-- CHAPTER 2 --

FIRM FOUNDERS’ CAREER CAPITAL AND NEW VENTURE PERFORMANCE: A META-ANALYTIC REVIEW

This chapter is based on Engel, Y., Khapova, S. N., Elfring, T., Jansen, P. Firm founders’ career capital and new venture performance: A meta-analytic review. [unpublished].
“We are like dwarfs sitting on the shoulders of giants. We see more, and things that are more distant, than they did, not because our sight is superior or because we are taller than they, but because they raise us up, and by their great stature add to ours.”

— John of Salisbury

Abstract

At inception, firm founders endow the organizations they create with their individual resources. This statement is one of the hallmarks of entrepreneurship research and has been repeatedly verified by empirical results. However, the literature remains fragmented in its conceptualization and measurement of the extent to, and conditions under which, founders’ resources influence venture performance. We use meta-analytical techniques to address these issues, while drawing on contemporary career theory as an organizing framework for our examination. Additionally, we further investigate the nature of this important relationship by looking at the role of uncertainty in moderating the founders’ influence. The results highlight the added value to be gained by research adopting a career perspective, and the prominent role played by contextual moderators in shaping the relationship between founders’ resources and new venture performance. We discuss the implications of these findings for entrepreneurship research.

Keywords: Career Capital; Firm Founders; New-Venture Performance; Meta-Analysis; Uncertainty.
2.1. Introduction

The role played by micro-level variables (i.e., the motivations, values, attributes, skills, etc. of individual firm founders) in shaping firm-level outcomes (i.e., new venture performance in terms of growth, profitability, survival, etc.) is one of the hallmarks of entrepreneurship research (Baron, 2007, 2010; Shane & Khurana, 2003). The main assumption to underlay this perspective is that individuals embody a heterogeneous stock of resources and that, when applied to the entrepreneurial task, these resource endowments have considerable impact on new venture performance (e.g., Baum & Bird, 2010; Brüderl & Preisendörfer, 1998; Brüderl, Preisendörfer, & Ziegler, 1992; Chandler & Jansen, 1992; Shane & Khurana, 2003; Shane & Stuart, 2002; Van de Ven, Hudson, & Schroeder, 1984). Indeed, firm founders infuse their personality, motivations and identity to shape the venture’s culture, structure, and strategy (Nelson, 2003). They endow previous experiences and knowledge to enrich the venture’s capabilities (Dencker et al., 2009), and provide critical social relationships that enable the venture to mobilize external resources and pursue pending opportunities (Shane & Stuart, 2002).

However, the eclectic and multidisciplinary nature of entrepreneurship resulted in scholarly research that tends to approach this apparent diversity of resources from an equally diverse, and often isolated, set of perspectives (Ireland & Webb, 2007). Hence, when the question is asked as to which specific resources are required for the creation of successful new ventures? “A basic answer is: Many” (Baron, 2007: 168). One segment of the literature is concerned with founders’ dispositions and related cognitions (e.g., Mitchell et al., 2007; Zhao, Seibert, & Lumpkin, 2010), another stream advocates the effects of human capital (e.g., Unger et al., 2011), and still another highlights the role of social capital (e.g., Elfring & Hulsink, 2007; Stam et al., 2014). This ‘disciplinary divide’ may lead to conceptual and empirical fragmentation, which hampers our ability to engage with the shared phenomena of interest (Ireland & Webb, 2007; Molloy et al., 2011). Indeed, what Zhara (2005) describes as a chronic case of fragmentation is reinforced by a “hodgepodge of variables that seem to have been chosen more because of data availability than theoretical relevance” (257). In other words, a more complete understanding of the extent to, and conditions under which, founders’ resources influence venture performance necessitates a comprehensive view of these resources, and even more, an idea of how they might relate to each other as parts of a single theoretical structure.

A promising perspective to the consolidation of these seemingly distinctive views has
emerged with studies focusing on the career histories of firm founders (Burton, Sorensen, & Beckman, 2002; Nanda & Sorensen, 2010; Shane & Khurana, 2003; Sorensen & Fassiotto, 2011). By viewing one’s career as a vessel through which different resources (i.e. career capital) are accumulated over time, this stream of research offers a more comprehensive view of an individual’s set of resources. Indeed, drawing on a similar resource-based logic within organizational studies, DeFillippi and Arthur (1994) proposed a framework that classifies individual career capital under three interrelated “ways of knowing” - knowing-why (e.g., identity, motivation, and values), knowing-how (e.g., skills and expertise), and knowing-whom (e.g., social relationships). The three ways of knowing have already received significant research attention and served as a useful framework for a multitude of empirical studies on careers (de Janasz & Sullivan, 2004; Eby et al., 2003; McArdle, Waters, Briscoe, & Hall, 2007; Singh, Ragins, & Tharenou, 2009; Suutari & Makela, 2007). Their suitability as a framework for interdisciplinary inquiry was also highlighted in recent conceptual work (DiRenzo & Greenhaus, 2011; Parker et al., 2009). Hence, the application of career theory to entrepreneurship research allows for a more unified view of founders’ resources as ‘career capital’.

Guided by insights from career theory, this paper aims to explore the literature about founders’ resources and new venture performance. In particular, we employ DeFillippi and Arthur’s (1994) career capital perspective in combination with meta-analytical techniques to integrate the results from 15 years (1995-2010) of empirical work in the field. Meta-analysis provides a quantitative estimate of the population effects, and allows for the correction of statistical artifacts (Hunter & Schmidt, 2004). Moreover, meta-analysis constitutes a move toward evidence-based entrepreneurship (Frese et al., 2014; Rauch & Frese, 2006) and is thus instrumental for theory development.

The study makes three key contributions. First, we employ a career perspective as an organizing framework to provide a more coherent view of firm founders’ resources. Second, by conceptualizing founders’ resources as career capital and scrutinizing their empirical relationship to new venture performance we contribute to efforts of positioning careers as a bridge at the interface between individuals and organizations. Finally, we review and synthesize extant empirical literature to provide evidence that substantiates this important link between founders’ career capital and the performance of their ventures. Indeed, by organizing career capital under the three ways of knowing we are able to examine the relative contribution of different forms of
capital towards new venture performance, as well as studying the contextual and methodological contingencies of these relationships. Our discussion section builds on these contributions to offer directions for future research.

2.2. Theory and Hypotheses

The genesis of the concept of career capital can be traced to Bourdieu (1986) who discussed how individuals possess a unique portfolio of capitals. Genetic dispositions (e.g., Nicolaou, Shane, Cherkas, Hunkin, & Spector, 2008), as well as the social context one is born into (e.g., Bandura, 1986) provide the foundation of this capital structure. Later on, through personal, educational and professional development processes certain combinations of capital evolve and are, in turn, legitimized and valued within a career field (Iellatchitch, Mayrhofer, & Meyer, 2003).

Drawing on these and related ideas that asserted the capacity of individuals to embody valuable resources (e.g., Becker, 1964), scholars have defined a career as the “accumulations of information and knowledge embodied in skills, expertise, and relationship networks that are acquired through an evolving sequence of work experiences over time” (Bird, 1994: 326). The conception of career as capital has gained relevance as researchers witnessed the shift towards a knowledge-economy. Moreover, it coincided with key developments in strategic management such that the view of careers as repositories of knowledge (Bird, 1994) became highly compatible with writings about the micro-foundations of RBV (Alvarez & Busenitz, 2001; Castanias & Helfat, 2001; Foss, 2011; Grant, 1996).4

Responding to the rapidly changing nature of work, DeFillippi and Arthur (1994) have extended the analogy of resources at the firm level to argue that just as organizations look inwards for sources of competitive advantage (e.g., Barney, 1991), so too individuals are increasingly required to analyze and develop sets of resources that would improve their efficiency, effectiveness, and subjective well-being. Accordingly, DeFillippi and Arthur (1994) have suggested that the spectrum of one’s career capital can be encapsulated within three interrelated “ways of knowing”: (1) knowing-why (one’s identity and motivation), (2) knowing-how (one’s skills and expertise), and (3) knowing-whom (one’s relationships and networks). As

4 For review see the recent special issue (2011) of the Journal of Management on “Twenty Years of Resource-Based Theory”.
these simultaneously address sets of individual resources that have previously remained distinct areas of inquiry, the three ways of knowing were proposed as an integrative framework for interdisciplinary research (Parker et al., 2009).

The career capital framework was employed in a range of recent research. For example, it has been adopted in case study research to interpret and illustrate the accumulation of transferable career capital across successive employment situations (Arthur, Inkson, & Pringle, 1999), as a framework for studying global careers (Dickmann & Doherty, 2008; Suutari & Makela, 2007), and as a method of inquiry to examine career patterns influenced by changes in the social, political and economic context (Khapova & Korotov, 2007). It has provided a “useful theoretical basis” to examine the skills and knowledge graduates accumulate from their MBA program (Sturges, Simpson, & Altman, 2003: 63), or executives gain from global business assignments (Carr, Inkson, & Thorn, 2005). Across a large sample of university alumni, each way of knowing was shown to be directly, but differentially, related to individual career success (Eby et al., 2003). More recently, DiRenzo and Greenhaus (2011) used the three ways of knowing to propose that development of career capital through labor market mobility contributes to one’s employability. In sum, the notion of career capital in general and the framework of three ways of knowing in particular have been helpful concepts in many career-related studies.

In the following sections we elaborate on the meaning of each way of knowing, and explain how constructs from prior studies on firm founders can be categorized into the framework (see 2.1). We then offer a set of hypotheses that link the founders’ career capital to new venture performance.

2.2.1. Career Capital and Venture Performance

2.2.1.1. Knowing-Why and Venture Performance

Knowing-why reflects an individual’s response to the question “Why” as it relates to career motivation, personal meaning and identification (Defillippi & Arthur, 1994). As such it reflects the interplay between personality, values, and a sense of purpose that conjointly act as an internal compass to one’s identity construction.

It seems that after years of being portrayed as a “dead end” research (Aldrich, 1999: 76) the relationship between founders’ personality and venture performance is once again seen as essential to the study of entrepreneurship. Indeed, a recent meta-analysis by Zhao et al. (2010) demonstrated that several personality traits such as openness to experience and conscientiousness
appear to be strongly and consistently associated with entrepreneurial performance. Likewise, Rauch & Frese (2007) meta-analysis found that business owners’ personality traits in general were positively related to both business creation and success.

Factors such as vision and drive are also likely to have positive effects on new venture performance (see Baum, Frese, & Baron, 2007 for review). As Baron and Henry (2010) put it: “Only to the extent individuals are motivated to attain truly exceptional levels of performance will they subject themselves to the very hard cognitive work reaching these goals involves” (p. 53, italics added). Thus, founders have visions of the enterprises they would like to build, and these visions and goals include images of growing a business, of fame, and of personal wealth (Baum & Locke, 2004). For example, Cassar’s (2007) longitudinal investigation of entrepreneur career reasons, growth preferences, and achieved growth recognized that the significance attributed by firm founders to certain motivators (e.g., financial reward) was a key determinant of achieved growth. Moreover, recent discussions in the literature also point to the relevance of "entrepreneurial passion" as an influential knowing-why predictor of new venture performance (Cardon, Wincent, Singh, & Drnovsek, 2009).

Consequently, studies have shown that most new ventures closely reflect the professional identity of their founders (Baron, Hannan, & Burton, 1999; Beckman, Burton, & O’Reilly, 2007; Boeker, 1988), and of the industry in which they acquired prior work experience (e.g., Higgins, 2005). Moreover an entrepreneurial identity maybe formed by the founder’s social environment (Gruber & Fauchart, 2011). In other words, “the people with whom one regularly associates, either through preference or imposition, delimit the behavioral patterns that will be repeatedly observed, and hence, learned most thoroughly” (Bandura, 1986: 55). Firm founders act in ways consistent with their identities and thereby express their self-concept to infuse their ventures with meaning (Kimberly, 1979; Murnieks & Mosakowski, 2007). Thus, the founder’s identity configurations may explain venture performance during the early years of its life cycle (Baron et al., 1999; Beckman et al., 2007). For example, founders’ identity characteristics have been argued to imprint decision processes that have implications for subsequent performance (Hoang & Gimeno, 2010), influence opportunity recognition (Shane & Khurana, 2003), and provide legitimacy in the eyes of investors (Audia & Rider, 2005). In sum, we expect that:

Hypothesis 1: Firm founders’ knowing-why capital is positively related to new venture performance.
2.2.1.2. Knowing-How and Venture Performance

Knowing-how reflects an individual’s response to the question “How do you work?” (Defillippi & Arthur, 1994). It is broadly covered by the term “human capital” (Becker, 1964) and includes the repertoire of knowledge, skills, abilities and expertise as accumulated over one’s career through learning and experience.

Extant entrepreneurship literature advances several arguments for the contribution of founders’ human capital to venture success. For one, formal education is presumed to assist in the accumulation of knowledge and may provide useful skills for the establishment of a successful enterprise (Van der Sluis, Van Praag, & Vijverberg, 2008). Furthermore, previously acquired knowledge plays a critical role in firm founders’ intellectual performance and can assist the integration of new knowledge as well as adaptation to new situations (Dencker et al., 2009). Therefore, once engaged in entrepreneurial activities, individuals with higher levels of education are expected to exhibit superior ability to exploit opportunities (Davidsson & Honig, 2003; Gruber, MacMillan, & Thompson, 2012; Shane, 2000) and cope with unplanned difficulties (Cooper, Gimeno-Gascon, & Woo, 1994).

Additional variants of knowing-how capital, which have been studied extensively, are start-up and managerial experience. Start-up experience is obtained in the course of founding and organizing a new venture, whilst managerial experience refers to one’s prior practice in a managerial position (Jo & Lee, 1996). Research has shown that companies founded by experienced individuals have an advantage relative to organizations created by first-time entrepreneurs (Shane & Stuart, 2002). Moreover, this advantage is often attributed to differences in founders’ ability to lead nascent organizations, make staffing decisions, develop new products, and manage relationships with stakeholders (Brüderl et al., 1992). In this way, the founders’ experience would prepare them for the wide range of problems confronting new ventures (Cooper et al., 1994). Moreover, experienced founders are also shown to hold a better negotiation position over valuation since their experience acts as a reliable signal for venture capitalists (Hsu, 2007). Thus, human capital can mitigate financial constraints (Chandler & Hanks, 1998) and is positively related to strategic planning, which in turn, impacts performance (Baum, Locke, & Smith, 2001; Brinckmann et al., 2010).

Much in the same respect, the founder’s industry-specific experience is also discussed as a predictor of new venture performance. Cooper et al. (1994) described industry-specific
experience as the know-how that “grows out of previous experiences in the same or similar business, and ranges from tacit knowledge of the products, processes, and technology to specific human capital investment in relationships and goodwill with specific customers, suppliers, or stakeholders” (p. 378). Firm founders who come from similar or related industries may carry with them valuable experiences and relevant knowledge (Shane & Khurana, 2003). For example, Cooper et al. (1994) find that an entrepreneur’s industry-specific know-how was positively related to firm level employment growth. Chandler (1996) showed that new venture performance improves to the extent of a match between the task environment of the venture and the task environment faced by the founder in his or her previous job. Likewise, Wiklund and Shepherd (2003) describe procedural knowledge in new ventures as arising from experience with similar past situations. More recently, Colombo and Grilli (2010) found that industry-specific technical expertise had a large direct effect on predicted firm size.

Finally, a meta-analysis by Crook et al. (2011) found that human capital in general is related to firm performance, and Unger et al.’s (2011) meta-analysis found a significant positive relationship between human capital variables and entrepreneurial success. Hence, we expect that:

Hypothesis 2: Firm founders’ know-how capital is positively related to new venture performance.

2.2.1.3. Knowing-Whom and Venture Performance

Knowing-whom reflects an individual’s response to the question “With whom do you work?” and is captured by one’s “social capital” (Defillippi & Arthur, 1994). As such it compounds the value embedded within, available through and derived from an individual’s social relations (Nahapiet & Ghoshal, 1998), and spans the content, structure, and governance of one’s network (Hoang & Antoncic, 2003).

In an extensive review of the network literature on entrepreneurship Hoang and Antoncic (2003) suggest that founders’ network characteristics can be examined by looking at three key elements: (a) the content of an exchange between actors (e.g., reputation, instrumental or psychological resources), (b) the overall pattern and configuration of one’s ties in terms of its structural attributes (e.g., network size and diversity), and (c) the governance mechanisms used to coordinate relationships (e.g., trust, obligations, emotional bonds). Thus, founders make use of their social relationships to draw psychological and emotional support (Brüderl & Preisendörfer, 1998). They also accrue reputational content through association with prominent past employers.
(Burton et al., 2002), and references to the caliber of their prior job (Gulati & Higgins, 2002). Additionally, network resources can involve the exchange of relevant advice (Chrisman & McMullan, 2004) or other kinds of information that would enable opportunity recognition (Birley, 1985; Uzzi, 1999). New ventures will benefit from their founder’s network as a function of how valuable the resources are to current and future operation (Stam et al., 2014).

The structural aspect of founders’ social capital is also found to be of much significance. Generally speaking, the leading idea here is that actors’ differential positioning within a network structure bears an important impact on resource flows, and thus, on entrepreneurial outcomes (Hoang & Antoncic, 2003). Hence, the structural characteristic of social capital essentially defines the range of potentialities for founders to access information, resources, and support critical to their venture (Liao & Welsch, 2005). The development of new ties may therefore result in much needed diversification of the portfolio of available resources (Maurer & Ebers, 2006). A structural view enables the identification, for instance, of power bases for information control and brokerage (e.g., Ahuja, 2000; Burt, 1992). Similarly, research has found that entrepreneurs with large networks are better able to respond to opportunities and to acquire valuable resources for their ventures (Dubini & Aldrich, 1991).

Furthermore, within every such structure exists a relational dimension that deals with the nature of personal relationships that develop between actors (Nahapiet & Ghoshal, 1998). It concerns particular relationship attributes such as respect, trust, and friendship, as manifested through tie “strength” (Granovetter, 1992). In the context of entrepreneurship, this governance element of social capital is often referred to as the extent to which a founder is actually able to access and appropriate network resources in the venture creation process (Liao & Welsch, 2005). Thus, strong ties, which are associated with high levels of trust and facilitate frequent mobilization of resources, are thought of as vital for a starting venture (Aldrich & Martinez, 2001). For example, strong ties are found to influence the persistence of nascent entrepreneurs to continue in their formation activities (Davidsson & Honig, 2003). Similarly, the presence of friendship connections appears to be essential for resource acquisition and growth at the inception and early stages of the firm (Birley, 1985; Hite & Hesterly, 2001).

Weak ties, nonetheless, are also seen as critical given that they provide much needed diversity, which, in turn, drives exploration and innovation (Granovetter, 1973). For instance, Aldrich and Zimmer (1986) found that founders’ diverse connections provide access to more
diverse information, and Singh et al. (1999) study in the IT industry showed that entrepreneurs with more weak ties identified more opportunities than those with fewer weak ties. Furthermore, weak ties can enhance firm performance through their contribution to internal capability development (Hoang & Antoncic, 2003; McEvily & Zaheer, 1999). Overall, the founders’ knowing-whom capital is shown to be instrumental to subsequent venture performance (Stam et al., 2014). Thus, we expect that:

**Hypothesis 3:** Firm founders’ knowing-whom capital is positively related to new venture performance.

**Table 2.1.** Studies included in the meta-analysis

<table>
<thead>
<tr>
<th>Study</th>
<th>Career Capital Measures</th>
<th>Performance measure</th>
<th>Country</th>
<th>Average firm age (in years)</th>
<th>Sample Size</th>
<th>Overall Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Adam, et al., 2000)</td>
<td>Career expectation for Autonomy, Career expectation for Challenge, Career expectation for Entrepreneurship, Career expectation for Money</td>
<td>Sales</td>
<td>USA</td>
<td>8.74</td>
<td>103</td>
<td>0.02</td>
</tr>
<tr>
<td>(Awang, et al., 2010)</td>
<td>Innovativeness, Proactiveness, Risk Taking</td>
<td>Return on Sales</td>
<td>Malaysia</td>
<td>not specified</td>
<td>125</td>
<td>0.05</td>
</tr>
<tr>
<td>(Baron and Tang, 2009)</td>
<td>Positive Affect</td>
<td>Sales</td>
<td>USA</td>
<td>11</td>
<td>99</td>
<td>0.26</td>
</tr>
<tr>
<td>(Baum and Locke, 2004)</td>
<td>Passion, Tenacity</td>
<td>Venture growth (Sales &amp; Employee growth)</td>
<td>USA</td>
<td>3.58</td>
<td>229</td>
<td>0.09</td>
</tr>
<tr>
<td>(Begley, 1995)</td>
<td>Ambiguity Tolerance, Locus of control, Need for achievement, Risk Taking, Type A Personality</td>
<td>Revenue Growth and ROA</td>
<td>US</td>
<td>20.89</td>
<td>239</td>
<td>0.07</td>
</tr>
<tr>
<td>(Box, et al., 1995)</td>
<td>Proactiveness, Risk Taking</td>
<td>Employee Growth, revenue growth, and profit growth</td>
<td>Thailand</td>
<td>not specified</td>
<td>191</td>
<td>0.04</td>
</tr>
<tr>
<td>(Carolis, et al., 2009)</td>
<td>Illusion of control, Risk propensity</td>
<td>Progress of new venture</td>
<td>USA</td>
<td>not specified</td>
<td>269</td>
<td>0.27</td>
</tr>
<tr>
<td>(Ciavarella, et al., 2004)</td>
<td>Agreeableness, Conscientiousness, Emotional stability, Extraversion, Openness to experience</td>
<td>Survival</td>
<td>USA</td>
<td>not specified</td>
<td>111</td>
<td>0.03</td>
</tr>
<tr>
<td>(Cooper and Artz, 1995)</td>
<td>Initial expectation of success</td>
<td>Founder’s Satisfaction with the venture’s performance</td>
<td>US</td>
<td>not specified</td>
<td>287</td>
<td>0.25</td>
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<tr>
<td>(Dai and Liu, 2009)</td>
<td>International entrepreneurial orientation</td>
<td>Perceived business performance</td>
<td>China</td>
<td>4.67</td>
<td>711</td>
<td>0.13</td>
</tr>
<tr>
<td>(Delmar and Wiklund, 2008)</td>
<td>Employee growth motivation, Sales growth motivation</td>
<td>Sales Growth</td>
<td>Sweden</td>
<td>25.5</td>
<td>673</td>
<td>0.17</td>
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<tr>
<td>(Frese, et al., 2007)</td>
<td>Achievement motivation, Internal locus of control, Self-reported initiative</td>
<td>Growth</td>
<td>South Africa</td>
<td>5</td>
<td>117</td>
<td>0.23</td>
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<tr>
<td>(Frese, et al., 2007)</td>
<td>Achievement motivation, Internal locus of control, Self-reported initiative</td>
<td>Growth</td>
<td>Zimbabwe</td>
<td>4</td>
<td>215</td>
<td>-0.03</td>
</tr>
<tr>
<td>(Frese, et al., 2007)</td>
<td>Achievement motivation, Internal locus of control, Self-reported initiative</td>
<td>Growth</td>
<td>Namibia</td>
<td>7</td>
<td>73</td>
<td>0.11</td>
</tr>
<tr>
<td>(Gielnik, et al., 2010)</td>
<td>Proactiveness, Risk Taking</td>
<td>Venture Growth (subjective measure)</td>
<td>Germany</td>
<td>not specified</td>
<td>84</td>
<td>0.18</td>
</tr>
<tr>
<td>(Hoang &amp; Antoncic, 2003; McEvily &amp; Zaheer, 1999)</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>(Kessler, et al., 2007)</td>
<td>Risk attitude</td>
<td>Employee Growth</td>
<td>Austria</td>
<td>not specified</td>
<td>296</td>
<td>-0.02</td>
</tr>
<tr>
<td>(Kessler, 2007)</td>
<td>Internal locus of control, Need for achievement, Risk propensity</td>
<td>Venture Success</td>
<td>USA</td>
<td>5.74</td>
<td>201</td>
<td>-0.17</td>
</tr>
<tr>
<td>(Lee and Tsang, 2001)</td>
<td>Internal locus of control, Need for achievement, Risk propensity</td>
<td>Venture Success</td>
<td>Czech Republic</td>
<td>not specified</td>
<td>459</td>
<td>0.1</td>
</tr>
<tr>
<td>(Lerner and Haber, 2001)</td>
<td>Extroversion, Internal locus of control, Need for achievement, Self-reliance</td>
<td>Growth rate of sales and profit</td>
<td>Singapore</td>
<td>not specified</td>
<td>168</td>
<td>0.15</td>
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<tr>
<td>(Minguzzi and Passaro, 2001)</td>
<td>Father profession</td>
<td>Revenues</td>
<td>Italy</td>
<td>not specified</td>
<td>104</td>
<td>-0.03</td>
</tr>
<tr>
<td>(Ndorfo and Priem, 2009)</td>
<td>Goal (growth vs. stability)</td>
<td>Profit</td>
<td>USA</td>
<td>11.91</td>
<td>103</td>
<td>0.19</td>
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<td>(Obschonka, et al., 2010)</td>
<td>Entrepreneurial Big five Profile, High Profit Goal, High Revenue Goal, Market Leader Goal</td>
<td>Employee Growth and perceived profitability</td>
<td>Germany</td>
<td>not specified</td>
<td>531</td>
<td>0.06</td>
</tr>
<tr>
<td>(Owens, 2003)</td>
<td>Adaptability, Autonomy, Competitiveness, Emotional Resilience, Goal-Setting, Optimism, Persistence, Risk Tolerance,</td>
<td>Index of sales growth, profit growth, and personal income to the owner</td>
<td>USA</td>
<td>8</td>
<td>147</td>
<td>0.11</td>
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</tbody>
</table>
Firm Founders’ Career Capital & New Venture Performance

Tolerance for financial insecurity, Work Drive, Work related locus of control

(Pena, 2004) Family with Entrepreneurial experience Employee Growth, Sales Growth, and Profit growth Spain not specified 114 -0.05
(Poon et al., 2006) Achievement motive, Internal locus of control Firm performance (subjective measure of growth, market share, sales, etc.) Malaysia not specified 96 0.23
(Sambasivan et al., 2009) Personal qualities Sales volume Malaysia not specified 243 0.21
(Schmitt-Rodermund, 2004) Entrepreneurial personality Company gross income Germany 4.4 104 0.12
(Stam, 2010) Entrepreneurial orientation Sales Growth The Netherlands 4.89 75 0.26
(Tang and Tang, 2007) Proactiveness, Risk Taking Self-rated performance USA not specified 227 0.1
(Ucbasaran et al., 2007) Optimism Profit UK not specified 703 0.06
(Yan et al., 2007) Founder’s values of collectivism, Founder’s values of novelty Firm Performance (relative profitability and growth) USA & Canada 15.59 92 0.14

<table>
<thead>
<tr>
<th>Study</th>
<th>Career Capital Measures</th>
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</thead>
<tbody>
<tr>
<td>Anna et al., 2000</td>
<td>Self-Efficacy in Economic Mgt., Self-Efficacy in Human Competence, Self-Efficacy in Opportunity Recognition, Self-Efficacy in Planning</td>
<td>Sales</td>
<td>USA</td>
<td>8.74</td>
<td>103</td>
<td>0.1</td>
</tr>
<tr>
<td>Barney and Tang, 2008</td>
<td>Entrepreneur education, Expressiveness, Ingratiation (efforts to induce high degrees of liking and acceptance in others), Self-Promotion, Social Adaptability, Social perception</td>
<td>Financial Performance Sales growth</td>
<td>China</td>
<td>6.83</td>
<td>129</td>
<td>0.18</td>
</tr>
<tr>
<td>(Baron and Tang, 2009)</td>
<td>Previous start-up experience</td>
<td>Sales, # of innovations, Radicalness of innovations</td>
<td>USA</td>
<td>11</td>
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### Chapter 2

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Firm Founders’ Career Capital & New Venture Performance

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<td>0.19</td>
</tr>
<tr>
<td>(Zhao, et al., 2009)</td>
<td>Comprehensive social competency, Education, Years of previous work</td>
<td>Asset growth since start-up</td>
<td>China</td>
<td>6.98</td>
<td>75</td>
<td>0.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Study</th>
<th>Knowing-Whom</th>
<th>Performance measure</th>
<th>Country</th>
<th>Average firm age (in years)</th>
<th>Sample Size</th>
<th>Overall Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Batjargal, 2006)</td>
<td>Network Diversity, Network Resourcefulness, Network Size, Strong Ties, Weak Ties</td>
<td>Average revenue growth</td>
<td>Russia</td>
<td>not specified</td>
<td>75</td>
<td>0.06</td>
</tr>
<tr>
<td>(Batjargal, 2010)</td>
<td>Network Size</td>
<td>Profit Growth</td>
<td>China &amp; Russia</td>
<td>3.33</td>
<td>145</td>
<td>0.07</td>
</tr>
<tr>
<td>(Bratkovic, et al., 2009)</td>
<td>Central Network Person Contact Intensity, Central Network Person Friendship, Resource Network Intensity</td>
<td>Sales growth</td>
<td>Slovenia</td>
<td>not specified</td>
<td>103</td>
<td>0.11</td>
</tr>
<tr>
<td>(Cantner and Stuetzer, 2010)</td>
<td>Use of Social Capital</td>
<td>Employee Growth (number of employees on year 5)</td>
<td>Germany</td>
<td>not specified</td>
<td>182</td>
<td>0.05</td>
</tr>
<tr>
<td>(Capelleras, et al., 2010)</td>
<td>Number of contacts, Support from Bankers, Support from Executives, Support from Family, Support from Friends, Support from Public Institutions, Relational capital, Social networks International networks</td>
<td>Employee Growth</td>
<td>Argentina, Brazil &amp; Chile</td>
<td>7.21</td>
<td>647</td>
<td>0</td>
</tr>
<tr>
<td>(Carolis, et al., 2009)</td>
<td>Relational capital, Social networks</td>
<td>Progress of new venture</td>
<td>USA</td>
<td>not specified</td>
<td>269</td>
<td>0.31</td>
</tr>
<tr>
<td>(Dai and Liu, 2009)</td>
<td>International networks</td>
<td>Perceived business performance</td>
<td>China</td>
<td>4.67</td>
<td>711</td>
<td>0.51</td>
</tr>
<tr>
<td>(Davidsson and Honig, 2003)</td>
<td>Agency contact, Business network, Encouragement, Friends in business, Parent in business (strong tie)</td>
<td>Profit</td>
<td>Sweden</td>
<td>not specified</td>
<td>380</td>
<td>0.08</td>
</tr>
<tr>
<td>(Ge and Hisrich, 2009)</td>
<td>Network intensity, Network range, Resource acquisition capability (from the network)</td>
<td>Multi-dimensional performance (profitability, liquidity, growth, ROI, employee job satisfaction, public image)</td>
<td>China</td>
<td>not specified</td>
<td>177</td>
<td>0.17</td>
</tr>
<tr>
<td>(Hansen, 1995)</td>
<td>Network Degree , Network Frequency, Network Size</td>
<td>Growth</td>
<td>US</td>
<td>not specified</td>
<td>44</td>
<td>0.36</td>
</tr>
<tr>
<td>(Jenssen and Greve, 2002)</td>
<td>Network Redundancy, Number of strong ties, Number of weak ties</td>
<td>Revenue</td>
<td>Norway</td>
<td>2</td>
<td>96</td>
<td>0.27</td>
</tr>
<tr>
<td>(Kessler, 2007)</td>
<td>Networks</td>
<td>Venture Success</td>
<td>Austria</td>
<td>not specified</td>
<td>296</td>
<td>0.23</td>
</tr>
<tr>
<td>(Kessler, 2007)</td>
<td>Networks</td>
<td>Venture Success</td>
<td>Czech Republic</td>
<td>not specified</td>
<td>459</td>
<td>0.13</td>
</tr>
<tr>
<td>(Lee and Tsang, 2001)</td>
<td>Breadth of ext. com., Frequency of ext. com.</td>
<td>Growth rate of sales and profit</td>
<td>Singapore</td>
<td>not specified</td>
<td>168</td>
<td>0.24</td>
</tr>
<tr>
<td>(Lin, et al., 2006)</td>
<td>Access to Social Capital</td>
<td>Performance (subjective scale regarding success in commercializing new technology, likelihood to IPO in two years, expanded market share, financial support from venture capitalists, and good reputation in the industry)</td>
<td>Taiwan</td>
<td>not specified</td>
<td>125</td>
<td>0</td>
</tr>
<tr>
<td>(Minguzzi and Passaro, 2001)</td>
<td>Industry assoc.</td>
<td>Revenues</td>
<td>Italy</td>
<td>not specified</td>
<td>104</td>
<td>0.14</td>
</tr>
<tr>
<td>(Ndofor and Primm, 2009)</td>
<td>Non-coethnic contact frequency</td>
<td>Profit</td>
<td>USA</td>
<td>11.91</td>
<td>103</td>
<td>0.19</td>
</tr>
</tbody>
</table>
2.2.2 Career Capital and Venture Performance Under Uncertainty

While our focal interest is on the relationship between founders’ career capital and their ventures’ performance, research indicates that key variables should also be correctly aligned to achieve an optimal “fit” (e.g., Naman & Slevin, 1993). The context-dependence of this congruence between the constructs in question is the fundamental tenet of contingency theory (Lawrence & Lorsch, 1967). Several contextual contingencies can arise when discussing the influence of individuals on firms. Indeed, previous meta-analyses have shown that the effect of founders on firm-level performance may vary considerably depending on the context (Rauch & Frese, 2007; Song, Podoynitsyna, van der Bij, & Halman, 2008; Unger et al., 2011; Zhao et al., 2010).

One of the most important contextual contingencies discussed in entrepreneurship research is that of uncertainty (e.g., Knight, 1921; McElvie et al., 2011; McMullen & Shepherd, 2006; Sarasvathy, 2008). In fact, the theoretical underpinnings of the current examination emphasize notions of uncertainty as crucial. While originally criticized for ignoring environmental contingencies (e.g., Priem & Butler, 2001b) recent RBV theorizing has also seen renewed interest in the effects of uncertainty on resource management processes (Brush & Artz, 1999; Sirmon et al., 2007). As McElvie et al., (2011) note, uncertainty experienced by entrepreneurs may influence their resource deployment decisions differently in response to context. Thus, whereas the RBV states that entrepreneurial rents are the result of judgment regarding the value of resources, this judgment is likely to be context dependent. In turn, DeFilippi and Arthur’s (1994) framework of career capital have originally highlighted one’s resource development under conditions of job insecurity and uncertainty (Arthur & Rousseau, 1996; DiRenzo & Greenhaus, 2011).

The magnitude of interactions between firm founders and their firms can thus be said to
depend on whether the situation is “weak” (e.g., open, emergent, dynamic, and uncertain) or “strong” (e.g., closed, established, with elaborate behavioral controls, and stable) (Mischel, 1977; Weick, 1996). We therefore believe that a focus on the level of uncertainty and the exploration of contingencies related to strong and weak situations might help explain variance across studies.

2.2.2.1. The Liability of Newness and the Liability of Adolescence

Population ecology scholars have examined the role of resources in different phases of organizational development over time (Bruderl & Schussler, 1990; Hannan & John, 1989). Their life-cycle models, while differing in the number, length, and names assigned to each phase, typically include stages of emergence, adolescence, and post-adolescence (Korunka, Kessler, Frank, & Lueger, 2010). At inception, new ventures are required to deal with what Stinchcombe (1965) coined the “liability of newness”, which refers to the risk of failure that arises due to resource poverty, underdeveloped routines, low legitimacy, and the lack of social ties to key stakeholders.

The founders of young organizations are attributed particular importance in overcoming these obstacles and their accumulated career capital reflect the tools that allow them do that (Shane & Khurana, 2003). At this early stage the founders’ career capital is in fact the initial resource base of the firm (Alvarez & Busenitz, 2001). Thus, it is shown that the founders’ psychological and behavioral factors, while able to imprint long term processes, are especially important at this stage (Baron, 2007). Likewise, the effects of both human and social capital are more pronounced during venture emergence (Davidsson & Honig, 2003; Unger et al., 2011).

Nonetheless, the notion of liability of newness has been gradually developed in the literature into the “liability of adolescence” (Bruderl & Schussler, 1990; Fichman & Levinthal, 1991). The argument now suggests that business failures follow an inverted U-shaped pattern over time such that they are low at the beginning phase, then increase to reach a peak, which is followed by decline and stabilization (Mahmood, 2000). The peak in business failures is often argued to correspond to the point at which the initial resource base is depleted (Bruderl & Schussler, 1990; Korunka et al., 2010). After that point it is either the liability of adolescence that prevails (i.e., failure) or the routinization of organizational processes that kicks in and attenuate the founder’s direct impact (Delmar & Shane, 2004; Nelson & Winter, 1982). Thus, major differences may exist between the influence of the founders’ career capital during the venture’s early and adolescent phases, and after them.
Hypothesis 4 (a, b, c): The relationships between firm founders’ (a) knowing-why, (b) knowing-how, and (c) knowing-whom capital and new venture performance will be stronger for younger firms than for older firms.

2.2.2.2. Cultural Context

In addition to the influence of firms’ age, the cultural setting in which they operate may also affect the relationship between founders’ resources and performance. Particularly important to entrepreneurship are inter-cultural differences in tolerance of uncertainty (Hayton, George, & Zahra, 2002).

Uncertainty avoidance is defined as “the extent to which members of an organization or society strive to avoid uncertainty by reliance on social norms, rituals, and bureaucratic practices to alleviate the unpredictability of future events” (House, Javidan, Hanges, & Dorfman, 2002: 5). A culture is characterized by low uncertainty avoidance when unfamiliar risks are more accepted, flexibility is appreciated, and activities to which there are no rules seem less threatening (Hofstede, 2001). When uncertainty avoidance is high, people look for structures to provide them with clearer interpretation of events and a sense of predictability (Hofstede, 2001).

Hence, uncertainty avoidance may be viewed as a broad operationalization of situational strength (Hofstede, 2001). In this way, high levels of this cultural tendency would discourage members’ discretion by highlighting a strong structural or institutional element and the salience of historical precedence, while in low uncertainty avoidance members’ idiosyncratic judgments receive more weight and allow individual characteristics to come out and be visible above and beyond the context in which they are embedded (Meyer, Dalal, & Hermida, 2010). Consequently, the degree to which founders’ career capital may influence their ventures is thus expected to depend on the level of uncertainty avoidance in that country.

Hypothesis 5 (a, b, c): The relationships between firm founders’ (a) knowing-why, (b) knowing-how, and (c) knowing-whom capital and new venture performance will be stronger in cultures with low uncertainty avoidance than it is in cultures with high uncertainty avoidance.

2.2.2.3. Economic Context

Another key contextual factor is the level of economic development with its accompanying institutional conditions. Research points to institutional differences between developing and
developed economies as consequential for entrepreneurs (Hoskisson, Eden, Lau, & Wright, 2000; Wennekers, Van Wennekers, Thurik, & Reynolds, 2005). Accordingly, it is possible that the level of economic development would also influence the relationship between founders’ career capital and new venture performance. Ventures in developing economies face distinct challenges in terms of institutional and social uncertainties, underdeveloped legal systems, resource constraints, poverty, and a general lack of trust between exchange partners (Hoskisson et al., 2000; Podolny, 1994). Under such conditions the founders’ influence is more pronounced as their dispositions are less constrained. Thus, expression of individual differences is more likely (Rauch & Frese, 2007). This effect is reinforced when it comes to the role of social relationship since deficits in the regulative environment elevate the importance of close and personal ties (Baum, Calabrese, & Silverman, 2000) and increase reliance on preexisting social relationships (Podolny, 1994). An institutional void may also bring about greater variation in human capital such that, for example, education levels in emerging economies are much less homogenous across the population than in developed ones (Unger et al., 2011). Moreover, the high levels of heterogeneity found in developing economies makes it easier to detect relationships (Hunter & Schmidt, 1990). We therefore expect that the relationship between founders’ career capital and venture performance is stronger in developing economies than in developed economies.

Hypothesis 6 (a, b, c): The relationships between Firm founders’ (a) knowing-why, (b) knowing-how, and (c) knowing-whom capital and new venture performance will be stronger in developing economies than it is in developed economies.

2.3. Methods

The objective of this study was to pull together and organize a dataset of documented relationships between career capital constructs at the founder level, and venture performance measures at the level of the firm. Accordingly, we utilized meta-analytical techniques (Hunter & Schmidt, 1990; Hunter & Schmidt, 2004; Lipsey & Wilson, 2001) in order to achieve this goal.

Meta-analysis is a statistical research integration technique (Hunter & Schmidt, 1990). Effect sizes, in our case correlation coefficients, being the data points used in meta-analysis, are obtained from previously reported scientific studies and are then analyzed using specialized statistical procedures. This enables the meta-analyst to assemble all existing literature on a given topic, including studies that otherwise (i.e., in a narrative review) would not be examined.
(Stewart & Roth, 2004). Moreover, since the breadth of the literature reviewed presents challenges in terms of quality differences between studies, meta-analytical techniques apply corrections to different artifacts and sample sizes in order to compensate and overcome these challenges (Hunter & Schmidt, 2004).

2.3.1. Literature Search & Criteria for Study Inclusion

We were interested in collecting all studies between the years 1995 and 2010 that reported a relationship between an indicator of firm founders’ career capital and a measure of new venture performance. In order to find relevant studies, and consistent with recommendations of previous meta-analyses (Carney, Gedajlovic, Heugens, & van Essen, 2010; Lowe, Kroeck, & Sivasubramaniam, 1996) we used several complementary search strategies.

First, we explored seven computerized databases: (1) ABI/INFORM Global (2), Business Source Elite (EBSCO), (3) Google Scholar, (4) ISI Web of Knowledge, (5) JSTOR, (6) Proquest Digital Dissertations, and (7) ScienceDirect. Second, in order to identify additional studies we browsed a number of major research outlets that regularly publish on entrepreneurship. Third, we used a two-way snowball technique (cf. Carney et al., 2010; Lowe et al., 1996) by backward-tracing all references reported in the articles identified in the first two steps (paying special attention to review articles) and by forward-tracing all articles that cited the original articles using advanced tools provided by Google Scholar and ISI Web of Knowledge. Finally, an e-mail request was sent to authors soliciting for additional studies and unpublished work.

These strategies produced an extensive list of studies with considerable overlap. Hence, in order to narrow down this initial search (cf. Lipsey & Wilson, 2001), we identified studies that met the following key criteria: (1) the study in question had to operationalize the dependent variable as some aspect of venture performance. And (2) studies were selected only if they

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5 The search query used for this stage included all combinations of the following performance terms: performance, ROI, return on investment, sales growth, revenue growth, ROA, survival, return on assets, return on equity, ROE, employee growth; firm description terms: new, small, early, early stage, fledgling, emerging; terms for firms: venture, firm, startup, start-up, company, companies; and firm founders terms: founder, entrepreneur, business owner.
reported a bivariate correlation table (which had to include both independent and dependent variables). This screening procedure yielded 167 studies potentially relevant to the scope of our investigation. Nevertheless, at this point we turned to the task of identifying studies from that subset which operationalize an independent variable matched to one of the career capital constructs (see Table 2.1 for operationalization by construct). This last selection criterion also entails that only articles that operationalize some aspect of career capital at the individual level were included (i.e. studies such as Stam and Elfring, 2008, and Avlonitis and Salavou, 2007) which operationalize relevant constructs at the team or the organizational level were excluded). When studies were detected in which the same sample was used in multiple publications only one effect size was included.

In sum, these combined filtering efforts yielded a database consisting of 72 studies containing 76 independent samples, and a total sample size of 25,562 individuals. Among the 72 studies included, 10 were published between 1995 and 2000, 19 between 2001 and 2005, and 43 between 2006 and 2010, indicating increasing empirical attention to the relationship between individual career capital and new venture performance.

2.3.2. Variable Coding

Following the last selection stage, we carefully read each article in the final set and extracted data on the variables of interest (i.e. study and sample characteristics, predictor and criterion statistics, and various statistical artifacts). The articles were coded into a computerized dataset and the harvested effect sizes were grouped on the basis of the previously established construct definitions7 (see Table 2.1).

Furthermore, the study context was coded in accordance with the hypothesized moderators. We used the mean firm age in each sample to construct a dummy variable for young and older firms. Consistent with previous efforts in the field the threshold age distinguishing young from older firms was set to 8 years (cf. Brinckmann et al., 2010; Unger et al., 2011). The cultural context was captured using Hofstede’s uncertainty avoidance index (UAI) (Hofstede &

7 When coding specific resources into the three ways of knowing we encountered a few cases in which the resource in question could be allocated into one of the categories but was obviously antithetical to entrepreneurship. For instance, dependability as a personality attribute (Owens, 2003) or career expectation for security (Anna et al., 2000). Facing a choice between reverse coding these variables or excluding them all together we decided that exclusion would be more appropriate.
Hofstede, 2005). Using the index, and based on the country that each sample was drawn from, an uncertainty avoidance value was assigned. We then introduced a dummy to represent high and low uncertainty avoidance scores when the cut of point was set at a score of 58. Finally, we have also coded the economic context such that two distinct groups emerged as developing and developed economies. Country information from each sample in combination with the UN classification were used for this categorization (cf. Kirca, Hult, & Roth, 2011). For calibration of the entire coding procedure the first 20 studies were independently coded by two of the co-authors. There was agreement on 91% of these initial codes, and discrepancies were resolved via discussion.

2.3.2.1. Nonindependence

When compiling the final data set to be used in the analysis a critical step is the selection of strategies for dealing with stochastic dependencies among effect sizes. Violation of independence assumptions can present certain problems, including the artificial inflation of sample sizes and overrepresentation of studies, as well as the reduction of the observed variability of effect sizes, and biased standard errors (Arthur, Bennett, & Huffcutt, 2001). Dependencies between effect sizes may arise when multiple measurements of a focal effect are derived from a single study, or when multiple studies base their data on the same sample. Because the sample is the unit of analysis, if a study used multiple measures of a focal construct and reported correlations separately, the correlations were averaged to yield a single estimate for that sample (Hunter & Schmidt, 2004). Nevertheless, when a study contained measures of two different constructs and reported separate effect sizes for the two, the effect size for the relationship of interest became the unit of analysis (cf. Crook, Ketchen, Combs, & Todd, 2008).

2.3.2.2. Outliers

As a final step before further analysis, and following recommendations by Geyskens et al. (2008), we computed Huffcutt and Arthur’s (1995) sample-adjusted meta-analytic deviancy statistic (SAMD) to detect outlying effect sizes. Outliers were defined as individual correlations

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8 Consistent with Brinckmann et al., (2010) we computed the median value of the countries indices covered in our sample. This approach is appropriate as our analysis focuses on relative differences between countries rather than on absolute levels of uncertainty avoidance.
four standard deviations above or below the mean of the correlations in the same category (cf. Steel, 2007). As suggested by Lipsey and Wilson (2001) we recoded the sample sizes of each outlier to bring them back to the cutoff point.

### 2.3.3. Meta-Analytical Techniques

Our analyses primarily follow Hunter and Schmidt’s (1990; 2004) meta-analytical procedures. A central feature of this approach is that it allows for the correction of imperfections in the research methods of primary studies (Eden, 2002). Thus, it provides a relatively accurate estimate of the true mean relationship strength, as well as its variance in the population (Geyskens, Steenkamp, & Kumar, 2006). Furthermore, the Hunter and Schmidt method make use of random, rather than fixed, effect models (Hunter & Schmidt, 2004: 201), meaning that it allows for the possibility that population parameters vary from study to study by including a value that represents other sources of variability (Lipsey & Wilson, 2001). This is particularly appropriate in our case, given the multitude of different definitions given by primary studies to represent our focal constructs.

Accordingly, we corrected the harvested correlations for the following artifacts: (1) dichotomization\(^9\) of a continuous criterion variable, (2) dichotomization of a continuous predictor variable, (3) sampling error, (4) measurement error in the dependent variable,\(^{11}\) (5) and measurement error in the independent variable.

The corrected data points (i.e. correlations) were then meta-analyzed using the MetaExcel program\(^{12}\) (Steel, 2003), yielding the following summary statistics for each relationship of interest: the mean sample-weighted correlation \((r)\), and its corresponding standard deviation \((s.d. r)\), the estimate of the corrected population correlation \((\rho)\), and its corresponding standard

---

\(^9\) Fixed effects models assume that exactly the same “true” correlation value between each predictor and criterion variable underlies all studies in the meta-analysis (for further discussion see Hunter and Schmidt (2004).

\(^{10}\) To correct dichotomized variables, we applied a conservative correction (cf. Song, Podoymitchna, van der Bij, & Halman, 2008) by dividing the observed correlation coefficient by 0.8, because dichotomization reduces the real correlation coefficient by at least 0.8 (Hunter & Schmidt, 2004).

\(^{11}\) To correct for measurement error in the absence of reported reliability information in primary studies, we used the mean of the reliabilities reported in other studies included in the meta-analysis on the same relationship. As par with Dalton & Dalton (2005), a conservative reliability estimate (0.8) was applied to observed variables.

\(^{12}\) MetaExcel deviates from the original Hunter and Schmidt (1990, 2004) procedure in one respect. Hunter and Schmidt’s equation for estimating the between study variance, which determines the width of the credibility intervals, tends to underestimate as the number of studies decreases (Steel, 2007; Steel & Kammeyer-Mueller, 2002). Thus, MetaExcel compensates for this problem by following a simple solution as offered by Brannick and Hall (2001); namely, it multiplies the original variance figure by \(K/(K-1)\).
deviation (s.d. $\rho$); the 95% confidence interval$^{13}$ around the mean sample-weighted correlation (CIr). The 95% credibility interval around the mean sample-weighted-correlation (CVr); the 95% confidence interval around the estimate of the corrected population-correlation (CI$\rho$); and the 95% credibility interval around the estimate of the corrected population correlation (CV$\rho$). The confidence intervals are also used to determine whether an effect size is significantly different from zero. Effects are significant when the lower bound of the 95% confidence interval is bigger than zero (Judge, Heller, & Mount, 2002).

2.3.3.1. Moderator Analysis

In order to detect the presence of moderators, and consistent with recommendations from Geyskens et al. (2008), we made use of two testing techniques: First, we calculated the 95% credibility intervals around the mean. The credibility interval reflects generalizability across situations. It is the range of effect sizes within which 95% of the observed effects will be in any specific situation. Thus, the larger the credibility interval is, the more likely it is that a moderator exists. In addition, credibility intervals that include zero are also indicative of a moderated relationship. Second, we used the 75% rule, which suggests the existence of a substantive moderator when the percentage of observed variance explained by known and correctable artifacts (explained variance) is smaller than 75%. The rationale here is that if 75% of the observed variance of $r$ values is explained by correctable artifacts, then it is likely that the remaining 25% is due to the several artifacts which are not possible to correct for (i.e., and not due to moderators) (Hunter & Schmidt, 2004: 54).

Next, we examined the effects of the potential moderators using Hunter and Schmidt’s (2004) subgroup analysis. Hence, the data for each relationship was divided into two groups corresponding to the dichotomized categories of the moderator variable. We particularly checked that each subgroup included at least three primary studies (cf. Dalton, Daily, Certo, & Roengpitya, 2003). Subsequently, a separate analysis for each subgroup was conducted. Typically, there are two ways in which a particular moderator can be exposed: (a) If the variance attributed to artifacts will be lower in the subsets (averaged) than in the data as a whole; and (b)

$^{13}$ The confidence interval refers to the precision with which the expected mean effect is measured; consistent with the random effects model, the heterogeneous form is used here (Whitener, 1990).
if the sample-weighted effect sizes ($r$) will vary from one subset to another. Thus, we used a critical ratio $z$-test (Hunter & Schmidt, 1990: 436-438) to assess the degree of overlap between the mean effect sizes of moderator subgroups.\textsuperscript{14}

2.3.3.2. Fail-Safe $K$

Finally, we calculated the fail-safe $K$, which provides indication (Xs) to the number of samples with null effect needed to reduce the effect down to 0.05. In addition to including unpublished studies in our analysis, this measure is taken to attend the “file drawer” problem – when studies that report weak, non-existent, or contrary effects are left “buried in the file drawer” (i.e. publication bias). The cutoff level of .05 was selected in accordance with similar efforts in the field (e.g., Song et al., 2008: 105).

2.4. Results

The results for the hypotheses tests are summarized in Tables 2 and 3. Hypothesis 1 predicted that knowing-why capital is positively related to new venture performance. This hypothesis was supported with $r = .11$; the estimate of the corrected population correlation is $\rho = .14$. Hypothesis 2, which predicted that knowing-how capital is positively related to new venture performance received support with $r = .08$ ($\rho = .10$). Hypothesis 3 predicted that knowing-whom capital is positively related to venture performance; this hypotheses was supported with $r = .16$; the estimate of the corrected population correlation is $\rho = .20$. For all three hypotheses the effects are significant at the .05 level (the 95% CIs do not include zero). Yet the widths of the 95% credibility intervals as well as the percentage of variance attributed to artifacts, indicate the presence of moderators. The difference in magnitude between the relationships of knowing-how and knowing-whom to venture performance is found to be significant ($z=-2.54$; $p < .01$).

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\textsuperscript{14} One more way to test for the difference between the means is by examining the overlap of the 95% confidence intervals in the two sub-sets. When no overlap is found the means are significantly different. While advocated by some (Hunter & Schmidt, 2004), this is a much more conservative approach that tends to reject the null hypothesis less often (Schenker & Gentleman, 2001) and therefore can be used more like a “role of thumb” than a replacement for the significance test.
Table 2.2. Results – Main relationships

<table>
<thead>
<tr>
<th>Predictor</th>
<th>k</th>
<th>n</th>
<th>r</th>
<th>s.d. r</th>
<th>Confidence (CI r)</th>
<th>Credibility (CV r)</th>
<th>r - 95% Interval</th>
<th>r</th>
<th>s.d. r</th>
<th>Confidence (CI r)</th>
<th>Credibility (CV r)</th>
<th>ρ - 95% Interval</th>
<th>ρ</th>
<th>s.d. ρ</th>
<th>Confidence (CI ρ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowing-Why</td>
<td>33</td>
<td>7757</td>
<td>.11</td>
<td>.10</td>
<td>.08, .15</td>
<td>-.02, .24</td>
<td>.14</td>
<td>.12</td>
<td>.10, .19</td>
<td>-.03, .31</td>
<td>51%</td>
<td>61</td>
<td>1.57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowing-How</td>
<td>66</td>
<td>23399</td>
<td>.08</td>
<td>.09</td>
<td>.06, .10</td>
<td>-.05, .21</td>
<td>.10</td>
<td>.11</td>
<td>.07, .13</td>
<td>-.07, .27</td>
<td>41%</td>
<td>68</td>
<td>2.54**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowing-Whom</td>
<td>25</td>
<td>4612</td>
<td>.16</td>
<td>.15</td>
<td>.10, .23</td>
<td>-.09, .41</td>
<td>.20</td>
<td>.18</td>
<td>.12, .28</td>
<td>-.11, .51</td>
<td>28%</td>
<td>78</td>
<td>1.45</td>
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</tbody>
</table>

Note: k is the number of samples; n is the total number of subjects; r is the mean sample-weighted correlation; s.d.r is the standard deviation of the mean sample-weighted correlation; ρ is the estimate of the corrected population correlation; s.d.ρ is the standard deviation of the estimate of the corrected population correlation; EV (%) is the percentage of observed variance explained by statistical artifacts; Xs is the fail safe K value – the number of null effect size studies that would be required to make ρ insignificant, when Xs= 0 the result for that specific relationship is already insignificant. Z is the critical ratio test statistics for the significance of the difference between r in each subgroup (* p < .05; ** p < .01) a Knowing-Why vs. Knowing-How; b Knowing-How vs. Knowing-Whom; c Knowing-Whom vs. Knowing-Why.. † - the k’s and n’s vary by test as some effects could not be classified into a particular category.
Hypothesis 4a predicted that the knowing-why capital–venture performance relationship would be stronger when firms are younger. This hypothesis was not supported with $r = .15$ for older firms and $r = .08$ for younger firms ($z = -1.27; \text{n.s.}$). Hypothesis 4b, which predicted that the knowing-how capital–venture performance relationship is stronger for younger firms, received support with $r = .12$ versus .04 ($z = 2.72; p < .01$). Hypothesis 4c predicted that the knowing-whom capital–venture performance relationship would be stronger when firms are younger. This hypothesis was not supported with $r = .15$ for younger firms and $r = .14$ for younger firms ($z = .05; \text{n.s.}$).

Hypothesis 5a, which predicted that the knowing-why capital–venture performance relationship is stronger in low UAI cultures, received support with $r = .14$ versus .06 ($p < .05$). Hypothesis 5b predicted that the knowing-how capital–venture performance relationship would be stronger when firms operate in low UAI cultures. This hypothesis was not supported with $r = .06$ versus .09 for high UAI cultures ($z = -1.23; \text{n.s.}$). Hypothesis 5c, which predicted that the knowing-whom capital–venture performance relationship is stronger in low UAI cultures, received support with $r = .23$ versus 0.10 ($p < .05$).

Hypothesis 6a predicted that the knowing-why capital–venture performance relationship would be stronger when firms operate in developing economies rather than in developed ones. This hypothesis was not supported with both subgroups showing $r = .11$ ($z = -.10; \text{n.s.}$). Hypothesis 6b, which predicted that the knowing-how capital–venture performance relationship would be stronger when firms operate in developing economies, received support with $r = .12$ for studies in developing economies and $r = .07$ for studies in developed economies ($z = 1.71; p < .05$). Hypothesis 6c predicted that the knowing-whom capital–venture performance relationship would be stronger when firms operate in developing economies rather than in developed ones. This hypothesis was not supported as studies in developing economies showed $r = .13$, while studies in developed economies showed $r = .19$ ($z = -.94; \text{n.s.}$).
Table 2.3. Results – moderators

<table>
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<tr>
<th>Predictor</th>
<th>Moderator</th>
<th>( k )</th>
<th>( n )</th>
<th>( r )</th>
<th>s.d.</th>
<th>Confidence (CL)</th>
<th>Credibility (CV)</th>
<th>( \rho )</th>
<th>s.d. ( \rho )</th>
<th>Confidence (CL)</th>
<th>Credibility (CV)</th>
<th>EV (%)</th>
<th>( X_s )</th>
<th>Z-Value</th>
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<td></td>
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<td>1714</td>
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<td>-.06, .18</td>
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<td>.01, .21</td>
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<td>.01, .26</td>
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<td>-.05, .19</td>
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<td>.06, .12</td>
<td>-.07, .24</td>
<td>42%</td>
<td>36</td>
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<td>-.14, .39</td>
<td>.16</td>
<td>.19</td>
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<td>22%</td>
<td>23</td>
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<td>2408</td>
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<td>.15</td>
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<td>-.06, .43</td>
<td>.23</td>
<td>.19</td>
<td>.12, .34</td>
<td>-.07, .54</td>
<td>31%</td>
<td>53</td>
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</tr>
</tbody>
</table>

Note: \( k \) is the number of samples; \( n \) is the total number of subjects; \( r \) is the mean sample-weighted correlation; s.d.\( r \) is the standard deviation of the mean sample-weighted correlation; \( \rho \) is the estimate of the corrected population correlation; s.d.\( \rho \) is the standard deviation of the estimate of the corrected population correlation; EV (%) is the percentage of observed variance explained by statistical artifacts; \( X_s \) is the fail safe K value – the number of null effect size studies that would be required to make \( \rho \) insignificant, when \( X_s=0 \) the result for that specific relationship is already insignificant. Z is the critical ratio test statistics for the significance of the difference between \( r \) in each subgroup (\* \( p < .05 \); ** \( p < .01 \); *** \( p<0.001 \)). † - the \( k \)’s and \( n \)’s vary by test as some effects could not be classified into a particular category.
2.4.1. Post Hoc Robustness Tests

While we did not offer specific hypotheses for other potential moderators we performed post-hoc analysis to ensure the robustness of the results. Indeed, some moderators seemed especially relevant but lacked the theoretical support to suggest a-priori hypotheses. Results for the post-hoc robustness analysis are reported in table 2.3. First, we assessed whether the original study design, in terms of cross-sectional vs. longitudinal investigations, had an effect of each of the relationships between career-capital and new venture performance. The rationale here was that longitudinal efforts could capture the founder’s effect in different ways as they allow researchers to observe the relationship over time (Rouse & Daellenbach, 1999). We did not find any significant differences between the subgroups; the three ways of knowing retained their relationship to venture performance despite the differentiation between cross-sectional and longitudinal designs.

Second, we examined whether the type of performance measure used in the original studies conditioned the relationship between career capital and new venture performance. Firm performance is a multifaceted construct (Rouse & Daellenbach, 1999), and as such is measured by a great diversity of indicators (Venkatraman & Ramanujam, 1986). Still, at least on the conceptual level, one may distinguish between measures of profitability and operations, and measures of growth (Combs, Crook, & Shook, 2005; Rauch, Wiklund, Lumpkin, & Frese, 2009). However, there is no clear theoretical prediction in the literature to suggest that founders’ career capital would influence these performance dimensions in different ways. Indeed, we found no significant difference in the relationships when accounting for profitability and operations vs. growth measures of performance.

Finally, we examined whether the fact that a certain relationship was hypothesized in the original study had an effect on the magnitude of the reported effect size. As meta-analysis also takes into account variables that were merely used as controls in the original study we suspected that a difference in magnitude might be found between hypothesized and non-hypothesized relationships. While this was not the case for knowing-why and knowing-whom, we did find a significantly stronger relationship ($r = .14$ vs. $r = .04$; $z = 4.67; p<.001$) between knowing-how and new venture performance when the studies in questions have originally hypothesized such link.
Table 2.4. Post hoc robustness test results

<table>
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<th>Predictor</th>
<th>Moderator</th>
<th>k</th>
<th>n</th>
<th>r</th>
<th>s.d.(_r)</th>
<th>Confidence (CL(_\rho))</th>
<th>Credibility (CV(_\rho))</th>
<th>p</th>
<th>s.d.(_p)</th>
<th>Confidence (CL(_\rho))</th>
<th>Credibility (CV(_\rho))</th>
<th>EV (%)</th>
<th>Xs</th>
<th>Z-Value</th>
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<td><strong>Study Design</strong></td>
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<td>5046</td>
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<td>.11</td>
<td>.07, .17</td>
<td>-.05, .28</td>
<td>.15</td>
<td>.14</td>
<td>.09, .21</td>
<td>-.06, .36</td>
<td>42%</td>
<td>46</td>
<td>.44</td>
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<td>2701</td>
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<td>.08</td>
<td>.06, .15</td>
<td>.02, .19</td>
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<td>.10</td>
<td>.07, .19</td>
<td>.02, .24</td>
<td>65%</td>
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<td>.69</td>
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<td>.02, .08</td>
<td>-.04, .15</td>
<td>73%</td>
<td>1</td>
<td>4.67***</td>
</tr>
<tr>
<td>Knowing-Whom</td>
<td>Hypothesized</td>
<td>19</td>
<td>3111</td>
<td>.18</td>
<td>.17</td>
<td>.09, .27</td>
<td>-.12, .49</td>
<td>.23</td>
<td>.22</td>
<td>.12, .34</td>
<td>-.15, .61</td>
<td>21%</td>
<td>70</td>
<td>.53</td>
</tr>
<tr>
<td></td>
<td>Not Hypothesized</td>
<td>8</td>
<td>1430</td>
<td>.15</td>
<td>.12</td>
<td>.06, .24</td>
<td>-.02, .32</td>
<td>.19</td>
<td>.15</td>
<td>.08, .31</td>
<td>-.02, .41</td>
<td>46%</td>
<td>24</td>
<td></td>
</tr>
</tbody>
</table>

Note: \( k \) is the number of samples; \( n \) is the total number of subjects; \( r \) is the mean sample-weighted correlation; \( s.d.\( r \) \) is the standard deviation of the mean sample-weighted correlation; \( p \) is the estimate of the corrected population correlation; \( s.d.\( p \) \) is the standard deviation of the estimate of the corrected population correlation; \( EV (\%) \) is the percentage of observed variance explained by statistical artifacts; \( Xs \) is the fail safe \( K \) value – the number of null effect size studies that would be required to make \( p \) insignificant, when \( Xs = 0 \) the result for that specific relationship is already insignificant. \( Z \) is the critical ratio test statistics for the significance of the difference between \( r \) in each subgroup (* \( p < .05 \); ** \( p < .01 \); *** \( p < .001 \)). † - the \( k \)’s and \( n \)’s vary by test as some effects could not be classified into a particular category.
2.5. Discussion

This study explores 15 years of research on the extent to, and conditions under which, firm founders’ resources influence new venture performance. Our analysis, based on 72 studies with an overall sample size of 25,562, provides support to the claim that firm founders’ resources are indeed instrumental to new venture performance. Moreover, conceptualized as career capital, these resources are put together into a framework that allows us to systematically estimate the magnitude of their contribution towards venture performance and examine the role of contextual moderators.

Our study revealed that, overall, the components of founders’ career capital in terms of knowing-why, how and whom are positively and significantly related to new venture performance at .14, .10, .20, respectively. While these effects are considered small to medium in size (Hemphill, 2003), they are also comparable to effects found in related review studies (e.g., Rauch & Frese, 2007; Unger et al., 2011). Moreover, effect sizes in the range of .10 to .20 can be found in other areas in which they are attributed practical significance. For example, the size of the relationship between knowing-why and new venture performance (ρ = .14) is similar to the effects of anti-inflammatory drugs such as Ibuprofen on pain reduction, and at ρ = .20, the effect of knowing-whom on new venture performance is comparable to the validity of job-interviews in predicting job success (Meyer et al., 2001). Hence, we can conclude that, on average, firm founder’s career capital generate significant value for their ventures.

Our results also indicate that there are significant differences in the relative size of the main effects such that the relationship between knowing-whom capital and new venture performance is significantly stronger than that of knowing-how indicators. The literature offers a number of alternative explanations for this intriguing finding. First, from a methodological perspective, as measures are becoming more general (as in the case of most human capital indicators) they seem to insufficiently capture the underlying constructs (Davidsson & Honig, 2003). Additionally, it seems that while knowing-how variables such as general education or start-up experience have become standard controls, few studies explicitly focus on examining the linkages between different forms of career capital. Thus, from a theoretical standpoint, we could speculate that interactions between one’s human and social capital might have something to do with the relative strength of these indicators to venture performance. For instance, some authors describe the so-called “compensation hypothesis” (Bayer, 1991; Witt, 2004), which suggests that
founders use their networks to compensate for lower levels of other important resources. Taking the other side of the same coin, we could also see how the effects of founder’s knowing-whom might be overstated. Hence, both the methodological argument (i.e., the specificity of the measures employed), and the theoretical one (i.e., the compensation hypothesis) could support the idea that the impact of knowing-whom variables is indeed inflated by compounding into it the interaction with other variables. For instance, Mosey and Write (2007) found that differences in levels of entrepreneurial experience are linked to differences in network structure, governance, and content such that business ownership experience is essential for relationships building with important stakeholders.

The relative paucity of work on the interactions between different forms of individual capital, and on the relative magnitude of their relation to venture performance points even more to the importance of an integrative framework. Indeed, only by looking at these indicators together can future research determine the relative importance of, as well as the nature of associations between them.

2.5.1. Career Capital and Venture Performance - Implications of Main Effects

A key implication of the findings is that career capital, as a theoretically guided organizing framework, represents a promising angle through which to look at the relationship between micro level variables and firm level outcomes in entrepreneurship. We thus see several opportunities for future research.

First, by abstracting from individual resources and grouping them together into sets of higher order constructs, a career perspective offers a way to integrate isolated research efforts in a coherent way. This is especially relevant given the fact that the phenomenon of interest is both multi-level (i.e., individual and firm), and multidisciplinary (Molloy et al., 2011). The application of a career perspective can therefore support scholars in forming cross-disciplinary collaborations (Ireland & Webb, 2007). Furthermore, the magnitude of the relationships between the three ways of knowing and new venture performance indicates that this theoretical structure is indeed meaningful empirically. Thus, classifying career capital in terms of the three ways of knowing provides an opportunity to build a cumulative body of knowledge about the relationship between founders and ventures by integrating the conclusions offered by isolated sets of extant research. Next, the conceptualization of founders’ individual resources as career capital may enrich future efforts to trace the path through which resources influence venture performance.
Hence, emergent process theories of entrepreneurship can build on the three ways of knowing and incorporate them into larger models of entrepreneurial action. Indeed, Sarasvathy’s (2001) treatment of entrepreneurs’ means (who they are, what they know, and whom they know) as part of the effectual process is a good example for the potential nested in such link. Bringing together the career capital framework as the founder’s resource base and effectuation as the *process* through which it is utilized might prove to be a fruitful endeavor for future research.

Furthermore, it is important to note that current operationalization of relevant variables should also be improved in order to more accurately reflect their theoretical underpinnings and allow the aforementioned link to dynamic processes. For instance, knowing-why, which generally relates to the founder’s identity, is one area that requires further development. This also echoes other authors (e.g., Gruber & Fauchart, 2011; Sarasvathy, 2008) who argue that identity is currently an underdeveloped theme in entrepreneurship research. Yet, this has been recently picked up and indeed there is an emerging trend of theorizing focused on entrepreneurial identity and passion (Cardon et al., 2009; Gruber & Fauchart, 2011; Hoang & Gimeno, 2010).

While the theoretical state of concepts such as human capital or social capital is more mature, owing to a long tradition of interdisciplinary research, their measurement can at times seem over-simplistic. For instance, a founder’s knowing-how capital is often measured using single item questions that quantify investment in formal education or years of experience. While education and experience can be telling with regard to prior investments in human capital they can hardly account for the full range of one’s knowledge, skills and abilities. Since these elements are inherently related to processes as well as the outcomes of learning and personal development it might be more useful to measure them accordingly. We thus subscribe to recommendations made by Unger et al. (2011) who call for more direct measures of knowledge and skills. An example for such operationalization can be found in Marvel & Lumpkin (2007) who constructed a scale that taps into entrepreneur’s general as well as specific human capital, while giving attention to both investments in human capital and their outcomes in terms of specific skills.

### 2.5.2. Moderators

#### 2.5.2.1. Uncertainty

While our findings give support to the overall link between founders’ career capital and venture performance, this relationship should be interpreted with caution. The variance of effect sizes
across studies is considerable and this heterogeneity cannot be attributed to statistical artifacts (e.g., sampling and measurement error) alone. This points to the important role played by other variables that moderate the strength of the career-capital - new venture performance relationship.

In particular, we hypothesized that factors related to contextual uncertainty would act as significant moderators to the main relationships between career capital and venture performance. Contrary to our expectations we find that the links between knowing-why and knowing-whom capital to venture performance are relatively stable across different stages of economic development in the country in which the firm operates. In addition, no significant difference in the strength of these relationships is found between younger and older ventures. Still, in both cases much of the heterogeneity remains unexplained, a fact that suggests the operation of other (yet unknown) moderators. We did find, however, that knowing-why and knowing-whom capital are more strongly related to venture performance when firms operate in a cultural context characterized by low uncertainty avoidance ($\rho = .17$ and $\rho = .29$, respectively). As opposed to the other forms of career capital, the relationship between founders’ knowing-how and venture performance is contingent on both firm age (stronger relationship when the firm is younger), and economic development (stronger relationship when firms operate in developing economies), but remains unchanged across different levels of uncertainty avoidance culture.

These mixed results give further credence to a much advocated contingency approach to the link between founders’ and ventures (Shane & Venkataraman, 2000). Moreover, the specific role of uncertainty and its influence on the relationship between founder’s career capital and venture performance seemed to be more nuanced than we originally expected. Thus, future research should look more closely at the ways in which uncertainty influences the deployment and use of individual resources to the benefit of the firm. Examples for such an approach can be identified in both effectuation (Sarasvathy, 2001) and bricolage (Baker & Nelson, 2005), which constitute preliminary, yet vital, attempts at conceptualizing both the dynamism, and the explicit strategies used by entrepreneurs in the process of resource utilization under uncertainty.

Moving beyond situational characteristics, future studies should also examine the interrelatedness of the three ways of knowing. It is plausible that the link between each way of knowing and venture performance is in fact influenced by the other ways of knowing (e.g., knowing-how moderates the knowing-why to venture performance relationship). Indeed, Parker et al. (2009) already suggested that this might be the case when discussing the career capital of
employees. We see no reason for this assertion to be any different when it comes to firm founders. We therefore believe that the main contribution of our study is indeed in showing the applicability of career capital as an organizing framework, one which enables future research to take a more unified view founders’ individual resources and their relationship to venture performance.

2.5.2.2. Post hoc tests

The results of our post hoc moderator tests also offer a number of implications. First and foremost, we found a significantly stronger effect of knowing-how on venture performance when the relationship in question was hypothesized in the original study. At first glance this might suggest a certain research bias, however, we believe that a more likely explanation can be found in the over simplification of human capital measures. When used as a control variable, we find that human capital measures are at their simplest form and thus do not sufficiently reflect the knowing-how construct. A key implication here is that even when human capital is not at the center of the investigation researchers would need to pay more attention to its measurement. This brings us back to our previous concern regarding the measurement of key constructs.

With regard to the other potential moderators under examination we did not find that they exert any significant effect on the career-capital - venture performance relationship. On the one hand, these results may point to the stability of the effect for founders’ career capital on performance (e.g., the effect remains regardless of the performance type measured or the study design used). On the other hand, there is still substantial unexplained heterogeneity in the tested relationships, a fact that suggests the operation of still other moderators. This repeats our call for more research to identify moderators and unpack their role in the stated relationships.

2.5.3. Limitations

As is the case for every meta-analysis, our investigation reflects many of the advantages and disadvantages of the underlying primary studies on which it was based. Specifically for this meta-analysis, we must emphasize that the theoretical constructs of career capital are merely represented by a set of selected variables, which were not originally designed to measure them. Thus, our analysis is the first attempt to measure the complete set of founders’ career capital and as such it suffers from a certain “liability of newness”. While this is not uncommon (e.g., Read et al., 2009b), ideally we would prefer a more direct measurement of the studied theory.

A related limitation is the rather small sample of studies to underlie some of the
relationships considered. While other meta-analyses in the field are not dissimilar in that respect (cf. Rauch & Frese, 2007; Rauch et al., 2009; Read et al., 2009b; Stam et al., 2014; Unger et al., 2011; Zhao et al., 2010) the relatively low number of samples included in some of the moderator tests warrants a note of caution when interpreting the results. This is due to the risks of second-order sampling error that might arise in these cases (Hunter & Schmidt, 2004). Still, both the reported fail-safe K for each relationship, and the fact that our results are stable across diverse sample characteristics, contexts, and performance types imply for the validity of the findings.

Finally, we also acknowledge that meta-analysis cannot specify the mechanisms through which the studied relationships have their impact (Hunter & Schmidt, 2004). Thus we also refer to our earlier suggestions (see discussion above) that future research should focus on the processes that underlie our correlation-based findings.

### 2.6. Conclusion

The present study addressed the relationship between firm founders’ career capital and new venture performance. While this general link between the founder as an individual and outcomes in the firm level is as old as the field of entrepreneurship itself, the conceptualization of individual resources as such received fragmented attention in the literature. The present study provides a systematic review and fresh conceptualization of this relationship between founders’ resources and their subsequent effect on new venture performance. In particular, we draw on contemporary career theory, which identifies careers as repositories of knowledge and thus categorizes individual career capital into three “ways of knowing”. We adopt this theoretical perspective as we meta-analytically review past research and reexamine existing findings in light of this new integrative framework. The compilation of past findings into a new conceptual structure yields important advances to our understanding of the relationship between founders and firms. Moreover, the meta-analytic evidence substantiates the theoretical underpinnings of our work. The magnitude of the tested links and the heterogeneity found in past research reflect both the prominence and the latent potential still embodied within these intriguing relationships. Hence, we believe that this study represents an essential first step that would allow future research to develop more unified theories of the micro-macro links in entrepreneurship. Finally, our results also point to the significance of advancing process-oriented research in this domain, supporting the shift from studying static resources in isolation and moving to examine the dynamic processes and contextual factors that link resources to performance.