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Entrepreneurial experience and venture success: A comprehensive meta-analysis of performance determinants

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Abstract

PURPOSE: *In both theory and practice, the entrepreneur's prior experience is considered to be one of the most important human capital factors affecting venture performance. Nonetheless, the research on the effect of experience on venture performance has produced inconclusive findings. The literature explaining this inconclusiveness is sparse, but several determinants have been identified, such as the variability in the conceptualization and measurement of experience and performance, age of the investigated ventures, types of industry, or size and composition of venture management. The inconsistency of these features across primary studies makes it difficult to compare the results and to integrate findings.* ***METHODOLOGY:*** *This meta-analysis reviews and summarizes 80 primary studies in order to investigate the relationship between entrepreneur's experience and venture performance. We investigated the effect of five determinants of this relationship, namely the type of experience, type of performance, venture age, size of managerial team, and composition of managerial team. A random effect model was applied and the correlation coefficient was used as an indicator of effect size.* ***FINDINGS:*** *The study found that experience positively affected venture performance, although the magnitude of the effect was rather small. Venture performance showed to have the strongest significant relationship with start-up experience, followed by industrial, working, and managerial experience. International, functional, and entrepreneurial experience had a non-significant effect on venture performance. Moreover, the effect of experience on venture performance was not significant for older ventures. Experience significantly affected two types of venture performance, namely the size of venture and profitability, while the effect on growth was non-significant. Finally, of all the types of venture management, the experience of owner-inclusive entrepreneurial teams had the greatest effect on venture performance.* ***IMPLICATIONS****: Investor practitioners may find it helpful to assess entrepreneurs' experience within a broader context, taking account of the types of experience the entrepreneur possesses. Entrepreneurs' international, functional, and entrepreneurial experience should be considered very carefully, as they had a non-significant effect on venture performance. In contrast, having experience of founding a venture or of a particular industry seems to provide more value than experience of doing business internationally, or being in business for many years. Another important aspect that investors and venture capitalists should take into account is the size and composition of the entrepreneurial team and the extent to which the venture proposal reflects the different types of experience the team members possess.* ***ORIGINALITY AND VALUE****: The study contributes to the human capital literature by firstly attempting to examine systematically the overall magnitude of the relationship between entrepreneur's experience and venture performance. It also contributes by investigating the determinants of the relationship between experience and venture performance. It summarizes and combines previous inconclusive findings about the impact of different types of experience on different venture performance outcomes.*

Keywords: *entrepreneurial experience, venture performance, entrepreneurship, human capital, learning by doing, meta-analysis, start-up, investor decision-making, performance, knowledge generation*

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INTRODUCTION

Since the human capital theory (Becker, 1964; Schultz, 1961) was postulated, there has been a great deal of research supporting the notion that venture performance is affected by entrepreneurs' and top executives' knowledge, skills, and managerial characteristics. So far, the entrepreneur's prior experience has been the single most commonly investigated human capital factor in entrepreneurship research (Marvel, Davis, & Sproul, 2016). Not surprisingly, the importance of this factor goes beyond the academic field. In business practice, the entrepreneur's prior experience is considered to be one of the most important criteria for assessing venture business proposals by venture capitalists and investors (e.g., MacMillan, Siegel, & Narasimha, 1985; Landström, 1998).

Although prior experience is considered to be of great importance, empirical research on its association with venture performance provides inconclusive evidence, ranging from positive, non-significant to negative associations (e.g., Garcés-Galdeano, Larraza-Kintana, Cruz, & Contín-Pilart, 2017; Zhao, Song, & Storm, 2013; Spanjer & von Witteloostuijn, 2017; Robb & Watson, 2012; Oe & Mitsuhashi, 2013; Naldi & Davidsson, 2014). Although the literature explaining this discrepancy is sparse, it suggests that these differences may result from inconsistencies in the way experience and performance are conceptualized and measured, differences in the age of firms, or differences in the size and composition of firm management (Reuber & Fischer, 1994; Cooper, Gimeno-Gascon, & Woo, 1994; Delmar & Shane, 2006). The inconsistency of these aspects in primary studies makes it difficult to integrate prior findings and draw general conclusions about the true importance of prior experience for venture performance.

To the best of our knowledge, there have been three meta-analytic studies that partially addressed this issue (Unger et al., 2011; Crook, Todd, Combs, Woehr, & Ketchen, 2011; Peake & Marshall, 2011). Yet, whilst these indisputably represent a contribution to the field, they have not provided sufficient clarity on the strength of the relationship between experience and venture performance or possible determinants of that relationship. Building on these gaps, the aim of this study is two-fold. Firstly, we attempt to integrate previous inconclusive findings by performing a meta-analysis to examine the strength of the relationship between entrepreneur's prior experience and venture performance. The second aim addresses the issue of variability in previous findings. We aim to test the impact of five specific determinants of the relationship between experience and venture performance: type of experience, type of performance, venture age, size of managerial team, and composition of managerial team.

The results of this study contribute to a human capital theory. To our best knowledge, there has been no systematic synthesis that summarizes the evidence on the relationship between experience and venture performance. Although venture performance has been shown to be positively related to a broad construct of human capital (Unger et al., 2011; Crook et al., 2011), we do not know what portion of this relationship is actually due to entrepreneurial experience. This study is therefore the first to focus exclusively on experience as a particular aspect of human capital. Not only does this study provide insights into the importance of entrepreneurial experience for ventures, but in conjunction with previous meta-analyses (Unger et al., 2011; Crook et al., 2011), it also allows us to assess this importance in the context of a broader set of human capital aspects such as education, knowledge, and skills. In addition, examining the determinants of the relationship between experience and venture performance helps to understand how different types of entrepreneurial experience are related to different types of venture performance and how these relationships vary by age of the firm, size, and composition of managerial team. Through this research, the study provides an understanding of the limits and constraints of the relationship between experience and venture performance.

Aside from the theoretical contributions, this study also provides some implications for entrepreneurial practice. Since entrepreneurial experience is an important criterion for investors and venture capitalists when making investment decisions, our study can inform business practitioners on whether it is justified to rely on experience when evaluating proposals for new ventures.

LITERATURE REVIEW

Human capital, experience, and learning-by-doing

The theory of human capital was originally conceptualized to study the importance of education for acquiring skills and knowledge that have economic value (Becker, 1964). This theory is based on the assumption that individuals who possess greater levels of knowledge, skills, competencies, education, and experience are able to achieve a better performance

than those who possess lower levels (Ployhart & Moliterno, 2011). The theory has been applied within the field of entrepreneurship, in an attempt to understand how specific attributes of human capital foster entrepreneurial success (Unger et al., 2011).

When investigating which human capital attributes were studied the most in the entrepreneurship literature, prior experience came top, with industry and managerial experience coming in first and second place and start-up experience being the third most commonly investigated attribute (Marvel et al., 2016). The reason for this great interest lies in the premise that entrepreneurs learn through experience (Dalley & Hamilton, 2000; Deakins & Freel, 1998; Rae, 2000; Rae & Carswell, 2000; Read, Sarasvathy, Dew, Wiltbank, & Ohlsson, 2011). In order to learn entrepreneurship practices, the entrepreneur must acquire knowledge by engaging in entrepreneurial processes, which is often referred to as "learning by doing" (Cope & Watts, 2000; Pittaway & Cope, 2007; Petkova, 2009). Most notably, by engaging in entrepreneurial processes, individuals acquire knowledge, skills, and competencies that help them to perform their job role successfully. As Krueger (2007) argues, it is not experience *per se,* but rather the specific knowledge, skills, and competencies gained from it that are important to entrepreneurship.

An important skill acquired through experience is the ability to identify new entrepreneurial opportunities (Ucbasaran, Westhead & Wright, 2009; Davidsson & Honig, 2003). For instance, in a study by Gompers, Kovner, Lerner, and Scharfstein (2010), experienced entrepreneurs exhibited a better ability to select the right industry and had better market timing skills. Other studies found that companies funded by more experienced venture capital firms were more likely to succeed in business (e.g., Kaplan & Schoar, 2005; Sorensen, 2007). This suggests that more experienced venture capitalists are able to identify better entrepreneurial opportunities, or possess better knowledge about how to set business strategy (Gompers et al., 2010). The reason for these benefits is that experience leads to richer, clearer, and more focused cognitive frameworks, which enables the entrepreneur to notice relationships between events that initially appear to be independent of one another, like changes in government policies or shifts in markets (Baron & Ensley, 2006). Moreover, experienced entrepreneurs have a better ability to see and include more distinct dimensions in their business opportunities and are also more aware of possible dangers. McGrath and MacMillan (2000) refer to this phenomenon as an "entrepreneurial mind set" that develops through the acquisition of more experience.

Besides the better ability to identify entrepreneurial opportunities, experience has been shown to foster the generation of both general and specific knowledge related to managing a business. Through managing a business, entrepreneurs gain general knowledge of tactics and distribution channels and acquire the operational and social skills required to establish relationships with customers, suppliers, and regulators (Ucbasaran, Wright, Westhead, & Busenitz, 2003; Mitchelmore & Rowley, 2010). Additionally, they generate knowledge about markets or funding possibilities (Rerup, 2005) as well as specific knowledge relating to finance, marketing, or logistics.

Does entrepreneur's experience really matter for venture performance?

Although the literature provides extensive evidence that experience shapes the acquisition of important entrepreneurial knowledge, skills, and competencies, there remains ambiguity about whether it actually matters for venture performance. Indeed, the results of more than three decades of research in this area have not provided convincing support for the "learning by doing" hypothesis. Although a considerable portion of the research has shown that entrepreneur's prior experience positively relates with venture performance (e.g., Evans & Leighton, 1989; Dyke, Fischer, & Reuber, 1992; Gimeno, Folta, Cooper, & Woo, 1997; Lerner, Brush, & Hisrich, 1997; Reuber & Fisher, 1997; Lerner & Almor, 2002; Chandler & Lyon, 2009; Gimmon & Levie, 2010; Zhao et al., 2013; Spanjer & von Witteloostuijn, 2017), there are a number of studies that have found a non-significant (e.g., Sandberg & Hofer, 1987; Bates, 1990; Robb & Watson, 2012; Oe & Mitsuhashi, 2013) or even a negative relationship between the two (e.g., Van de Ven, Hudson, & Schroeder, 1984; Jo & Lee, 1996; Naldi & Davidsson, 2014).

Unfortunately, existing meta-analytic studies in this area do not seem to explain this inconsistency adequately, and they do not provide integrative insights into the relationship between experience and venture performance (Peake & Marshall, 2011; Unger et al., 2011; Crook et al., 2011). The first of these, a meta-analysis by Peake and Marshall (2011), examined the effect of different types of experience on venture performance, represented by growth and earnings. However, it did not investigate the magnitude of the relationship between these two constructs. Instead, the authors tested for various moderators affecting the probability of obtaining a positive estimate for the relationship between experience and venture performance. They found that all the types of experience they examined positively affected venture performance.

The other two meta-analyses, by Unger et al. (2011) and Crook et al. (2011), focused on investigating the magnitude of the relationship, but not of the relationship between entrepreneurial experience and venture performance. Instead, prior experience has been included as one of many facets of a broad construct of human capital, along with variations in formal and nonformal education, training, learning, knowledge, competencies, or having self-employed parents. For this reason, we still do not know how entrepreneur's experience, as a particular aspect of human capital, is related to venture performance. However, these studies can at least provide some clues about the direction of the relationship. In particular, the study by Unger et al. (2011) found that the relationship between human capital and venture performance was positive and significant, though the overall effect size was relatively small. In contrast, Crook et al. (2011) found a strong positive association between human capital and venture performance. Since, in both of these studies, entrepreneur's prior experience was used as one of the indicator of human capital, their results could suggest that prior experience may indeed positively relate to venture performance. Therefore, we hypothesize that:

H1: The entrepreneur's experience is positively related to venture performance.

Determinants of the relationship between entrepreneur's experience and venture performance

Since the application of human capital theory to entrepreneurship research, researchers have tested the relationship between experience and venture performance in a variety of contexts. In particular, they have used different definitions and operationalizations of experience and performance, different industries, countries, and different firms in terms of age, size, and management composition. Unsurprisingly, this level of variation has produced different results and led to serious problems in integrating the findings. A number of scholars began appealing for a systematic examination of how these determinants shape the relationship between experience and venture performance (e.g., Cooper et al., 1994; Reuber & Fischer, 1999). Despite some efforts to examine the relationship between different types of experiences and venture performance in different contexts, results on the determinants are mixed, and findings on the limits of this relationship have yet to be integrated in the literature. It is not possible to focus on all possible determinants in a single study, so we have limited our scope to those that have been shown to influence the relationship between experience and venture performance significantly.

Type of experience

The notion that inconclusive findings about the relationship between experience and venture performance are caused by the differences in experience measures across studies was proposed more than twenty-five years ago (Cooper & Gimeno-Gascon, 1992; Reuber & Fischer, 1994). Despite such a long history, only a limited number of studies have systematically compared the effect of different types of experience on venture performance. Some of them have produced mixed results about the relationship between different types of experience and venture performance (e.g., Dyke et al., 1992; Lerner et al., 1997; Kalleberg & Leicht, 1991; Davidsson & Honig, 2003; Matsuda & Matsuo, 2017; Carbonara, Tran, & Santarelli, 2019; Dencker & Gruber, 2015; Gottschalk, Greene, & Müller, 2017). Since these studies differ in the type of experience measured, method for measuring venture performance and type of industry investigated, it is very difficult to draw any conclusions as to how different types of experience relate to venture performance or which are more or less important for venture performance.

Only one particular suggestion systematically occurs in both theoretical and empirical literature. From a theoretical point of view, the key factor for venture performance seems to be industrial experience. One possible reason for this is that, unlike other types of experience, industry experience not only involves generating knowledge about the internal organizational processes but, most importantly, helps entrepreneurs to obtain a clearer, deeper, more organized and structured view of their venture environment and the position of their venture in the industry and market. This knowledge includes better reactions to changing business conditions, better ability to plan and anticipate developments (Kor & Misangyi, 2008), length of time required to create a venture (Capelleras, Greene, Kantis, & Rabetino, 2010), the ability to identify early adopters who are willing to buy and try new products (Droge, Stanko, & Pollitte, 2010), unique knowledge about specific customer demands as well as knowledge about products, technologies, suppliers, and competitors (Helfat & Lieberman, 2002), familiarity with new technologies in industry (Roberts & Berry, 1985), faster access to the resources required for building a new venture (Cooper et al., 1994), knowledge of successful market-entry strategies (Cassar, 2014), knowledge of specific industry policies (Cimerova, 2012) and cost control (Marino & De Noble, 1997),

better understanding of market segments (Delmar & Shane, 2003), and participation in various social networks in a particular industry (Stam & Elfring, 2008). Acquiring this type of knowledge is a very time-consuming and costly process and, as Gimeno et al. (1997) have pointed out, it is hard to obtain without personal experience of industry.

When considering the available empirical evidence, a number of studies support the notion that industry experience does indeed play a key role in relation to venture performance (e.g., Eisenhardt & Schoonhoven, 1990; Lerner & Almor, 2002; Chandler & Lyon, 2009; Zheng, 2012; Seghers, Manigart, & Vanacker, 2012), even when compared with other types of experience. For instance, in a study by Jo and Lee (1996), industry experience had a positive moderate association with venture performance, while managerial and start-up experience had a negative relationship. Zhao et al. (2013), Cimerova (2012), Spanjer and von Witteloostuijn (2017), and Shu and Simmons (2018) similarly found that industry experience had the strongest association with venture performance when compared with other types of experience. Finally, in their meta-analytic study, Peake and Marshall (2011) found that industry experience had the strongest impact on the probability of obtaining a positive estimate for the relationship between experience and venture performance. Therefore, we hypothesize that:

H2: Industry experience has the strongest relationship with venture performance out of all the types of entrepreneur's experience.

Although the literature suggests that, of all the types of experience, industrial experience matters most for venture performance, it is difficult to differentiate further the effects of other types of experience. Despite the considerable amount of scientific knowledge on entrepreneurship, we still do not have a conclusive picture of how other types of experience relate to venture performance. There are a few empirical studies on this topic but their results are mixed, some suggest managerial experience is important (Carbonara et al., 2019; Dencker & Gruber, 2015; Gottschalk et al., 2017), while others highlight the significance of start-up experience (Miloud, Aspelund, & Cabrol, 2012) or functional experience (Li & Zhang, 2007). Consequently, the literature lacks any theoretical explanations of how different types of experience might relate to venture performance. This hampers our ability to even theoretically discuss and argue whether one particular type of experience has a stronger or weaker relationship with performance than other types. As a result, hypothesizing about how we might rank the strength of the relationship of different types of experience is somewhat speculative. Since our aim is to provide the first initial investigation of this issue, we formulate the following research question (RQ):

RQ1: How do different types of entrepreneur's experience relate to venture performance?

Type of venture performance

The lack of consistency in the findings on the relationship between experience and venture performance may be caused not only by the type of experience measured but also by how venture performance is operationalized (Cooper et al., 1994). Besides financial indicators, a wide range of performance measures can be used, like sales, growth, profit, size, or survival of a venture (see Van Looy & Shafagatova, 2016).

Unfortunately, compared to the research examining the effect of different types of experience, the research on different performance measures is even patchier. For instance, the relationship between industrial experience and venture size varies markedly from negative (Garcés-Galdeano et al., 2017), non-significant (Boeker, 1997; Dahl & Reichstein, 2007; Dencker & Gruber, 2015) to positive (Spanjer & Witteloostuijn, 2017; Gimmon & Levie, 2010; Cimerova, 2012; Eisenhardt & Schoonhoven, 1990). Similarly, this type of experience had a negative (Naldi & Davidsson, 2014), non-significant (Shrader & Siegel, 2007; Li & Zhang, 2007; Debrulle, Maes, & Ramboer, 2014; Matsuda & Matsuo, 2017), and positive association (Cimerova, 2012) with venture profitability.

Unfortunately, studies examining more than one performance measure in relation to experience have not clarified the matter (e.g., Kalleberg & Leicht, 1991; Jo & Lee, 1996; Pena, 2004; Muse, Rutherford, Oswald, & Raymond, 2005; Shrader & Siegel, 2007; Yang, Zimmerman, & Jiang, 2011; Naldi & Davidsson, 2014; Neville, Orser, Riding, & Jung, 2014; Zona, 2016; Shu & Simmons, 2018). For instance, Chandler and Hanks (1998) found entrepreneurial experience had a non-significant relationship with growth, but a positive moderate relationship with sales. By contrast, Hmieleski and Baron (2009) and Neville et al. (2014) found both relationships were non-significant.

Importantly, there are no theoretical explanations in the literature for how the prior experience may differ in its relationships with different types of performance. Although the meta-analysis by Unger et al. (2011) showed that human capital had the strongest relationship with size, followed by growth and profitability performance, it could be speculative to expect the same results with regard to experience. Therefore, we formulate the following research question (RQ):

RQ2: How does the entrepreneur's experience relate to different types of venture performance?

Age of the venture

Previous research supports the notion that experience matters more for the performance of younger ventures (e.g., Davidsson & Honig, 2003) and the effect of prior experience on venture performance declines as the venture ages. For instance, Delmar and Shane (2006) examined the effect of start-up and industry experience on the performance of new ventures and found that having a higher level of prior start-up experience was advantageous mainly in the early stages of a new business. As the ventures aged, experience had a declining effect on venture performance.

There are several reasons for this phenomenon. First, as suggested by Stinchcombe (1965), prior experience helps the entrepreneur to cope with liabilities of newness. In fact, it has been shown that experience-based knowledge is more helpful in coping with the liabilities of newness than knowledge gained through education (Cope & Watts, 2000; Shane, 2003).

Second, experienced entrepreneurs are able to reach important developmental milestones more quickly and with fewer resources. These milestones include hiring employees, having contract suppliers, or making sales by implementing adaptive sales strategies. This allows them to overcome the barriers and obstacles of venture development more easily (Starr & Bygrave, 1991; Forbes, 2005; Capelleras & Greene, 2008).

Third, there is a considerable difference in founders' impact on the entrepreneurial processes of young and old ventures. When a new venture is founded, the only assets it possesses come mainly from its founder's human capital (Bhide, 2000). Consequently, founder's experience dramatically affects the way in which a venture controls its resources and performs on the market (Aldrich & Martinez, 2001). Figuratively speaking, the founder's human capital determines where the new venture begins on its learning curve. As Delmar and Shane (2006, p. 225) suggest, "ventures founded by more experienced entrepreneurs begin their lives further up the learning curve because the human capital that their founders provide is more valuable to the performance of the new ventures than the human capital of inexperienced founders". However, as ventures age, the responsibilities and work tasks become more complex and they are therefore divided among venture employees. Consequently, the founders' involvement in the entrepreneurial process reduces, and so the performance of older ventures is less affected by their human capital attributes. Therefore, we hypothesize that:

H3: The relationship between entrepreneur's experience and venture performance is stronger for younger ventures than for older ventures.

Team vs. individual experience

The studies suggest that venture performance differs depending on whether the venture is managed by an individual entrepreneur or an entrepreneurial team. Specifically, the literature shows that entrepreneurial teams have a significant positive impact on venture performance (Cooper & Bruno, 1977; Cooper & Daily, 1997; Kamm, Shuman, Seeger, & Nurick, 1990; Jackson, 1992; Watson, Ponthieu, & Critelli, 1995; Hambrick, Cho, & Chen, 1996). By contrast, ventures managed by solo entrepreneurs have been shown to have lower levels of survivability, i.e. were more likely to fail in their entrepreneurial activities than those managed by entrepreneurial teams (Kamm et al., 1990; Watson et al., 1995).

In addition, there seems to be a positive relationship between the size of the founding team and venture performance (e.g., Sine, Mitsuhashi & Kirsch, 2006; Eisenhardt & Schoonhoven, 1996; Baron, Hannan & Burton, 1999). Perhaps the best support for these findings is provided by a meta-analysis by Jin et al. (2016) which shows that entrepreneurial team size had a significant positive effect on venture performance, suggesting that use of knowledge acquired through experience and having a greater number of top executives in the entrepreneurial team can foster entrepreneurial success.

There are several reasons for the better performance by entrepreneurial teams over individual entrepreneurs. First and most importantly, entrepreneurial teams wield greater human capital, which is important for coping with a complex and uncertain entrepreneurial environment (Kozlowski & Bell, 2003). Compared with an individual, entrepreneurial teams possess more knowledge of the industry environment, markets, and suppliers, which has a positive effect on

venture success (Delmar & Shane, 2003; 2006). Involving more people in the entrepreneurial process results in greater heterogeneity and diversity of the team's experience and more varied specializations among the team members, which leads to improved decision making (Colombo, Croce & Murtinu, 2014; Kerr & Tindale, 2004; Reynolds & White, 1997; Schutjens & Wever, 2000). Compared with an individual, entrepreneurial teams are better at processing information and executing more tasks simultaneously (Eisenhardt & Schoonhoven, 1990; Haleblian & Finkelstein, 1993).

Second, compared to individual entrepreneurs, entrepreneurial teams possess more financial resources that are critical to venture survival and performance (Cooper et al., 1994). As Aldrich and Martinez (2001) suggest, limited financial resources put ventures at risk during the early months and years of funding. Also, compared to individual entrepreneurs, entrepreneurial teams have better chances of obtaining external financial resources (Kamm et al., 1990). Therefore, we hypothesize that:

H4: The relationship between entrepreneur's experience and venture performance is stronger for entrepreneurial teams than for individuals.

Composition of managerial team

Besides the size of the entrepreneurial team, another important aspect that significantly contributes to the success of the business is the composition of the managerial team. The entrepreneurship literature suggests that the delegation of managerial power from owner to top executives increases the risk that top executives and agents will free-ride or shirk, threatening the survival and performance of the venture (Ross, 1973; Jensen & Meckling, 1976; Meyer & Zucker, 1989). As managers are naturally interested in maximizing their own compensation, this may lead to discrepancies between the top executives' interests and the owners' interests, i.e. the principal–agent conflict, which can lead to weaker venture performance (Panda & Leepsa, 2017).

The research in this field supports the idea that ventures managed by their owners perform better (Fahlenbrach, 2009; Jayaraman, Khorana, Nelling & Covin, 2000; Nelson, 2003). Lerong (2008) found that ventures with founder CEOs were associated with a higher venture performance and increased chance of survival than those with professional CEOs. Moreover, when the post of CEO was combined with that of chairperson, it was shown that including the founder in the management composition had even greater benefits for venture performance.

The reason for these effects lies in the higher motivation of founders to apply their human capital in the entrepreneurial process. As Lerong (2008) outlined, they have extrinsic as well as intrinsic motivations for doing so. First, founders most often own more of their venture's equity than professional CEOs, which creates stronger economic links between them and their ventures. Second, in addition to this extrinsic motivation, founders possess several specific intrinsic attributes that professional CEOs do not. They exhibit a greater need for achievement and possess a stronger psychological attachment and commitment to their ventures (Arthurs & Busenitz, 2003). Consequently, they are more willing to use their human capital in the entrepreneurial process. In contrast to founders, the effect of top executives' experience on venture performance should be weaker because professional CEOs lack this intrinsic motivation, despite having a substantial amount of prior experience. Therefore, we hypothesize that:

H5: The experience of founder CEOs is associated with higher venture performance compared to the experience of non-founder CEOs.

METHODOLOGY

Literature search

In order to identify the relevant studies, we conducted multiple manual and computerized searches. First, we used the electronic databases for all the available years (EBSCO, PsychINFO, Google and Google scholar, Science Direct). In this search, variations of keywords were used so each search covered three basic areas: experience (*experience, industry experience, managerial experience, start-up experience, entrepreneurial experience, supervising experience*), performance (*growth, sales, employees, ROA, ROE, ROI, ROS, profit, income, assets, success*, *firm size*), and venture (*start-up, entrepreneur,*

business owner, small business, small firm, venture). When a relevant study was found in a database, we used the tool that displays similar studies to check for any relevant studies that had not been detected.

Second, there are numerous studies addressing various economic areas, which use experience and venture performance as control variables. Since these studies often use different keywords in their titles and abstracts, we manually reviewed the results of all the studies published in the most relevant journals relating to entrepreneurship, namely: Journal of Business Venturing, Small Business Economy, Entrepreneurship Theory and Practice, Journal of Small Business Management, Academy of Management Journal and Administrative Science Quarterly.

Third, we used Google scholar to search for all relevant papers that were not included in the above-mentioned databases or journals. In order to check for the publication bias by comparing the observed effects of published and unpublished studies, we also searched for non-published studies, theses, dissertations and reports at this stage.

Fourth, we examined the references of all the relevant studies to find previously unidentified papers and we tried to contact all the authors whose papers were not available to download asking for a copy of their study or the data.

Selection and exclusion criteria

Our search produced a total of 521 studies. Titles, abstracts and full texts of these studies were reviewed to determine whether they are eligible to be included in the meta-analysis. In order to evaluate the eligibility of these studies, we applied the following set of inclusion criteria. First, the studies had to be both empirical and quantitative. Therefore, we excluded qualitative studies, theoretical studies, case studies, and financial reports. Second, studies had to investigate the relationship between experience and venture performance. Therefore, we excluded all the irrelevant studies on different topics that did not provide indicators of both experience and venture performance. Third, studies had to report the data required for performing a correlation meta-analysis, i.e. at least one correlation coefficient for the relationship between any type of experience and venture performance. Thus, all the studies using regression approach (e.g., multiple linear regression analysis), comparison, or experimental approach (e.g., mean comparison analysis), were excluded. We did not set any criteria for time of publication or country. We included both published and unpublished studies (e.g., masters or dissertation theses, working papers, preprints). Finally, we checked whether there was any overlap between the datasets in the studies, and on that basis, excluded studies by Beckman and Burton (2008), Lerner et al. (1997), Lerner and Haber (2001), and Hmieleski and Baron (2009).

After the eligibility screening, we ended up with a total number of 85 independent samples from 80 studies that met the inclusion criteria. Of all the studies included in our meta-analysis, only ten primary studies overlapped with those in the meta-analysis by Unger et al. (2011) and six in Crook et al.'s (2011) study. The description of each study included in our meta-analysis is shown in Table 1. The primary studies that overlap with Unger et al.'s (2011) study are marked with an asterisk (*) and those overlapping with Crook et al.'s (2011) study are marked with the number sign (#).

Table 1. Studies included in meta-analysis

Authors (year)	Type of experience	Performance indicator/s	Country of origin	Venture age	Sample size	Correlation coefficients
Arthurs et al. (2009)	start-up	size, profitability	USA	2.02	313	-0.14; -0.02
Batjargal et al. (2013)	managerial	size, profitability	China, Russia, France, USA	4.47	637	-0.03
Beckman et al. (2007)	managerial, start-up	size	USA	ns	161	-0.05; 0.09
Boeker (1997)	industry	size, growth	USA	ns	67	0.05; 0.06
Boeker & Wiltbank (2005)	industry	growth	USA	4.6	86	0.11; 0.13
Cao & Im (2018)	entrepreneurial	size	USA	0.549	1211	0.31; 0.38
Capelleras et al. (2010)	industry, entrepreneurial	growth	Argentina, Brazil, Chile, Peru	7.21	647	0.08; 0.01
Carbonara et al. (2019)	industry, working, managerial	size	Vietnam	45.39	18850	0.04 to 0.21
#Carpenter et al. (2001)	functional	size, profitability	International	ns	245	0.02 to 0.27
Cimerova (2012)	industry	size, profitability	USA	ns	14483	-0.10 to 0.19
Colombelli (2015)	entrepreneurial	size	EU	10	486	-0.02

Authors (year)	Type of experience	Performance indicator/s	Country of origin	Venture age	Sample size	Correlation coefficients
Dahl & Reichstein (2007)	industry, start-up	size	Denmark	ns	1246	0.05 to 0.24
Dalziel (2008)	start-up	profitability	Canada	21.58	52	0.09
Dana et al. (2016)	functional	size	Italy	ns	100	-0.12; 0.09
*Davidsson & Honig (2003)	managerial, start-up	size, profitability	Sweden	ns	379	-0.01 to 0.14
Debrulle et al. (2014)	industry	profitability	Belgium	ns	66	0.01
Dencker & Gruber (2015)	industry, entrepreneurial	size	Germany	ns	451	0.02 to 0.15
DeTienne & Cardon (2012)	entrepreneurial	size	ns	6.52	189	0.21
Dyke et al. (1992) computer services	managerial, start-up, entrepreneurial	size, profitability, growth	USA	6.23	103	-0.12 to 0.70
Dyke et al. (1992) food manufacturing	managerial, start-up, entrepreneurial	size, profitability, growth	USA	9.7	62	-0.16 to 0.68
Dyke et al. (1992) food retail	managerial, start-up, entrepreneurial	size, profitability, growth	USA	12.37	73	-0.17 to 0.09
Dyke et al. (1992) food wholesale	managerial, start-up, entrepreneurial	size, profitability, growth	USA	9.97	71	-0.12 to 0.77
Dyke et al. (1992) furniture manufacturing	managerial, start-up, entrepreneurial	size, profitability, growth	USA	8.78	77	-0.20 to 0.15
Eggers & Song (2014)	entrepreneurial	size, profitability, growth	China	12.1	219	-0.07; -0.08
Eisenhardt & Schoonhoven (1990)	industry	size	USA	ns	66	0.24
Garcés-Galdeano et al. (2017)	industry	size	Spain	24.28	823	-0.02; -0.05
*Gimeno et al. (1997)	managerial, functional, entrepreneurial	size	USA	ns	1457	-0.08 to 0.18
Gimmon & Levie (2010)	industry, managerial	size	Israel	7.51	193	0.15; 0.03
Gottschalk et al. (2017)	industry, managerial	size	Germany	< 8 years	7400	0.07; 0.12
*#Haber & Reichel (2007)	start-up	size, growth	Israel	ns	305	-0.06 to -0.02
Hayton (2005)	industry	size	USA	3.41	237	-0.06
He & Wang (2009)	managerial	size	USA	19.9	546	-0.06; 0.04
Herrmann & Datta (2006)	functional, entrepreneurial	size, profitability, growth	USA	ns	380	-0.08 to 0.39
#Hmieleski & Baron (2009)	entrepreneurial	size, growth	USA	5.74	201	0.00; 0.06
*Chandler & Hanks (1998)	entrepreneurial	size, growth	USA	3.52	102	-0.03; 0.33
#Chandler & Lyon (2009)	industry	growth	USA	ns	124	0.18
Iversen et al. (2016)	working, entrepreneurial	profitability	Denmark	ns	26116	0.08; 0.24
Jo & Lee (1996)	industry, managerial, start-up, functional, entrepreneurial	profitability, growth	South Korea	ns	48	-0.56 to 0.51
Kallenberg & Leicht (1991) men	industry, entrepreneurial	size	USA	13.19	878	-0.01 to 0.17
Kallenberg & Leicht (1991) women	industry, entrepreneurial	size	USA	10.55	261	0.02 to 0.19
Kazanjian & Rao (1999)	functional	size, growth	USA	6.72	71	-0.22; -0.08
Khayesi et al. (2014)	functional	size	Uganda	5.41	242	0.10; 0.17
Kiss et al. (2017)	international	size	France, Spain, Italy	ns	3280	-0.12
*Kundu & Katz (2003)	international	size	India	ns	47	-0.08
Laskovaia et al. (2017)	work	size	Global	2.33	3411	0.01
*Lee et al. (2001)	industry	size	Korea	4.59	143	0.06; 0.18

Authors (year)	Type of experience	Performance indicator/s	Country of origin	Venture age	Sample size	Correlation coefficients
*Lerner & Almor (2002)	industry	size	Israel	ns	220	0.24
Li & Zhang (2007)	industry, functional	size, profitability	China	4.83	184	0.09 to 0.34
Marino & De Noble (1997)	industry	size, growth	USA	5.8	28	0.01; 0.16
Matsuda & Matsuo (2017)	industry, managerial	profitability	Japan	ns	1307	0.10
McGee et al. (1995)	industry, functional	size, growth	USA	ns	210	-0.13 to 0.16
Miloud et al. (2012)	industry, managerial, start-up	size	France	15.46	102	0.11 to 0.15
Morgan et al. (2018)	managerial	size	Canada	ns	9977	-0.03 to 0.23
*Muse et al. (2005)	managerial	size, profitability, growth	USA	15.31	4637	-0.07 to 0.26
Nadkarni & Herrmann (2010)	managerial	size, profitability	India	8.57	195	-0.20; 0.19
Naldi & Davidsson (2014)	industry, managerial	size, profitability	Sweden	35.76	138	-0.23 to 0.15
Neville et al. (2014)	entrepreneurial	size, growth	Canada	3.3	2145	-0.03 to 0.15
Nuscheler et al. (2019)	start-up, industry	growth	USA	3.39	374	-0.04; 0.02
Oe & Mitsuhashi (2013)	industry, start-up	size	USA	ns	382	-0.01 to 0.03
Pascal et al. (2017)	managerial	size	Global	ns	353	0.17
*Pena (2004)	managerial, entrepreneurial	growth	Spain	5	114	-0.21 to 0.17
Pennings et al. (1998)	industry	size	Netherlands	1.81	1851	0.08
Rauch & Rijsdijk (2013)	industry, managerial, entrepreneurial	growth	Germany	2.29	93	0.01
Reuber & Fischer (1997)	functional	size	Canada	11.16	49	0.44
Robb & Watson (2012)	entrepreneurial	size, profitability	USA	ns	4016	-0.01; 0.00
Seghers et al. (2012)	industry	size	Belgium	ns	103	0.13
Shi et al. (2018)	managerial	size, profitability	USA	7.16	1500	-0.06 to -0.01
*#Shrader & Siegel (2007)	industry, start-up, functional	profitability, growth	USA	ns	198	-0.10 to 0.25
Shu & Simmons (2018)	industry, start-up	size	USA	ns	3529	-0.03 to 0.14
Soriano & Castrogiovanni (2012)	industry	Size, profitability	Spain, Austria, Germany, France	ns	2713	0.02; 0.39
Spanjer & von Witteloostuijn (2017)	industry, entrepreneurial	size	USA	ns	2120	0.01 to 0.26
Stam & Elfring (2008)	industry, start-up, managerial	size, growth	Netherlands	ns	87	0.12; 0.21
Stone and Tudor (2005)	managerial, functional	profitability	USA	ns	58	-0.28 to 0.26
Toft-Kehler et al. (2014)	managerial, entrepreneurial	size	Sweden	ns	65390	0.08; 0.14
Uy et al. (2013)	start-up	size	Philippines	3.86	156	0.06
Wasserman (2003)	managerial	size	USA	ns	202	0.01; 0.05
Weng & Lin (2014)	industry	size, profitability	USA	2.6	558	0.01; 0.04
#West & Noel (2009)	start-up	size	ns	4.77	83	-0.04; 0.19
Westhead & Cowling (1995)	managerial, entrepreneurial	size	UK	6.4	67	-0.24; 0.09
Yamakawa et al. (2013)	industry	size	Japan	6.47	203	-0.03
Yang et al. (2011)	managerial	size	USA	7.12	237	-0.01; 0.03
Zhao et al. (2013)	industry, start-up, functional	profitability	USA	ns	372	0.22 to 0.37
Zheng (2012)	industry	growth	China	ns	98	0.11
Zheng et al. (2016)	industry	profitability	USA	ns	344	0.08

Authors (year)	Type of experience	Performance indicator/s	Country of origin	Venture age	Sample size	Correlation coefficients
Zona (2016)	managerial	size, profitability, growth	Italy	45.48	104	-0.05 to 0.07

Note: ns – not specified; * – studies that overlap with Unger et al. (2011); # – studies that overlap with Crook et al. (2011). The "Correlation coefficient" column shows the correlation coefficients reported in the included primary studies. If the primary study reports three or more coefficients, we indicate the range in which these coefficients fall.

Variable coding procedures

Table 2 displays the operationalizations, coding, and frequencies of experience in the primary studies contained in the present meta-analysis. After a careful examination of these operationalizations, we summed up and organized experience into five main categories. Table 2 shows that *Managerial Experience* was the most investigated type of experience (used 81 times), followed by *Industry Experience* (used 59 times), and *Start-up Experience* (used 52 times).

Table 2. Frequencies and operationalizations of different types of experience used in the primary studies

Type of experience	N	Operationalizations
Managerial experience	81	Total years individual spent in management/executive 1/0 CEO's board experience in other firm CEO's tenure in company CEO's leadership experience 1/0 management experience
Industry experience	59	Total years individual spent in industry 1/0 industry experience
Start-up experience	52	Number of ventures founded 1/0 working in fast growing firm
Entrepreneurial experience	50	Total years individual spent in entrepreneurship Total years individual spent in self-employment
Functional experience	24	Experience in engineering Total years of production, marketing, and research development experience
International experience	15	Number of years of international experience 1/0 team's international experience
Working experience	7	Number of years in wage job 1/0 working as an employee before entering business

With regard to venture performance, we decided to use exactly the same operationalizations as in the study by Unger et al. (2011) in order to be able to compare our results with their findings. Thus, we divided venture performance into three groups: size, growth, and profitability. The categories and their frequencies are listed in Table 3. The most examined measure in the *Size* category was number of employees (used 68 times) followed by sales (used 53 times). In the *Profitability* category the most examined were ROA (used 24 times) and profit (used 22 times). In the *Growth* category, we found that growth in sales (used 37 times) was the most frequent indicator of venture growth. It is worth noting that we have identified some studies that use subjective self-assessment scales that capture entrepreneurs' beliefs about their firm's performance. However, we decided to focus our study on objective indicators of venture performance and therefore did not include these studies.

Table 3. Frequencies and operationalizations of different types of venture performance used in the primary studies

Type of venture performance	N
Size	
Number of employees	68
Sales volume	53
Assets	6
Earnings	6
Market valuation	4

Type of venture performance	N
Profitability	
ROA	24
Profit	22
Composite index: ROA, ROI, ROS average, ROA + ROE + profit margin	11
ROS	7
Return on employees	6
Stock market returns	2
Revenues	2
Growth	
Growth in sales	37
Growth in employees	13
Growth in assets	6
Growth in profit	3
Composite index: sales + profit, employee + revenue, growth of sales + profit + assets+ employees + market	2

Meta-analytic procedures

Primary and subgroup comparison analyses

The meta-analytic procedures were conducted using Comprehensive Meta-analysis software version 4. In the analyses, a random effect model was applied (Borenstein, Hedges, Higgins, & Rothstein, 2009), where the correlation coefficient was used as an indicator of effect size. In this type of analysis, the correlation coefficients are transformed into Fisher's Z value and then the results are reconverted back to correlations for display. Since both the dependent and independent variables were exact values that were not subject to measurement error, we did not correct for this possible statistical artefact. We computed the inverse variance-weighted mean correlation (r) and its 95% confidence intervals to investigate the statistical significance of the observed effects. The effect sizes are statistically significant when the 95% confidence intervals do not contain a zero value. Heterogeneity of results across studies was examined using Q-statistic. To quantify the heterogeneity, we examined the variance of the effect sizes across the population of studies (τ^2).

Based on the extant literature, we decided to examine the effect of five determinants of the relationship between entrepreneur's experience and venture performance, namely, type of experience, type of performance, venture age, size of managerial team, and composition of managerial team. Therefore, we calculated separate effect sizes for the subgroups and statistically tested the differences between these effect sizes. We used a Q-test, which is analogous to the main effect in analysis of variance test (ANOVA), and it indicates whether the categorical moderator explains the heterogeneity of correlations between observed groups. In order to examine the differences in effect sizes of specific pair of moderator groups, we calculated the z-statistic which is analogous to the t-test and it indicates whether the difference in effect sizes of two particular groups is statistically significant. For the venture age, our aim was to obtain results comparable to the prior findings in the literature. Therefore, we decided to follow the study by Unger et al. (2011) and created two groups – young ventures and old ventures. Studies that reported results for companies that had existed for fewer than 8 years were coded as young ventures, while those reporting results for companies that had existed for more than 8 years were coded as old ventures.

Publication bias

To measure publication bias, we wanted to compare the effect sizes of published studies and non-published studies. However, in our sample we had identified only two studies that had not been published (Cimerova, 2012; Batjargal et al., 2013). Consequently, we were unable to perform this comparison. Therefore, we decided to use a file drawer analysis (Rosenthal, 1979). We performed Classic Fail – safe N test, which calculated the number of studies required to nullify the observed effect. As the criterion for the presence of publication bias, we used the 5k + 10 rule (Hedges & Olkin, 1985). If the fail safe N is less than 5 times the number of samples plus 10, it indicates that publication bias might be present and that it might affect the results.

It showed that in order to obtain insignificant effect size between entrepreneur's experience and venture performance, 1339 more studies would have to be included in the analysis. This result suggested the absence of publication bias in our study. In Table 4, we report Classic Fail – safe N for every subgroup with 5k + 10 guideline to determine the presence of publication bias. We found that 7 of the 19 observed effect sizes (see Table 4, column 8 for distributions with "no" statement) failed to satisfy the 5k + 10 rule, indicating that one should be cautious when interpreting these particular results.

RESULTS

Primary analysis

The results of the overall effect size, based on 85 independent samples and 190,348 observations, supported Hypothesis 1 about the positive relationship between entrepreneurial experience and venture performance. As shown in Table 4, the effect size was positive $r = 0.086$; 95% CI [0.058, 0.114]. Since the confidence interval of the effect size did not contain a zero, the data suggest a significant positive relationship between entrepreneur's experience and venture performance. The *Q*-value was 694.820 with a $p < 0.001$ and τ^2 was 0.012. Thus, it could be concluded that the studies were heterogeneous, i.e. they might differ in some key variables that could moderate the relationship between experience and venture performance.

Table 4. Results of meta-analysis on the relationship between experience and venture performance

Variable	K	N	r	95% CI	τ^2	SE	Fail safe N (> 5k + 10)	Q
Overall effect								
Fixed	85	190348	0.091	0.082 - 0.095	0.012	0.006	1339 (yes)	694.820***
Random	85	190348	0.086	0.058 - 0.114	0.012	0.006		
Type of experience								
Industrial	39	65349	0.105	0.065 - 0.144	0.012	0.007	3594 (yes)	
Start-up	20	70190	0.125	0.057 - 0.193	0.018	0.015	1304 (yes)	
Entrepreneurial	21	37380	0.053	-0.020 - 0.125	0.023	0.018	725 (yes)	
Managerial	35	131642	0.080	0.036 - 0.123	0.013	0.009	2967 (yes)	13.329*
Functional	8	1523	0.051	-0.100 - 0.200	0.039	0.028	9 (no)	
International	7	4299	0.142	-0.061 - 0.333	0.067	0.060	11 (no)	
Working	6	51190	0.098	0.060 - 0.134	0.002	0.002	423 (yes)	
Type of performance								
Profitability	29	34904	0.034	0.003 - 0.065	0.004	0.002	97 (no)	
Size	73	186879	0.087	0.057 - 0.116	0.012	0.007	1176 (yes)	24.006***
Growth	27	10487	0.023	-0.017 - 0.063	0.004	0.003	0 (no)	
Venture age								
Old	20	28881	0.051	-0.012 - 0.114	0.014	0.012	88 (no)	1.464
Young	28	12872	0.067	0.022 - 0.112	0.010	0.005	248 (yes)	
Size of managerial team								
Individual	67	181163	0.081	0.051 - 0.111	0.011	0.006	8276 (yes)	1.960
Team	19	9430	0.111	0.021 - 0.199	0.034	0.020	228 (yes)	
Composition of managerial team								
Entrepreneur	50	161485	0.101	0.071 - 0.131	0.008	0.005	8601 (yes)	
Entrepreneurial team	7	2506	0.165	0.068 - 0.259	0.013	0.011	115 (yes)	9.250*
CEO	17	19678	0.024	-0.042 - 0.089	0.014	0.011	0 (no)	
CEO team	13	7085	0.070	-0.034 - 0.172	0.029	0.023	7 (no)	

Note: K – number of samples; N – sample size, r – inverse variance-weighted mean correlation coefficients, 95% CI – 95% confidence interval, τ^2 – tau squared, SE – standard error, Q – statistic assessing the homogeneity of observed studies, * $p < 0.05$, *** $p < 0.001$.

Subgroup comparison analyses

Since the effect sizes in primary studies were shown to be heterogeneous, the type of experience, type of performance, venture age, size of a managerial team and composition of managerial team were examined as potential moderator variables. *Q*-statistic for venture age and size of managerial team were not significant (Table 4), suggesting that these variables did not moderate the relationship between experience and venture performance. As shown in Table 4, however, the *Q*-statistic for the type of experience, type of performance, and composition of managerial team was significant. Therefore, these three variables contributed to the heterogeneity, and were thus considered as moderator variables in the correlation between experience and venture performance. To examine the differences in effect sizes between the specific pairs of subgroups observed in the moderator variables, we performed *z*-tests subgroup comparison analyses (Table 5).

As shown in Table 4, the effect sizes and variances were different for different types of experience. However, the results of the *z*-test do not support Hypothesis 2 that industry experience has the strongest relationship with venture performance. Start-up experience had the strongest impact on venture performance, followed by industrial, working, and managerial experience. The other three types of experience showed a non-significant effect on venture performance (entrepreneurial, functional, international). The differences in effect sizes between the first three significant types of experience were non-significant (see Table 5).

We formulated a research question to find out how experience relates to different types of venture performance. We found that significant differences exist. In particular, the effect on growth was the weakest $r = 0.023$ and non-significant. The effect size of experience on venture profitability $r = 0.034$ was significant and it was also significantly higher compared to growth (see Table 5). In addition, experience had the strongest and most significant effect on venture size, $r = 0.087$.

We hypothesized that the relationship between entrepreneur's experience and venture performance is stronger for younger ventures than for older ventures (Hypothesis 3). The results, however, do not support this hypothesis. In particular, the effect of experience on venture performance was not significant in older ventures $r = 0.051$, but significant in younger ventures $r = 0.067$. The difference between these two effects was not statistically significant (Table 5).

Hypothesis 4 assumed that the relationship between entrepreneur's experience and venture performance is stronger for entrepreneurial teams than for individuals. This hypothesis was not supported. Size of managerial team alone was not important in the relationship between experience and venture performance. We found that the experience of individuals and teams alike significantly affected venture performance (Table 4) and the strengths of these effects did not significantly differ (Table 5).

Finally, we hypothesized that the experience of founder CEOs is associated with higher venture performance compared to the experience of non-founder CEOs (Hypothesis 5). For composition of managerial team, we found that CEO experience and CEO team experience did not significantly affect venture performance. However, for owner-inclusive management (see Table 4 for effect sizes of entrepreneur and entrepreneurial team), the effect of experience on venture performance was significant. The strongest effect of experience on venture performance was observed when the management consisted of a team of entrepreneurs who owned the venture, $r = 0.165$.

Table 5. The comparison of effect sizes between specific subgroups

Groups comparison	z-value	p-value
Type of experience		
Industrial experience - Start-up experience	-1.21	0.226
Industrial experience - Entrepreneurial experience	2.84	0.005
Industrial experience - Managerial experience	2.40	0.016
Industrial experience - Functional experience	1.94	0.052
Industrial experience - International experience	-0.59	0.552
Industrial experience - Working experience	1.23	0.218
Start-up experience - Entrepreneurial experience	3.17	0.002
Start-up experience - Managerial experience	2.67	0.008
Start-up experience - Functional experience	2.39	0.017
Start-up experience - International experience	-0.26	0.793
Start-up experience - Working experience	1.88	0.060

Groups comparison	z-value	p-value
Type of experience		
Entrepreneurial experience - Managerial experience	-0.28	0.778
Entrepreneurial experience - Functional experience	0.01	0.991
Entrepreneurial experience - International experience	-1.43	0.153
Entrepreneurial experience - Working experience	-2.54	0.011
Managerial experience - Functional experience	0.99	0.321
Managerial experience - International	-1.03	0.304
Managerial experience - Working experience	-2.01	0.044
Functional experience - International experience	-1.38	0.168
Functional experience - Working experience	-1.69	0.091
International - Working experience	0.74	0.461
Type of venture performance		
Profitability - Growth	2.74	0.006
Profitability - Size	-7.50	< 0.001
Growth - Size	-8.59	< 0.001
Venture age		
Old - Young	1.21	0.228
Size of managerial team		
Individual - Team	-1.40	0.162
Composition of managerial team		
CEO - Entrepreneur	-6.56	< 0.001
CEO - Entrepreneurial team	-9.18	< 0.001
CEO - Top management	-1.83	0.067
Entrepreneur - Entrepreneurial team	-5.30	< 0.001
Entrepreneur - CEO team	1.33	0.184
Entrepreneurial team - CEO team	3.74	< 0.001

DISCUSSION

Over the past few decades, entrepreneurship research has produced contradictory results on how the entrepreneur's experience shapes business outcomes. This meta-analysis combined the results of 80 studies in order to estimate the magnitude of the relationship between experience and venture performance. Moreover, we tested for the effect of five determinants of this relationship, namely, type of experience, type of performance, venture age, size of managerial team, and composition of managerial team.

The results of this meta-analysis show that there is a positive relationship between experience and venture performance. Therefore, in general, our study is in line with the longstanding notion that experience plays a crucial role in shaping business outcomes. However, the results regarding the strength of this relationship are far from convincing, especially when we consider the importance attached to it in both the research (Marvel et al., 2016) and practice (e.g., MacMillan et al., 1985; Babcock-Lumish, 2005; Maxwell, Jeffrey, & Lévesque, 2011; Landström, 1998; Stuart & Abetti, 1990; Zacharakis & Meyer, 2000). Given our findings, we think there are two reasons why we should be careful when assessing the potential effect of experience on venture performance.

First, although we found a significant relationship and therefore support for Hypothesis 1, the magnitude of the relationship between experience and venture performance was rather weak. This was consistent with the meta-analysis by Unger et al. (2011), which found the magnitude of the relationship between the more general concept of human capital and venture performance was slightly greater than in our study. Compared to the meta-analysis by Crook et al. (2011), the overall magnitude of the effect reported both in Unger et al. (2011) and in our study was significantly lower.

Second, the analysis of the determinants of the relationship between experience and venture performance showed that there were several questionable effect sizes that contained a zero value in their confidence intervals. In fact, of the five

determinants, four had at least one non-significant effect, suggesting the effect of experience on venture performance is highly sensitive to specific conditions. In the next sections, we describe these results in detail and discuss the contribution they make to both human capital theory and business practice.

Implications for theory and future research

The overall magnitude of the relationship between experience and venture performance

This meta-analysis contributes to the extant literature on human capital theory in several ways. Most importantly, to the best of our knowledge, this was the first attempt to examine systematically the overall magnitude of the relationship between entrepreneur's experience and venture performance. Previously, there had been two broader meta-analyses on the relationship between human capital and business outcomes (Crook et al., 2011; Unger et al., 2011), but in those studies experience was merged with other human capital factors, like knowledge, education, or competencies. In our study, we found a weak overall relationship between experience and venture performance, which suggests that the importance of experience for business outcomes is limited.

A possible explanation for the weak relationship between experience and venture performance may be provided by studies from the field of entrepreneurial learning. As Krueger (2007) stated, it is not experience *per se* but rather the specific knowledge, skills, and competencies gained from "learning by doing" that contribute to business success. In this sense, the well-established measures of experience, like the number of years in business or the number of ventures founded, may be insufficient to capture what knowledge the entrepreneur actually learned through experience. As Spanjer and von Witteloostuijn (2017) argued, entrepreneurs are not able to exploit fully every learning opportunity offered by a new experience. In order to learn from experiencing new activities or situations, they have to actively experiment and, most importantly, reflect on the outcomes of their decisions (Kolb, 1984). In the literature, there are a number of reasons as to why someone may not learn from experiencing new entrepreneurial events (see Frankish, Roberts, Coad, Spearsz, & Storey, 2012). In this sense, our findings suggest the need to focus more deeply on the process of entrepreneurial learning with regard to how both situational and personality characteristics shape the process, whereby knowledge is acquired through experience.

The determinants of the relationship between experience and venture performance

Our study also contributes to human capital theory by investigating the determinants of the relationship between experience and venture performance. Perhaps most importantly, we were able to combine previous inconclusive findings about the impact of different types of experience on different venture performance outcomes. Venture performance showed to have the strongest significant relationship with start-up experience, followed by industrial, working, and managerial experience. In comparison to these types of experience, international, functional, and entrepreneurial experience had a non-significant effect on venture performance.

These findings naturally raise questions about why start-up and industrial experience matter the most for venture performance and what might be the important specific knowledge entrepreneurs learn through this experience. Since the most relevant knowledge required for entrepreneurship is acquired through learning by doing (Cope & Watts, 2000; Pittaway & Cope, 2007), prior experience in creating and founding new ventures serves as the first principal instance for generating knowledge about "what it really means to be an entrepreneur," that is, what needs to be done to transform an identified business opportunity into a successful venture. In other words, start-up experience is helpful at the very early stages of entrepreneurial processes, since it helps entrepreneurs to identify and set up business opportunities with better prospects (Ucbasaran et al., 2009). Fundamentally, the start-up experience is directly related to the phenomenon of serial entrepreneurship, as it is mostly operationalized in the literature as a number of ventures founded. As Zhang (2011) notes, serial entrepreneurs with rich start-up experience are able to raise more venture capital and complete the early stages of development much faster, which gives them a significant advantage over novice entrepreneurs. Moreover, the extant literature showed that entrepreneurs with start-up experience possess richer, clearer, and more focused cognitive frameworks, which helps them to notice relationships between seemingly independent events or trends, like shifts in markets or changes in government policies. Moreover, they are also more aware of possible dangers and risks associated with business creation (Baron & Ensley 2006) and show a better ability to select the right industry and better market timing skills (Gompers et al., 2010). On the other hand, entrepreneurs without start-up experience tend to focus on newness and

the perceived superiority of the products or services they propose. This so-called "cognitive dazzle" causes them not to see many of the important business and financial factors that significantly affect venture performance (Baron & Ensley, 2006).

Moreover, it seems that, at the early stages of a venture, industrial experience can support the benefits of start-up experience to a large degree (Bosma, van Praag, Thurik & Wit, 2004). In the literature, there is a wide consensus that understanding the industry environment is significant to venture performance (e.g., Jo & Lee, 1996; Cimerova, 2012; Zhao et al., 2013; Spanjer & von Witteloostuijn, 2017; Shu & Simmons, 2018). In general, industry experience increases the entrepreneur's knowledge of industry trends, current technologies, and manufacturing processes, as does information about other businesses in the same area (Landier & Thesmar, 2009). Consequently, entrepreneurs with industry experience are better able to evaluate their own prospects (Chandler, 1996) and new business opportunities (Dimov, 2010). Moreover, they gain knowledge about proper pricing, cost structure, the value chain and the profitability of different products on different markets (Brudel, Preisendorfer, & Ziegler, 1992). This knowledge may significantly reduce entrepreneurial uncertainty and lead to more sophisticated business strategies resulting in better performance for starting ventures. Together with our results, these findings suggest that having knowledge generated from both industrial and start-up experience could be most beneficial to venture performance, because they support one another, multiplying their effects.

Besides investigating the effect of different types of experience, we examined how experience, in general, is related to different types of venture performance. Using a broad construct of human capital, the only study that so far has tried to integrate the findings in this field is that by Unger et al. (2011). Our findings differed from their meta-analysis. In our study, the largest effect size was found for size of venture, followed by profitability. Interestingly, the effect of experience on growth was non-significant. This finding was somewhat surprising and differed from Unger et al.'s (2011) study. In their study, human capital mostly affected size of a venture, followed by growth and profitability, while all three effects were significant.

Consistent with our hypothesis, we found that the effect size of younger ventures was stronger than that of older ventures (Delmar & Shane, 2006). However, a surprising finding was that the effect of experience on venture performance in older ventures was not significant. Comparing our results with the meta-analysis by Unger et al. (2011), we found that the magnitude of the effect of experience in older ventures was very similar to that in their study. This could suggest that the effect of human capital for older ventures found in their study can mainly be attributed to experience, while the contribution of other attributes was limited. By contrast, for younger ventures, Unger et al. (2011) found that human capital had an approximately two times larger effect than the effect of experience in our study. This indicates that, for younger ventures, all human capital attributes are critically important for venture performance. Besides prior experience, entrepreneurs gain advantage by using their knowledge and competencies from previous training or formal and informal education. Unfortunately, there is still very little information in the existing literature on how human capital attributes affect the performance of younger and older ventures. Therefore, further investigation is required to see whether our interpretations are correct.

Lastly, we integrated the findings from the investigation of the effect of size and composition of managerial team on the relationship between experience and venture performance. This investigation resulted in two main findings. First, although the effect size of team experience on venture performance was stronger than the individual's experience, the difference was not significant. This finding is not in line with the extant literature suggesting that compared to individuals, entrepreneurial teams are abler to utilize their broader experience resulting in a better venture performance or survivability (e.g., Eisenhardt & Schoonhoven, 1990; Haleblian & Finkelstein, 1993; Kozlowski & Bell, 2003; Delmar & Shane, 2003; 2006; Jin et al., 2016; Kamm et al., 1990; Watson et al., 1995).

Second, rather than size of managerial team, our findings suggest that involvement of the venture owner in the management is more important. Our findings are in line with the idea that owner involvement in the management of a venture significantly affects the relationship between experience and venture performance (Fahlenbrach, 2009; Jayaraman et al., 2000; Nelson, 2003; Lerong, 2008). We found support for this at both the individual and group level. Owner experience had a larger effect size than CEO experience did and the owner-inclusive entrepreneurial teams had a larger effect size on venture performance than did teams consisting only of professional CEOs. These findings suggest that separating ownership from control may result in a weaker venture performance, simply because managers do not always work for the benefit of the owners and therefore do not utilize their experience such that the venture performs better (Panda & Leepsa, 2017).

Implications for practice

This meta-analysis has several implications for entrepreneurial practice. First, our results suggest that investors and venture capitalists should be very careful when considering the entrepreneur's prior experience in assessing a venture proposal. More specifically, they should reconsider the weight they currently attach to the entrepreneur's prior experience as an assessment criterion. As we stated before, it is common business practice for investors and venture capitalists to consider the entrepreneur's prior experience to be one of the most important criteria for making investment decisions (e.g., MacMillan et al., 1985, Babcock-Lumish, 2005; Maxwell et al., 2011; Landström, 1998; Stuart & Abetti, 1990; Zacharakis & Meyer, 2000). Our findings suggest that the contribution of prior experience to venture performance is limited.

Second, our findings suggest that investor practitioners may find it helpful to assess entrepreneurs' experience within a broader context, taking account of the types of experience the entrepreneur possesses. Investors and venture capitalists should be very careful when considering entrepreneurs' international, functional, and entrepreneurial experience. Since these had a non-significant effect on venture performance, they may have little, if any, benefit for venture performance. In general, having experience of founding a venture or of a particular industry seems to provide more value than experience of doing business internationally, or being in business for many years. Another important aspect that investors and venture capitalists should take into account is the size and composition of the entrepreneurial team and the extent to which the venture proposal reflects the different types of experience the team members possess. In general, our results support previous findings that, by drawing on their experience, a larger number of individuals in the entrepreneurial team may be better at fostering entrepreneurial success than the individual entrepreneur is (Jin et al., 2016). Additionally, whether the owner is a member of the venture's executive is important for venture performance. Our results suggest that owners' experience matters much more for venture performance than the experience of professional CEOs does (Lerong, 2008). Therefore, when making their assessments, practitioners should take into account the size of the entrepreneurial team as well as whether the owner of the venture plans to be part of the venture executive.

Study limitations

Naturally, our study has some limitations. The first limitation of this meta-analysis is the small number of studies and samples in some of the subgroup comparison analyses. For instance, only a limited number of studies (8, 7, and 6 studies respectively) were used to study the effect of functional, international, and working experience on venture performance. The reason for this is that only a limited proportion of primary studies provide evidence of the bivariate relationship between experience and venture performance. In selecting eligible studies, we had to exclude many studies using multiple regression analyses simply because correlation coefficients were missing. Since analyses based on a limited number of samples can be susceptible to second-order sampling errors (see Hunter & Schmidt, 2004), some of our results based on a limited number of studies should be interpreted with caution.

The second limitation concerns the investigation of the effect of size of managerial team on the relationship between experience and venture performance. Although we found that the effect sizes of experience on performance varied for the four types of management, these results should be interpreted cautiously because we lacked knowledge about the size of the entrepreneurial teams and the number of owners in the ventures investigated. For instance, we found that the experience of managerial teams that included the venture owner had the largest effect size on venture performance. However, we lacked information on the number of owners, how the owners were included in these teams, and the structure of the teams. Without this information, we were not able to discuss the optimal number of team members or to what extent team structure affects how the prior experience of team members is utilized in relation to better venture performance. In this sense, our findings are more exploratory in nature and should be viewed as a first initial attempt to integrate this area of research. Since these aspects may significantly shape a venture's outcomes (Panda & Leepsa, 2017), we recommend that future research should explore how various types of experience can be utilized under different types of venture management.

The third limitation of the study concerns the very limited number of unpublished studies in the meta-analysis. Surprisingly, we were able to identify only two such studies. This made it impossible to test for publication bias by comparing the effect sizes of the published and unpublished studies. Although the fail safe N-test did not indicate that publication bias was present in the overall relationship between experience and venture performance, some of the results from the partial subgroup comparison analyses should be interpreted with some caution.

CONCLUSION

This meta-analysis systematically summarized the inconclusive extant literature on the relationship between experience and venture performance. The inclusion of 80 primary studies allowed us to test the effect of five different determinants of this relationship, namely, type of experience, type of performance, venture age, size of managerial team, and composition of managerial team. The meta-analysis found that, overall, experience positively related to venture performance. However, the relationship was rather weak, considering the importance attributed to experience in both research and practice. Our results have practical implications for investors and venture capitalists, suggesting that they should be cautious in considering the prior experience of entrepreneurs when evaluating business proposals. Since the relationship between experience and venture performance has been shown to depend on multiple determinants, investors should evaluate entrepreneurs' prior experience in a much broader context, taking into account other important aspects such as the age of the firm or the size and composition of the management team.

Our findings on the determinants of the relationship between experience and venture performance contribute to human capital theory. Synthesizing previous meta-analytic findings (Unger et al., 2011; Crook et al., 2011; Peake & Marshall, 2011) with our results helps to learn not only about the importance of human capital for venture performance, but also about its limitations and constraints. Despite some limitations, such as the limited number of included studies, our study may encourage other researchers to investigate further possible determinants of the relationship between experience and venture performance. Since it is the actions and decisions of entrepreneurs that significantly influence the success of firms, future studies should strive to understand more fully how and under what circumstances certain experiences are incorporated into the behavior of entrepreneurs and, thus indirectly determine their success.

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Authorship contribution statement

Matúš Grežo: Data Curation, Formal Analysis, Investigation, Funding Acquisition, Methodology, Resources, Supervision, Validation, Project Administration, Writing - Original Draft, Writing – Review & Editing. **Róbert Hanák:** Conceptualization, Data Curation, Formal Analysis, Funding Acquisition, Investigation, Methodology, Project Administration, Resources, Software, Writing – Review & Editing.

Conflicts of interest

The authors declare no conflict of interest.

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