gregoire & Shepherd, 2012; Hmieleski & Baron, 2009; Toft-Kehler et al., 2014) and measured it as the cumulative number of businesses started. In addition, we followed Folta et al. (2010) and differentiated between full-time self-employment experience and experience as a hybrid entrepreneur. We call these variables *no. full SE experience* and *no. hybrid SE experience*. Additionally, we used the duration of the participant's most recent prior entrepreneurial spell: *duration full SE experience* and *duration hybrid SE experience*.

Controls. Guided by existing research, we included a series of control variables theorized to influence entrepreneurial entry and survival. To account for socioeconomic and demographic factors (Kim, Aldrich, & Keister, 2006), we included controls for *gender* (male = "1," female = "0"); *age*, measured in years; *education*, measured as the total years of schooling; *family net income*, measured as the logged value of total family income; and *region* (urban = "1," rural = "0"). We also included logged hourly rate of *pay*, logged number of years of *industry experience*, and a count of the total *no. of previous jobs* to account for opportunity costs, ability, and labor market experience (Shane, 2003). *Firm size* was included as the logged number of employees to control for the small firm effect, which may influence entry decisions (Elfenbein et al., 2010), and for the fact that larger ventures may have better chances of survival (Geroski et al., 2010). *Industry* and *occupation* differences were controlled for with fixed effects based on the U.S. Census Bureau's three-digit industry codes and the one-digit occupational codes, respectively. *Year* fixed effects were included to account for macroeconomic conditions.

RESULTS

Table 1 shows descriptive statistics and correlations for all variables.

Models 1 to 4 (M1–M4) in Table 2 display the unstandardized regression coefficients from the competing-risks Cox proportional hazards model. Models 5 and 6 (M5, M6) display the unstandardized regression coefficients from a single-risk Cox model (i.e., pooled model) where we treat hybrid entry as synonymous with entry into full-time self-employment. Column 7 (M7) shows Wald chi-square tests of coefficient equality (using bootstrapped standard errors) between Models 2 and 4.

Hypothesis 1 predicts that individuals with higher risk aversion are more likely to enter hybrid entrepreneurship relative to full-time self-employment. Results from Models 2 and 4 support this hypothesis. The coefficient for risk aversion predicting full-time self-employment entry was negative and statistically significant ($\beta = -.178$; $p < .001$). In terms of percentage change, a one-unit increase in risk aversion is associated with a 16.3% decrease in the hazard of entering full-time self-employment. In contrast, the coefficient for risk aversion predicting hybrid entry was not significant ($\beta = -.005$; n.s.). Column 7 of Table 2 confirms the statistical difference between coefficients ($p < .05$), providing further support for Hypothesis 1.

Hypothesis 2 predicts individuals with low CSE are more likely to enter hybrid entrepreneurship relative to full-time self-employment. Results from Models 2 and 4 provide support for this hypothesis. The coefficient for CSE predicting entry into full-

TABLE 1
Descriptive Statistics and Correlations

	Variable	Mean	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	Survival of wage job (Hypotheses 1, 2)[a]	182.790	178.560	—																		
2	Survival of SE job (Hypotheses 3–5)[b,c]	277.880	274.050	n/a	—																	
3	Risk aversion	2.860	1.240	.106	.055	—																
4	CSE[d]	3.250	.340	.042	.069	−.003	—															
5	Cognitive ability	.440	.260	.048	.093	−.052	.389	—														
6	Gender (male = “1”)	.530	.500	−.008	.165	.100	.056	−.079	—													
7	Age	39.340	4.980	.355	.135	.106	.068	.092	.033	—												
8	Education	13.560	2.310	.047	−.071	−.039	.339	.339	.010	.054	—											
9	Firm size (logged)	3.920	2.070	.113	−.056	.043	.042	.055	.015	.079	.134	—										
10	Pay	7.150	.790	.163	.057	.010	.205	.275	−.201	.189	.264	.147	—									
11	No. of prior jobs	2.050	1.140	−.378	−.284	−.063	−.032	−.038	−.027	−.142	−.045	−.081	−.114	—								
12	Family net income (logged)	1.900	1.025	.167	.122	.042	.188	.256	−.036	.240	.272	.113	.348	−.110	—							
13	No. of full SE experience	1.291	2.571	−.045	−.170	.017	.003	.029	.010	.160	.089	.004	.018	.220	.054	—							
14	No. of hybrid SE experience	.231	1.031	−.020	−.076	.033	.001	.060	.038	.096	.026	.135	.071	.102	.102	.293	—						
15	Hybrid transition dummy	.199	.399	n/a	.099	.086	.029	.062	.044	.164	.062	.256	.070	.177	.088	−.080	.080	—					
16	Hybrid transition duration (year)	2.062	5.181	n/a	.085	.080	.062	.053	.026	.181	.051	.207	.064	.123	.073	−.060	.008	.779	—				
17	Duration full SE experience (year)	1.956	2.323	n/a	−.113	.013	.048	.073	.091	.118	.034	−.025	.033	.103	.056	.723	.295	−.067	−.023	—			
18	Duration hybrid SE experience (year)	1.131	1.472	n/a	−.072	−.004	−.007	.079	.041	.114	.043	.125	.087	.124	.112	.352	.804	.063	.000	.385	—		
19	Industry tenure (year)	5.259	11.473	−.052	.263	.053	.017	.055	.123	.231	−.022	−.023	.074	−.172	.114	.033	.012	.070	.063	.034	−.010	—	

[a] n = 31,919.
[b] n = 2,198.
[c] SE = self-employment.
[d] CSE = core self-evaluation.

TABLE 2
Results of Competing- and Single-Risk Cox Regression Analysis: Self-Employment Entry

Variables	Full-Time SE Entry		Hybrid SE Entry		Pooled SE Entry[a]		Coefficient Comparison[b]
	M1 (Baseline)	M2 (Main Effect)	M3 (Baseline)	M4 (Main Effect)	M5 (Baseline)	M6 (Main Effect)	M7 (M2 vs. M4)
Hypothesized Effects							
Risk aversion		−.178***		−.005		−.078+	*
		(.050)		(.062)		(.041)	
CSE		.398*		−.473*		−.078	**
		(.199)		(.233)		(.159)	
Individual Controls							
Cognitive ability	−.000	−.142	.489	.609	.256	.274	+
	(.284)	(.296)	(.422)	(.426)	(.280)	(.285)	
Gender	−.064	−.093	−.230	−.215	−.144	−.158	
	(.149)	(.150)	(.205)	(.206)	(.136)	(.135)	
Age	.011	.007	.034	.042	.023	.024	
	(.028)	(.028)	(.041)	(.041)	(.027)	(.027)	
Education	.141***	.126***	.063	.078	.101**	.101**	
	(.033)	(.033)	(.049)	(.050)	(.031)	(.031)	
Family net income	−.032	−.011	−.051	−.028	−.042	−.019	
	(.049)	(.049)	(.063)	(.062)	(.043)	(.044)	
Employment Controls							
Firm size	−.088*	−.086*	−.026	−.026	−.052+	−.053+	
	(.035)	(.034)	(.037)	(.037)	(.027)	(.027)	
Pay	−.107	−.107	.041	.055	−.015	−.009	
	(.076)	(.076)	(.077)	(.076)	(.056)	(.056)	
No. of previous jobs	.524***	.519***	.636***	.637***	.586***	.583***	*
	(.042)	(.041)	(.046)	(.042)	(.036)	(.036)	
Industry tenure	−.035	−.038	.014	.018	−.013	−.013	+
	(.023)	(.023)	(.024)	(.025)	(.023)	(.023)	
No. of full SE experience	.120+	.100	.232**	.271**	.185**	.183**	+
	(.072)	(.072)	(.075)	(.075)	(.057)	(.057)	
No. of hybrid SE experience	−.026	−.015	−.020	−.021	−.021	−.018	
	(.049)	(.049)	(.061)	(.062)	(.046)	(.046)	
Model Fit							
Pseudo-R^2_m	.128	.132	.126	.127	.105	.106	Equality of all parameters[c]
BIC	7155.41	7719.572	9623.884	9634.812	16751.020	16764.034	***
Pseudo log likelihood	−3396.213	−3211.601	−4137.830	−4132.923	7540.648	−7536.784	
Model (χ^2)	3497.269	1810.321	1480.724	1454.056	1833.835	1936.741	
Wald test (χ^2)		χ^2 (2) = 7.151*		χ^2 (2) = 53.872***		χ^2 (2) = 4.170	

Note: n = 31,191. All models include 3-digit industry, 1-digit occupation, region, and year fixed effects. CSE = core self-evaluation. SE = self-employment. Robust standard errors clustered by participant in parenthesis.

[a] Single-risk model where hybrid entry is treated as synonymous with full-time self-employment entry ("pooled").

[b] Wald tests for coefficient equality. Because, in competing risks models, it is possible that two censoring situations may not be independent, we compute the standard errors using the bootstrapping method (Preacher & Hayes, 2008), a simulation approach (resampling 200 times from the original data).

[c] χ^2 (13). Test statistic from Narendranathan and Stewart (1991).

Two-tailed tests for significance for all effects.

+ $p < .10$.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

time self-employment is positive and statistically significant ($\beta = .398$; $p < .05$). In terms of percentage change, a one-unit increase in CSE increases the hazard of entering full-time self-employment by roughly 32.8%. In contrast, the coefficient for CSE predicting entry into hybrid entrepreneurship is negative and statistically significant ($\beta = -.473$; $p < .05$). Column 7 of Table 2 confirms the difference between coefficients ($p < .01$), providing further support for Hypothesis 2.

Next, we compared the competing-risks model with a single-risk (i.e., pooled) model in terms of variance explained. To do so, we computed the pseudo-R^2 m, a measure of variance explained used in Cox modeling similar to R^2 in multiple linear regression (Maddala, 1983). Comparing the

pseudo-R^2 *m* from the competing-risks model with the pseudo-R^2 *m* from the single-risk model shows that the competing-risks model explains almost two and a half the variance (i.e., .259/.106) as the pooled model, providing additional support that the determinants of hybrid entrepreneurship and full-time self-employment entry are distinct.

Tables 3a and 3b display the unstandardized regression coefficients from single-risk Cox models estimating full-time self-employment survival. Hypothesis 3 predicts individuals who enter full-time self-employment in a staged entry process via hybrid entrepreneurship will survive longer than individuals who enter full-time self-employment directly from paid employment. Results from Model 2 (Table 3a) and Model 2 (Table 3b) provide support for this hypothesis. The coefficient for staged entry dummy in Model 2 (M2) in Table 3a is negative and statistically significant ($\beta = -.405$; $p < .001$), implying that the hazard of exit is 33.3% lower for individuals who enter full-time self-employment in a staged process relative to those who enter directly from paid work. Likewise, the coefficient for staged entry duration in Model 2 (M2) in Table 3b is negative and statistically significant ($\beta = -.025$; $p < .001$), meaning that a one-unit change in staged entry duration is associated with a 2.5% reduction in the hazard of exit.

Hypothesis 4 predicts that the positive effect of staged entry on full-time self-employment survival is stronger for individuals with high cognitive ability. Model 7 (M7) in Table 3a shows that the interaction between staged entry dummy and cognitive ability is not statistically significant ($\beta = .153$; n.s.). In Model 7 (M7) of Table 3b, the interaction between staged entry duration and cognitive ability is positive and statistically significant ($\beta = .053$; $p < .01$), which is the opposite of Hypothesis 4. As demonstrated by a comparison of the slopes in Figure 2, the decrease in hazard of exit (i.e., survival benefit) associated with longer stays in hybrid entrepreneurship is stronger for individuals with low cognitive ability. Thus, we do not find support for Hypothesis 4.

Hypothesis 5 predicts that the positive effect of staged entry on full-time self-employment survival is stronger for individuals with entrepreneurial experience. Models 3 to 6 (M3–M6) in Table 3a provide the coefficients for the interactions between our measures of entrepreneurial experience and staged entry dummy. Models 3 to 6 (M3–M6) in Table 3b display the coefficients for the interactions between entrepreneurial experience and staged entry duration. All interactions are negative, and, in the majority of models, reach statistical significance. Thus, as demonstrated by the slopes in Figure 3, the decrease in hazard of exit (i.e., survival benefit) associated with staged entry is stronger for experienced entrepreneurs. Thus, overall, we find support for Hypothesis 5.

Robustness Checks and Supplementary Analysis

We conducted several robustness checks. To begin, we took steps to determine if our results are robust when using measures of entrepreneurship other than self-employment (Carter, 2011). Thus, we re-tested our hypotheses using two narrower measures of entrepreneurship.

First, we focused our analysis on participants who started a business and reported having employees (i.e., multi-person firms). By doing so, we treated entrepreneurship as the creation of organizations, classically defined as the "coordinated activities of two or more people" (Barnard, 1938: 73). Specifically, we treated participants as entrepreneurs only if they reported being self-employed in their own business and a firm size greater than two. To test Hypotheses 1 and 2, we treated participants who entered self-employment but reported a firm size less than two as right censored. Since the sample used to test Hypotheses 3 to 5 is comprised of participants already in full-time self-employment, individuals who reported being full-time self-employed but did not report their self-employed firm size to be greater than two were excluded from analysis.

Second, we categorized participants as entrepreneurs only if they reported being self-employed and that their business was incorporated. Incorporating a business results in a distinct legal entity separate from the founder, requires the founder to pay various legal fees, comply with government mandates, and often signifies entry into the formal economy (Kim & Li, 2014). Consequently, focusing on incorporated business is similar to other common measures of entrepreneurship, such as identifying new firms through the Dun & Bradstreet (D&B) database (e.g., Batjargal, Hitt, Tsui, Arregle, Webb, & Miller, 2013; Hmieleski & Baron, 2009), which rely on signals that the business intends to engage in commercial activity. For Hypotheses 1 and 2, participants who entered unincorporated self-employment were treated as right censored. To test Hypotheses 3 to 5, participants with unincorporated businesses were excluded from analysis.

TABLE 3a
Results of Single-Risk Cox Regression Analysis: Full-Time Self-Employment Survival

Variable	M1	M2	M3	M4	M5	M6	M7
Staged entry dummy		−.405***	−.327***	−.388***	−.272***	−.392***	−.487***
		(.073)	(.078)	(.074)	(.080)	(.076)	(.143)
No. of full SE experience			.090***				
			(.014)				
Staged entry dummy × No. of full SE experience			−.035+				
			(.025)				
No. of hybrid SE experience				.196***			
				(.027)			
Staged entry dummy × No. of hybrid SE experience				−.130***			
				(.032)			
Duration full SE experience					.241***		
					(.043)		
Staged entry dummy × Duration full SE experience					−.199*		
					(.094)		
Duration hybrid SE experience						.343***	
						(.089)	
Staged entry dummy × Duration hybrid SE experience						−.144+	
						(.109)	
Staged entry dummy × Cognitive ability							.153
							(.250)
Controls							
Risk aversion	−.006	.003	.001	.001	−.003	.007	.002
	(.024)	(.024)	(.025)	(.024)	(.024)	(.024)	(.020)
CSE	−.127	−.110	−.110	−.104	−.119	−.099	−.110
	(.100)	(.100)	(.100)	(.100)	(.100)	(.100)	(.100)
Cognitive ability	−.434**	−.431**	−.426**	−.462**	−.436**	−.441**	−.466**
	(.152)	(.153)	(.156)	(.153)	(.152)	(.152)	(.174)
Gender	−.302***	−.283***	−.285***	−.290***	−.304***	−.281***	−.284***
	(.074)	(.073)	(.074)	(.073)	(.073)	(.073)	(.073)
Age	−.044**	−.041**	−.041**	−.040**	−.046**	−.041**	−.041**
	(.014)	(.014)	(.014)	(.014)	(.014)	(.014)	(.014)
Education	.060***	.063***	.058***	.067***	.063***	.064***	.063***
	(.017)	(.016)	(.017)	(.017)	(.016)	(.017)	(.017)
Family net income	−.095**	−.095**	−.109***	−.103***	−.102***	−.102***	−.093**
	(.031)	(.031)	(.031)	(.030)	(.030)	(.030)	(.031)
Firm size	−.006	.004	.010	.000	.010	.002	.005
	(.014)	(.014)	(.014)	(.015)	(.014)	(.014)	(.014)
Pay	.004	.005	.02	.003	.013	.002	.005
	(.032)	(.031)	(.034)	(.031)	(.032)	(.032)	(.032)
No. of previous jobs	.303***	.344***	.316***	.341***	.328***	.339***	.343***
	(.034)	(.033)	(.033)	(.033)	(.033)	(.033)	(.033)
Industry tenure	−.073***	−.068***	−.065***	−.067***	−.067***	−.066***	−.068***
	(.015)	(.016)	(.016)	(.016)	(.016)	(.016)	(.016)
Model Fit							
Pseudo-R^2_m	.034	.036	.038	.037	.038	.036	.036
BIC	30263.122	30216.670	30166.084	30194.473	30164.721	30214.389	30231.736
Pseudo log likelihood	−14223.515	−14196.441	−14395.770	−14404.050	−14398.210	−14411.730	−14422.750
Model (χ^2)	28730.631	25507.110	21333.887	22265.879	21493.031	22292.473	25560.560
Wald test (χ^2)[a]		χ^2 (1) = 36.471***	χ^2 (2) = 53.872***	χ^2 (2) = 50.304***	χ^2 (2) = 71.333***	χ^2 (2) = 19.384***	χ^2 (2) = 19.779***

Note: n = 2,198. All models include 3-digit industry, 1-digit occupation, region, and year fixed effects. CSE = core self-evaluation. SE = self-employment. Robust standard errors clustered by participant in parenthesis.

[a] Wald test compared to baseline model (Model 1).

One-tailed test for hypothesized effects, two-tailed tests for controls.

$^{+}$ $p < .10$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

TABLE 3b
Results of Single-Risk Cox Regression Analysis: Full-Time Self-Employment Survival

Variable	M1	M2	M3	M4	M5	M6	M7
Staged entry duration		−.025***	−.021**	−.024***	−.025***	−.024***	−.056***
		(.006)	(.007)	(.007)	(.008)	(.007)	(.016)
No. of full SE experience			.091***				
			(.013)				
Staged entry duration × No. of full SE experience			−.001				
			(.003)				
No. of hybrid SE experience				.115***			
				(.027)			
Staged entry duration × No. of hybrid SE experience				−.005			
				(.004)			
Duration full SE experience					.272***		
					(.041)		
Staged entry duration × Duration full SE experience					−.022**		
					(.008)		
Duration hybrid SE experience						.288***	
						(.077)	
Staged entry duration × Duration hybrid SE experience						−.010	
						(.013)	
Staged entry duration × Cognitive ability							.053**
							(.020)
Controls							
Risk aversion	−.006	.011	.005	.009	−.002	.012	.009
	(.024)	(.026)	(.027)	(.026)	(.026)	(.026)	(.026)
CSE	−.127	−.138	−.138	−.125	−.139	−.122	−.139
	(.100)	(.099)	(.101)	(.101)	(.100)	(.100)	(.098)
Cognitive ability	−.434**	−.658***	−.621***	−.681***	−.637***	−.672***	−.773***
	(.152)	(.159)	(.163)	(.160)	(.159)	(.159)	(.170)
Gender	−.302***	−.245**	−.249**	−.234**	−.280***	−.231**	−.244**
	(.074)	(.082)	(.083)	(.084)	(.081)	(.084)	(.082)
Age	−.044**	−.044**	−.045**	−.044**	−.054***	−.045**	−.043**
	(.014)	(.014)	(.014)	(.014)	(.014)	(.014)	(.014)
Education	.060***	.087***	.079***	.091***	.088***	.088***	.088***
	(.017)	(.018)	(.018)	(.018)	(.018)	(.018)	(.018)
Family net income	−.095**	−.119***	−.129***	−.126***	−.125***	−.124***	−.118***
	(.031)	(.028)	(.030)	(.028)	(.030)	(.028)	(.029)
Firm size	−.006	.017	.021	.011	.019	.014	.018
	(.014)	(.016)	(.016)	(.016)	(.016)	(.016)	(.016)
Pay	.004	−.009	.002	−.012	−.012	−.013	−.005
	(.032)	(.037)	(.037)	(.037)	(.037)	(.037)	(.037)
No. of previous jobs	.303***	.386***	.356***	.386***	.370***	.381***	.385***
	(.034)	(.032)	(.033)	(.032)	(.032)	(.032)	(.032)
Industry tenure	−.073***	−.067***	−.063***	−.069***	−.067***	−.067***	−.067***
	(.015)	(.018)	(.018)	(.018)	(.018)	(.018)	(.018)
Model Fit							
Pseudo-R^2_m	.034	.035	.037	.036	.038	.035	.035
BIC	30263.122	3024.933	30186.020	30232.222	30171.022	30244.421	30241.135
Pseudo log likelihood	−14223.515	−14423.030	−14395.770	−14404.050	−14398.210	−14411.730	−14204.827
Model (χ^2)	28730.631	24300.935	20986.938	19910.391	18220.528	21632.841	24757.394
Wald test (χ^2)[a]		χ^2 (1) = 28.024***	χ^2 (2) = 81.452***	χ^2 (2) = 28.450***	χ^2 (2) = 90.530***	χ^2 (2) = 12.707***	χ^2 (2) = 37.501***

Note: n = 2,198. All models include 3-digit industry, 1-digit occupation, region, and year fixed effects. CSE = core self-evaluation. SE = self-employment. Robust standard errors clustered by participant in parenthesis.

[a]Wald test compared to baseline model (Model 1).

One-tailed test for hypothesized effects, two-tailed tests for controls.

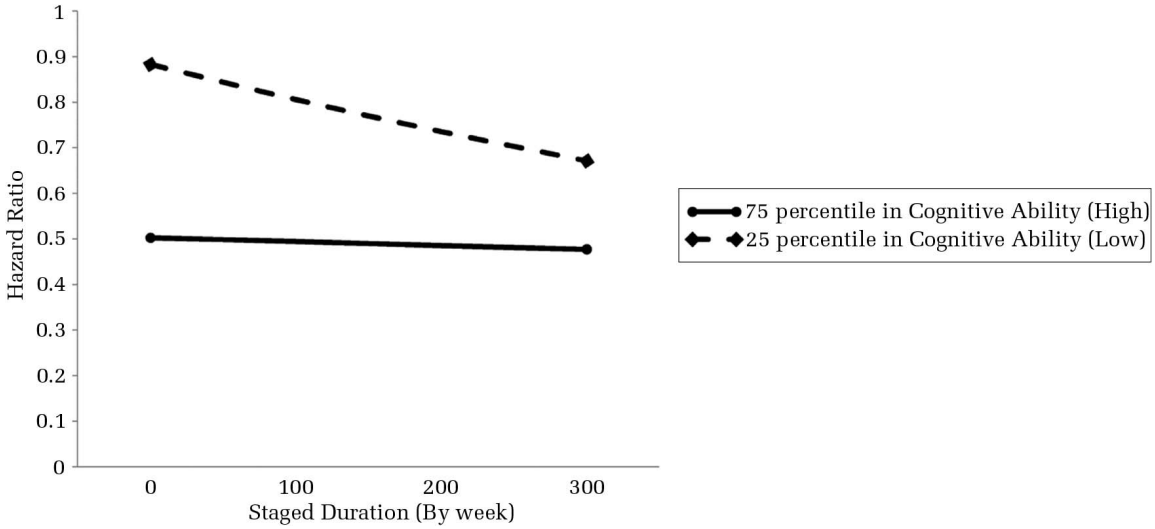
$^{+}$ $p < .10$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

FIGURE 2
Interaction between Staged Entry Duration and Cognitive Ability



Results from both robustness checks were consistent with the findings of our main analysis. In both tests, Hypotheses 1 to 3 were fully supported. The moderation effects hypothesized in Hypotheses 4 and 5 displayed the same directional signs, but typically exhibited less statistical significance. Given the large reduction in sample size (i.e., from $n = 2{,}198$ to $n = 877$ and $n = 1{,}028$, respectively), the decrease in significance is expected.

Next, we checked the robustness of our results using different sample exclusion criteria and statistical specifications. First, although we controlled for gender, we checked the robustness of our results using gender-specific samples (Folta et al., 2010). Second, we included individuals who worked fewer than 30 hours per week as this may represent a strategic decision in anticipation of reallocating time between paid and self-employment. Third, we employed a number of alternative event history models and hazard specifications (Allison, 1984), including a fixed effects Cox model in which we specified a unique baseline hazard for each participant, thereby allowing us to remove any unobserved sources of variation constant within individuals (Allison, 2009). We also used the "stcrreg" command in STATA 12.1 to test Hypotheses 1 and 2 via the competing risks method of Fine and Gray (1999), which focuses on the cumulative incidence function as opposed to cause-specific hazards. No material differences manifested from these tests; our results remained robust and unchanged.

Finally, to demonstrate how our study builds upon and extends prior hybrid entrepreneurship research, we conducted scientific replications of two studies that explore the differences between hybrid and full-time entrepreneurs: Folta et al. (2010) and Petrova (2012). Using the NLSY79, we replicated each study by using similar exclusion/inclusion criteria for sample construction, left-/right-hand side variables, and statistical methods. Despite the innate differences between data sources, the broad nature of the NLSY79 allowed us to reconstruct or use a similar proxy for the vast majority of variables used in each study.

Table 4 reports the results of our replications. We, first, replicated each study using only the variables in the original studies (Models 1a, 1b, 3a, 3b). We then added our hypothesized variables and additional controls (Models 2a, 2b, 4a, 4b). For the sake of brevity, Table 4 is abbreviated and reports only the regression coefficients for a subset of variables used in Folta et al. (2010) and Petrova (2012) (i.e., some regression coefficients are omitted). Given the inherent differences in data, measures/proxies, and sample size, our results deviate some from the findings of Folta et al. (2010) and Petrova (2012). Likewise, given the additional controls, changes in sample size/sample window, and statistical estimation, some results in Table 4 differ from the results reported in Table 2. Nevertheless, in both replications, Hypotheses 1 and 2 receive general support (Models 2a, 2b, 4a, 4b): risk-averse and low CSE individuals prefer hybrid entry over entry

FIGURE 3
Entrepreneurial Experience and Staged Entry Interactions
(3a) Staged entry dummy × No. of hybrid SE experience
(3b) Staged entry dummy × Duration full SE experience
(3c) Staged entry duration × Duration full SE experience

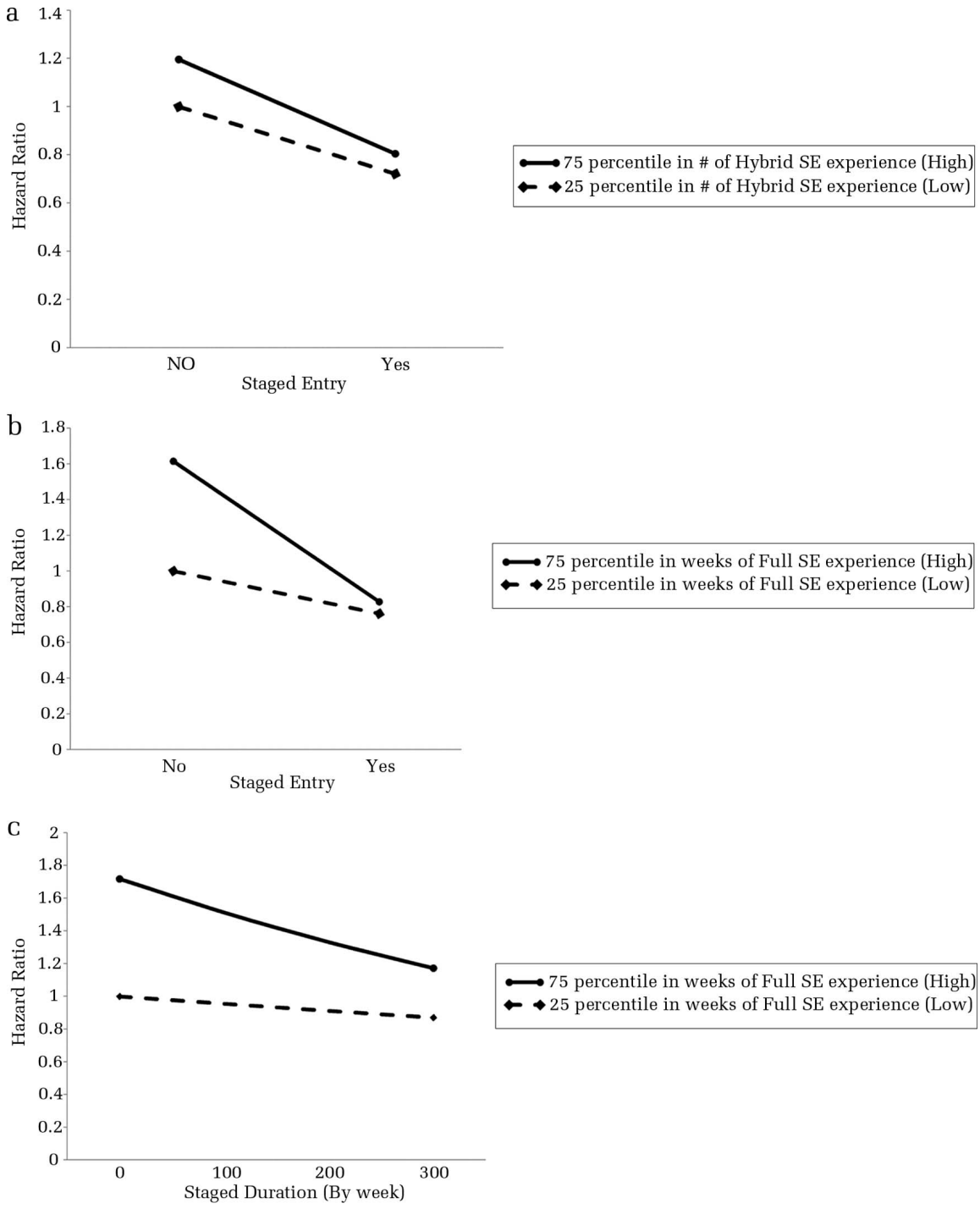


TABLE 4
Replication of Prior Hybrid Entrepreneurship Studies

	Replication of Petrova (2012)			Replication of Petrova (2012) + Our Hypothesized/control variables			Replication of Folta et al. (2010)			Replication of Folta et al. (2010) + Our Hypothesized/control variables		
Variables[a]	**Model 1a Full-Time Entry**	**Model 1b Hybrid Entry**	**sig[b]**	**Model 2a Full-Time Entry**	**Model 2b Hybrid Entry**	**sig[b]**	**Model 3a Full-Time Entry**	**Model 3b Hybrid Entry**	**sig[b]**	**Model 4a Full-Time Entry**	**Model 4b Hybrid Entry**	**sig[b]**
Risk aversion				−.001	.021*	*				−.086***	.040	**
				(.032)	(.009)					(.023)	(.035)	
CSE				.487*	−.040					.329***	−.039	*
				(.209)	(.514)					(.095)	(.139)	
Cognitive ability				−.001	.019**	**				−.002+	.023***	**
				(.003)	(.008)					(.001)	(.002)	
Age	−.023	−.040		−.017	−.032		−.049***	.025	***	.008	−.001	
	(.020)	(.060)		(.026)	(.064)		(.010)	(.018)		(.013)	(.019)	
Education	−.044+	−.100		−.151***	−.259**		.825***	−.214	**	.468	−2.971***	***
	(.025)	(.071)		(.037)	(.084)		(.224)	(.359)		(.317)	(.441)	
Marital status	.140	−.037		−.011	−.199		−.074	.627***	***	−.054	.526***	***
	(.122)	(.380)		(.163)	(.421)		(.057)	(.107)		(.074)	(.116)	
Family total net income	.243*	2.748		.129	8.096*	*	n/a			.049	.146+	
	(.117)	(3.678)		(.153)	(4.058)					(.055)	(.084)	
Family total net wealth	−.035	−.192		.035	−.152		−.013	−.060**	**	.011	−.060**	**
	(.046)	(.147)		(.059)	(.152)		(.009)	(.021)		(.010)	(.021)	
Firm size	n/a			−.207***	.072	***	−.066***	.072***	***	−.041*	.069**	***
				(.035)	(.077)		(.014)	(.021)		(.016)	(.022)	
Pay	n/a			−.116	.392		−.108*	−.087		.005	−.204**	*
				(.129)	(.383)		(.043)	(.062)		(.059)	(.067)	
No. of previous jobs	n/a			.075	.520***	**	.157***	.451***	***	.010	.373***	***
				(.059)	(.126)		(.025)	(.041)		(.032)	(.044)	
Industry tenure	n/a			.000	−.022		.050	−.057		.147***	−.072	
				(.000)	(.016)		(.040)	(.087)		(.042)	(.083)	
Work tenure	.002	−.186		−.157*	.752		−.051*	.131**	***	.047+	.247**	+
	(.051)	(.194)		(.071)	(.898)		(.021)	(.044)		(.027)	(.065)	
N of spells	4,106			4106			20,059			20,059		
Pseudo-R^2	.010			.362			.140			.353		
BIC	3542.380			2506.320			19146.425			15680.479		
Pseudo log likelihood	−1654.714						−8879.762			−6676.233		
Model (χ^2)	48.501			1151.197			2883.199			7290.257		
Wald test (χ^2)				χ^2 (16) = 759.612***						χ^2 (12) = 2623.486***		
Method	Multinomial Probit						Multinomial Logit					
Years used	1998–2000						1994–2001					
Original data source	PSED (panel study of entrepreneurial dynamics)						Three matched longitudinal data sources on the Swedish labor market (LOUISE, LOUISE, SRU)					
Sample	Respondents with a positive cash-flow for more than 3 months were excluded; business sponsored start-ups are removed						High-technology manufacturer or knowledge-intensive service firm					

[a] Models include all re-created covariates from Petrova (2012) and Folta et al. (2010), respectively. For brevity and illustration purposes, we only report a subset of regression coefficients. Complete results available from the authors upon request.

[b] Wald tests for coefficient equality.

Two-tailed tests for significance for all effects

+ $p < .10$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

into full-time self-employment. Moreover, a comparison of the pseudo-R^2 demonstrates that the addition of our hypothesized and control variables significantly increases the variance explained in each replication (i.e., from .01 to .36 and .14 to .35).

DISCUSSION

In this study, we examined the implications of hybrid entrepreneurship for theories of entrepreneurial entry and survival. Drawing from real options theory and the individual differences literature, we hypothesized and found that risk-averse and less confident individuals are more likely to enter hybrid entrepreneurship (as it entails less downside risk) relative to full-time self-employment. In turn, we argued and found evidence that individuals who enter full-time self-employment in a staged entry process by means of hybrid entrepreneurship survive significantly longer than those who enter full-time self-employment directly from a paying job. Adding support to our theory that the survival advantage is driven by a learning effect that takes place during hybrid entrepreneurship, our findings suggest that factors that influence an individual's capacity to process new information moderate this relationship.

Hybrid Entrepreneurship and Entry

This study makes several contributions. First, we add to the entrepreneurship literature by providing a more nuanced understanding of the entrepreneurial entry process. Indeed, the findings from our study suggest that the classical assumption that entrepreneurs are comfortable with risk (e.g., Kihlstrom & Laffont, 1979) comes with an important caveat. On the one hand, individuals who jump directly into full-time self-employment are less risk averse than non-entrepreneurs, just as extant theory predicts. In fact, a one standard deviation increase in risk aversion is associated with a 20.21% decrease in the hazard of entry into full-time self-employment. On the other hand, individuals who enter hybrid entrepreneurship appear to have risk preferences that are indistinguishable from those who remain in paid employment. Thus, our findings suggest that risk aversion influences the process of *how* an individual decides to start a business (i.e., full-time versus hybrid), not necessarily *whether* the individual decides to start a business or not. A similar pattern of results was detected with regards to CSE. Supporting traditional logic that entrepreneurs are highly confident (e.g., Knight, 1921; Moore et al., 2007), we find that low CSE decreases the likelihood of direct entry into full-time self-employment. Specifically, a one standard deviation decrease in CSE is associated with an 11.2% reduction in the hazard of full-time self-employment entry. However, low CSE does not decrease the likelihood of entry into hybrid entrepreneurship. Thus, consistent with our finding regarding risk aversion, our results suggest that CSE influences *how* rather than *if* entrepreneurial entry occurs.

Taken together, the implications of these findings extend to a number of research streams within the entrepreneurship literature. For example, our findings suggest that traits-based researchers may be better served by seeking to understand how an individual's predispositions influence the form of entrepreneurial entry rather than broadly categorizing all entrepreneurs as individuals who systematically exhibit certain traits. Similarly, theories of entrepreneurial cognition, which were developed in part to address the inconsistent findings from the trait-based approaches (Mitchell et al., 2007), have the potential to become more nuanced by incorporating hybrid entrepreneurship into their conceptual models. To illustrate, cognition research has shown that entrepreneurs are willing to make generalizations from limited information (Busenitz & Barney, 1997). However, it seems possible that hybrid entrepreneurs, who, by the very nature of entering hybrid entrepreneurship, collect additional information about their venture prior to committing to it full time, may be less comfortable with doing so (hence their choice of hybrid entry). Likewise, theories of entrepreneurship that emphasize the importance of context in shaping entrepreneurial decisions (e.g., Sørensen & Fassiotto, 2011) may benefit from theoretically accounting for the differences between hybrid entrepreneurship and full-time self-employment. For example, consistent with prior research (e.g., Elfenbein et al., 2010; Sørensen, 2007), in the current study, we find employer size to decrease the likelihood of entry into full-time self-employment (i.e., small firm effect). However, in accord with the findings of Folta et al. (2010), we find no such relationship with regards to hybrid entry. Indeed, inconsistencies such as these highlight how the integration of hybrid entrepreneurship into existing entrepreneurship theory opens up multiple new lines of scholarly inquiry.

Hybrid Entrepreneurship and Survival

In addition, prior research has focused on the antecedents of hybrid entrepreneurship without considering its implications for entrepreneurial outcomes. Building on the work of Folta et al. (2010), who argue that full-time self-employment entry is endogenous to hybrid entrepreneurship, we investigate how entering full-time self-employment in a staged entry process (i.e., paid employment → hybrid entrepreneurship → full-time self-employment) impacts venture survival. This is important for several reasons. First, we find that a non-trivial portion of hybrid entrepreneurs ultimately transition into full-time self-employment, further substantiating the argument that entry into full-time self-employment is endogenous to hybrid entrepreneurship (Folta et al., 2010). Second, in accord with real options logic, our findings demonstrate that there is a significant survival benefit (i.e., a 33.3% decrease in the hazard of exit) associated with staged entry, even when controlling for other factors theorized to influence survival. On the surface, this finding may be viewed as being somewhat at odds with the commonly held belief that, in order to be successful, entrepreneurs must devote their full attention to their business. While this may be the case, our results suggest that it is worthwhile to take steps to determine if the business idea *warrants* large-scale commitment *prior* to doing so. In other words, our findings suggest that, given the uncertainty associated with new businesses, entrepreneurs are best served by making small initial commitments early on, giving themselves the option to commit fully to their business after they have had a chance to accumulate information and assess its potential/prospects.

Real Options and Entrepreneurship

Our study offers empirical evidence that individual characteristics influence real options decisions. While several studies have sought to relax the assumption of risk neutrality in real options theory, they have typically done so using formal mathematical models (e.g., Hugonnier & Morellec, 2007). Our study adds to this literature by offering empirical evidence (i.e., non-mathematical model) that risk aversion and low CSE have effects that mirror those of high exogenous uncertainty in traditional real options models. As such, we proffer empirical evidence that risk aversion and CSE influence individual-specific entry thresholds (O'Brien et al., 2003), which, in turn, influence the process of entrepreneurial entry (i.e., full-time versus hybrid). Likewise, while we focused on the establishment of real options and the survivorship implications conditional on option execution, our consistent pattern of results suggest that individual characteristics are likely to play important roles in other aspects of real options decisions (e.g., speed to option adjudication) (Majd & Pindyck, 1987).

Similarly, our finding that staged entry into full-time self-employment is associated with increased chances of survival proffers evidence that, on average, individuals tend to exercise real options when they are "in the money" (Dixit & Pindyck, 1994), despite the inherent difficulties of doing so (e.g., Adner & Levinthal, 2004). Along these lines, we further argued and demonstrated that individual characteristics moderate the strength of this relationship. By doing so, we add to the real options literature by demonstrating that individual factors influence the efficacy of real option exercise decisions. Interestingly, we did not find support for Hypothesis 4, which predicted that the positive relationship between staged entry and survival would be stronger for individuals with high cognitive ability. Rather, our results suggest the marginal benefit of extended stays (staged entry duration) in hybrid entrepreneurship are stronger for individuals with low cognitive ability (the opposite of Hypothesis 4). More specifically, a one-year stay in hybrid entrepreneurship prior to entry into full-time self-employment reduces the hazard of exit by 4.20% for individuals with low cognitive ability (25th percentile) but only 0.44% for individuals with high cognitive ability (75th percentile). Although this ran counter to our expectation, one explanation for this finding is that individuals with low cognitive ability learn at a slower pace (Lubinski, 2004).

As expected, our results provided general support for Hypothesis 5, which predicted the positive relationship between staged entry and survival would be stronger for experienced entrepreneurs. This finding carries several implications worthy of discussion. First, our study reinforces that the relationships between entrepreneurial experience and entrepreneurial outcomes may be contingent on other factors (e.g., Hmieleski & Baron, 2009). Second, although not hypothesized, the main effect of entrepreneurial experience was associated with an increased likelihood of entrepreneurial exit, similar to the findings of Jørgensen (2005). One explanation for this finding is that experienced

entrepreneurs are quicker to pull the plug on potentially struggling ventures. This explanation is reinforced by our finding that experienced entrepreneurs who start a business as a hybrid, and then opt to commit to it full time, experience longer survival (Hypothesis 5). Specifically, our results indicate that the decrease in exit hazard associated with staged entry can be up to three times larger for experienced entrepreneurs (75th percentile of experience) relative to inexperienced entrepreneurs (25th percentile of experience).

Our study also has implications for the current dialogue within the entrepreneurship literature regarding entrepreneurial opportunities (e.g., Shane, 2012). An emerging view in this literature is that some opportunities are enacted via a highly uncertain and often myopic process, where the feasibility and/or value of ideas are illuminated through an iterative progression of action and reaction (Alvarez, Barney, & Anderson, 2013). As such, given the uncertain outcomes associated with opportunity enactment, the limited sunk cost and risk exposure associated with hybrid entrepreneurship would appear to make an attractive exploitation strategy. Indeed, the strong survival advantage associated with hybrid entrepreneurship is in accord with Alvarez et al.'s (2013) assertion that the enactment process should be linked to sustained advantages. Relatedly, our findings compliment recent research indicating that the reduction of demand uncertainty is a key driver of entrepreneurial action (Autio et al., 2013). In some situations, however, reducing demand uncertainty may only be possible through the process of commercialization (George & Bock, 2012). Thus, individuals may *intentionally* use hybrid entrepreneurship as a means to reduce demand uncertainty prior to committing to their business. Future research capturing the specific motivations of hybrid entrepreneurs would be valuable.

Finally, the practical importance of our findings is underscored by the fact that hybrid entrepreneurship has experienced a recent explosion in growth (Grant, 2011). A key driver of this trend has been advances in technology, which have reduced the cost and time commitments necessary when starting a business. For example, instead of opening a brick-and-mortar location, hybrid entrepreneurs can use online marketplaces such as eBay (coincidentally, started by a hybrid entrepreneur) in their spare time. Likewise, advancements in social media marketing tools offer low-cost and efficient ways to reach target consumers. Indeed, trends such as these suggest the occurrence of hybrid entrepreneurship is likely to continue to grow, emphasizing why more research on hybrid entrepreneurship is needed from an academic and policy-making standpoint.

Limitations

Our study is not without limitations. First, although we engaged in considerable efforts to demonstrate that our findings are robust to multiple measures of entrepreneurship, our measures are not perfect. In particular, we do not differentiate ventures based on the degree of novelty/innovativeness (e.g., Schumpeterian entrepreneurship). While we included industry controls at the three-digit level and demonstrated that our results are robust to a fixed effects specification of the Cox proportional hazards model, we acknowledge that we are unable to fully account for venture-specific characteristics. Thus, while we contribute to real options theory by using individual characteristics to predict a real options argument, our study lacks a measure of venture-specific risk/uncertainty. Future research should examine these dimensions in tandem.

Second, we use a measure of CSE that is time invariant. Although CSE is a broad, latent personality trait proposed to be independent of context and time (Judge et al., 1997), there have been calls for scholars to investigate intra-individual changes in CSE over time (Chang et al., 2012). We echo these calls, noting that an interesting direction for future research would be to study how entrepreneurial experiences influence changes (or lack thereof) in CSE.

Third, we followed extant research (Delmar & Shane, 2006; Dencker, Gruber, & Shah, 2009a) and defined survival as the continuation of entrepreneurial effort (Shane, 2003). Although the realization of economic gains from entrepreneurial efforts usually requires sustainment in self-employment (Patel & Thatcher, 2012), longer survival is not necessarily equivalent to higher performance (Gimeno et al., 1997). Therefore, although survival is an important dimension of entrepreneurship, future research could examine the effects of hybrid entrepreneurship on other outcomes such as financial performance (Hmieleski & Baron, 2009), job creation (Dencker, Gruber, & Shah, 2009b), resource acquisition (Kotha & George, 2012), or the likelihood of being favorably acquired (Wennberg, Wiklund, DeTienne, & Cardon, 2010).

Fourth, we postulated that hybrid entrepreneurship facilitates learning regarding two key dimensions that impact venture survival: (1) the quality or viability of the venture idea and (2) the individual's capabilities/fit in the entrepreneurial context. However, given the structure of our data, we are unable to isolate the relative importance of each dimension. We encourage future studies to unpack these relationships further. In addition, it is possible that the survival advantage is not driven by learning, but, rather, by the fact that individuals who choose to enter hybrid entrepreneurship systematically select better ideas ex ante. However, the results from our shared frailty model indicate that this is unlikely.

Fifth, we followed recent research and measured entrepreneurial experience as the cumulative number of prior businesses started (e.g., Eesley & Roberts, 2012; Toft-Kehler et al., 2014) and the duration of recent self-employment spells. As such, a limitation of our study, and one that is endemic in nearly all studies linking entrepreneurial experience to outcomes (Ucbasaran, Shepherd, Lockett, & Lyon, 2013), is that we are unable to determine whether an individual's prior entrepreneurial endeavors were successes or failures. Indeed, given that research has linked entrepreneurial failure with re-entry into entrepreneurship (Ucbasaran et al., 2013), and that entrepreneurial failure has the potential to influence both learning (Cope, 2011; Shepherd, 2003) and opportunity identification (Ucbasaran et al., 2009), understanding how prior failure (or multiple/sequences of failure) influence the antecedents and outcomes of entrepreneurship/hybrid entrepreneurship represents an important area for future research.

Finally, although we used a nationally representative sample and controlled for both industry and occupation, there might be concerns as to the generalizability of our findings. In some industries, it may be unrealistic to launch a venture as a hybrid entrepreneur. Thus, while we did not find indication of differing rates of hybrid entrepreneurship by industry, our findings should be interpreted with caution, particularly with respect to capital-intensive industries.

CONCLUSION

This study adds to the entrepreneurship literature by using a real options approach to examine the implications of hybrid entrepreneurship for entrepreneurial entry and survival. Using a large longitudinal sample, our results highlight that the processes of entrepreneurial entry and survival are more complex than typically assumed. With regards to entrepreneurial entry, we find support for our predictions that risk-averse and less-confident individuals who enter self-employment are more likely to do so via hybrid entrepreneurship. With respect to entrepreneurial survival, we find evidence that individuals who enter full-time self-employment in a staged entry process through hybrid entrepreneurship survive significantly longer than individuals who enter directly from paid employment. This relationship is stronger for experienced entrepreneurs and individuals with lower intelligence. Given our findings, we emphasize that future research aimed at furthering our knowledge of the nuances associated with hybrid entrepreneurship is critical for the field to develop a more comprehensive and complete understanding of the entrepreneurial process.

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APPENDIX

Risk Aversion Index Protocol

Income gamble scenarios. First, all participants were asked the following question (scenario 1):

> "Suppose that you are the only income earner in the family, and you have a good job guaranteed to give you your current (family) income every year for life. You are given the opportunity to take a new and equally good job, with a 50–50 chance that it will

> double your (family) income and a 50–50 chance that it will cut your (family) income by a third. Would you take the new job?"

If the participant responded "no" to the first question, they were presented with the following (less risky) question (scenario 2):

> "Suppose the chances were 50–50 that it would double your (family) income and 50–50 that it would cut it by 20 percent. Would you take the new job?"

If the participant responded "yes" to the first question, they were presented with the following (more risky) question (scenario 3):

> "Suppose the chances were 50–50 that it would double your (family) income and 50–50 that it would cut it in half. Would you still take the new job?"

Risk aversion index calculation. The index is calculated assuming that risk aversion is a function of expected utility where an expected utility-maximizing individual will choose a 50–50 gamble of doubling lifetime income as opposed to having it fall by the fraction 1-λ if:

$$.5U\,(2c) + .5U(\lambda c) \geq U(c)$$

where U represents an individual's utility function and c represents permanent consumption. That is, the participant will accept the gamble if the expected utility of the payoff offered by the gamble exceeds the utility of having the current payoff with absolute certainty. We can calculate the expected utility that is implicit in each of the hypothetical occupational income gamble questions:

$$E[\text{scenario 1}] = .5(2c) + .5\,(.67c) = 1.33c$$

$$E[\text{scenario 2}] = .5(2c) + .5\,(.8c) = 1.4c$$

$$E[\text{scenario 3}] = .5(2c) + .5\,(.5c) = 1.25c$$

As demonstrated, all three scenarios have an expected value that is greater than the payoff with certainty (i.e., they are actuarially fair). Thus, we calculate our risk aversion index as the degree to which the expected value of the payoff must be greater than value of the absolute certain payoff in order for the respondent to accept the gamble:

Risk Aversion	Scenario 1	Scenario 2	Scenario 3	Premium
(4) Strong	Reject	Reject	n/a	n/a
(3) Moderate	Reject	Accept	n/a	.4c
(2) Mild	Accept	n/a	Reject	.33c
(1) Weak	Accept	n/a	Accept	.25c

Joseph Raffiee (jraffieeshirazi@bus.wisc.edu) is a doctoral candidate in the Management and Human Resources Department at the University of Wisconsin–Madison. He received his MBA from the University of Wisconsin–Madison. His research interests lie at the intersection of strategy and entrepreneurship, with a particular interest in microfoundations.

Jie Feng (jfeng9@wisc.edu) is a doctoral candidate at the Wisconsin School of Business, University of Wisconsin–Madison. Her research interests include strategic human resources and human capital, compensation, and employee turnover.