



Nova School of Business and Economics

Universidade Nova de Lisboa

Thesis presented as part of the requirements for the  
Degree of Doctor of Philosophy in Management

*From the bitterness of lemons to the sweet taste of lemonade*  
Three Essays in Entrepreneurship

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A Thesis carried out on the PhD in Management  
under the supervision of Professor Pedro Neves

August 2017

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## **Acknowledgements**

This work would not have the meaning that it has without the invaluable support provided by many people, whom I would like to thank sincerely.

First, I would like to thank the Research Office team, especially Silvana Figueiredo, Sofia Vala and Patrícia Cardoso, for their unfailing support and assistance over these years.

I would like to acknowledge all the professors that I had the opportunity to work with, notably professors Joana Story, Filipa Castanheira and Rita Cunha, for the useful comments, words of encouragement, and for reminding me that, more than a researcher, I am supposed to be a storyteller.

I am deeply grateful to my co-authors for having challenged my research in so many ways. To professor Miguel Pinha e Cunha for provoking me to discover the beauty of qualitative research, and to professor Gloria González-Morales for her insightful comments which inspired me to widen my research to include various perspectives.

Thanks to all my Ph.D. colleagues for their support and valuable inputs during our seminar sessions. A special thanks to Filipa Rodrigues for the kindness and words of encouragement.

I am especially appreciative of my team: thanks to Sandra for the inputs, the encouragement and the support during the ups and downs of this process. Thanks to Maria João for pushing me to continue, and for the fun and positivity even when all I wanted was to complain.

I would also like to express my immense gratitude to all my friends, for reminding me everyday that I am so lucky to have you in my life. Thank you for your never-ending support, even when I was immersed in my work. I am indebted to my

friend Janaina Magnoni, and her daughter Ana Beatriz, for hosting me during my time in São Paulo.

I would like to express my thankfulness to all the entrepreneurs and start-ups that participated in my studies, especially the ones I had the chance to meet personally. The contribution of Joana Mendonça was absolutely critical in this process: thank you for our endless conversations about the entrepreneurial process and for introducing me to the entrepreneurial ecosystem.

I would like to thank my foundation: my mother, father, brother and grandma, for the unconditional love and values that I will proudly carry with me for the rest of my life. To Maria José for blessing my journey.

Finally, in the days when role models are becoming rare, I have had the privilege of being shaped by one of the most exceptional people that I have had the chance to meet: my advisor, professor Pedro Neves. I struggle to find the words to depict my profoundest feelings of gratitude, not only for having taught me everything I know about being a researcher, but for understanding and dealing with my fears in such a professional, funny and empathetic way. Thank you for teaching me to work hard, but most importantly the meaning of work ethic. Thank you for helping me to stay afloat, rather than drown in my feelings of inadequacy, and for having shown me that it is possible to *fake it until you become it*.



## **Thesis abstract**

To critically evaluate the constraints faced by entrepreneurs, scholars have lean on two fundamental research questions. First, why doesn't everyone who pursues his/her entrepreneurial aspirations actually succeed? Second, what are the most effective strategies entrepreneurs lean on to manage their ventures in such turbulent environments? Answering to the first question provides knowledge about how entrepreneurs react to constraints and what fuels/inhibits their behavior in the face of adversity. Furthermore, getting knowledge about how entrepreneurs act, disentangles the nuances of their activity and helps to explain what management practices foster and/or deters the development of a new business.

In three studies, using different samples and methodologies, we highlight the importance of understanding the effect of constraints on entrepreneurial behavior, as well as the implications that the strategies used to manage such demands have for the venture development.

Our findings deliver contributions for both research and practice. For scholars, this research provides a more granular view about the impact of constraints in entrepreneurial behavior. For entrepreneurs, we provide evidence about the effectiveness of some management practices for venture high-performance. Our findings also help policy makers to elaborate more effective propositions to stimulate entrepreneurial activity.

## General introduction

Entrepreneurship is defined as the identification and exploitation of business opportunities (Shane & Venkataraman 2000). Its importance for economic and societal development is well documented as new ventures have demonstrated potential for creating jobs, and for the emergence of innovations (Van Praag & Versloot, 2007). Entrepreneurship is better conceptualized as a process (Moroz & Hindle, 2012) that encompasses three fundamental phases (Frese & Gielnik, 2014). First, the prelaunch or opportunity identification phase, in which entrepreneurs identify business opportunities (e.g., Shane & Venkataraman, 2000). Second, the launch or development and execution phase, where entrepreneurs assemble the necessary resources for starting a venture (e.g., Shane, 2003). Finally, the post launch phase in which entrepreneurs manage their ventures in such a way that it grows and survives (Baron, 2007).

Research on entrepreneurship was initially driven by the understanding of what happens when entrepreneurs take action (Stevenson & Jarillo, 1990). Its main concern was not the entrepreneurs *per se* but rather the results of their actions. This stream of research is characterized by the economic contribution of the entrepreneurial activity. Under this view, entrepreneurship is conceptualized as the main driver of economic activity, through disruptive market innovation (Schumpeter, 1934), and the entrepreneur is seen as having superior knowledge of market imperfections that he/she uses to create such disruptive value (Kirzner, 1979). What matters is the net effect of the entrepreneurs' actions to the general economics system, and the effect of those actions for the development of markets (Stevenson & Jarillo, 1990).

However, the higher failure rates of new ventures shifted scholars' attention to the nuances of the entrepreneurial process, namely to the constraints that entrepreneurs face. As national economies suffer from this phenomenon (Lee, 2014), research on *who* the entrepreneur is and *how* he/she manages his/her ventures, promptly gained eminence in researchers' agenda.

Entrepreneurs and their ventures face innumerable constraints since the moment business opportunities are identified and chased, until the venture comes to reality (Kollmann, Stöckmann & Kensbock, 2017). To understand the effect of constraints in entrepreneurial behavior, two main research questions have driven scholars' attention: why only some individuals pursue their entrepreneurial aspirations? and what management strategies are more effective for new ventures? The first question puts the emphasis on the entrepreneur and explores the influence of his/her dispositional characteristics, attitudes, background and cognitive styles in both the identification of business opportunities and ability to take action in the face of obstacles. The second question explores how the characteristics of the entrepreneurial management sustain and/or compromise the new created venture's survival and outcomes (e.g., growth; profitability).

This dissertation is organized into three parts. In **Part I** we provide a comprehensive literature review about the importance of studying the role of constraints in the entrepreneurial activity (Chapter I: The perks of being new), the individual characteristics that explain the different patterns of entrepreneurs' behavior in the face of constraints (Chapter II: Why only some individuals pursue their entrepreneurial aspirations?), and the management practices entrepreneurs lean on to manage their ventures towards success (Chapter III: What management strategies are

more effective for new ventures?). We finish Part I with the lingering questions that remain unanswered.

**Part II** comprises three empirical studies attempting to answer these questions: chapter IV aims to expand our knowledge on why and how entrepreneurial-related constraints affect entrepreneur's behavior differently, while chapter V analyzes how certain management practices benefit (or not) the organization outcomes.

Finally, **Part III** reviews and discusses the findings, and its implications for theory and practice, followed by suggestions for future research.

## **PART I: LITERATURE REVIEW**

**CHAPTER I: The perks of being new**

## **The perks of being new**

The field of entrepreneurship is recognized as being of fundamental importance for economic development, which has triggered researchers to analyze the phenomenon from different standpoints. Stinchcombe's essay -"Social Structures and Organizations" (1965) - historically marked the starting point of entrepreneurship research. His most influential proposition concerned the "liability of newness"<sup>1</sup>. Stinchcombe argued that newly-founded organizations suffer a heightened risk of failure than older organizations because nascent entrepreneurs face complicated challenges, including managing relationships among stakeholders, acquiring required resources quickly, securing legal recognition, and coping with demanding environments (Aldrich & Yang, 2012).

Thus, this liability of newness derives, in part, from the scarcity of resources. In fact, the majority of new ventures starts with limited financial and human resources that are likely to compromise venture development and growth. Scholars have tried to disentangle this association between resource scarcity and venture performance (Baker & Nelson, 2005). The Resource-Based Theory (Penrose, 1959; Barney, 1991) provides an initial explanation for this query. According to the theory, it is the identification and acquisition of resources (both tangible and intangible), rather than deployment or allocation activities, that is crucial for the new venture's success in early stages of development (Stevenson & Gumpert, 1985). Tangible resources include financial (e.g., access to funding and financial opportunities), physical (e.g., physical technology, firm's plan and equipment, firm's geographic location), human capital (e.g., training, experience) and organizational resources (e.g., formal and

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<sup>1</sup> A concept he borrowed from Thorsten Veblen (1946) who wrote about the "penalty of taking the lead".

informal planning, controlling and coordinating systems, as well as informal *intra* and *interorganizational* relations) (Barney, 1991). On the other hand, intangible resources include organizational styles, values, leadership as well as knowledge and culture (Grant, 1991; Hall, 1992).

Entrepreneurs make judgments on which resources are more or less important based on their expectations about the future (Penrose, 1959). Whereas new ventures begin with the entrepreneur's initial resource endowments - their own traits, tastes, and abilities; the knowledge corridors they are in; and the social networks they are a part of; Sarasvathy (2001) -, they cannot develop and grow without acquiring and developing additional resources (Lichtenstein & Brush, 2001). That is, at a certain point, new ventures have to engage in exchange efforts with the environments (Baker & Aldrich, 2000).

According to the Resource Dependence Theory (Pfeffer & Salancik, 1978) organizations are open system and are dependent on contingencies from the external environment (Hillman, Withers, & Collins, 2009). This view advocates that some environments are objectively richer than others (Penrose, 1959). Therefore, scarcity is factual and new ventures should adopt strategies depending on the levels of environmental munificence, i.e., the degree of resource abundance (Castrogiovanni, 1991). Research under this conceptualization aimed to determine which resources are most significant in facilitating new venture creation. However, the empirical findings are conflicting. For instance, Young and Francis (1989) have found a positive relationship between government support and starting a firm, while Del Monte and De Luzenberger (1989) found no significant relationship. More recently, Jackson (2010) found that macroeconomic conditions are significantly related with the likelihood of the entrepreneur to abandon their founding intentions. Conversely, Davidsson and



Gordon (2016) found no significant relationship between macroeconomic conditions such as the 2008 Global Financial Crisis and the opportunity exploitation tendency of nascent entrepreneurs.

Nonetheless, some new ventures reject the stubborn facticity of scarcity, and are able to *create something from nothing* (Baker & Nelson, 2005). This process encouraged scholars to conceptualize that, whereas some environments are objectively more penurious than others, different organizations might react distinctly to penury by enacting the value of existing resources in different ways (Cunha, Rego, Clegg, Neves & Oliveira, 2014).

Empirically, scholars have demonstrated that, although resource scarcity can compromise venture survival, resource abundance is not necessarily a source of competitive advantage. For instance, Debruyne, Frambach and Moenaert (2010), in their efforts to understand how the availability of resources affects decision makers' assessment of a competitor's new product and their subsequent reaction to it, found that resource abundance does not unequivocally lead decision-makers to take a more active attitude against competitors. Their findings suggested that resource abundance might also have a negative effect on individuals' motivation and behavior, particularly when the competitive potential of the new product in the market is underestimated. In these circumstances resource abundance may breed complacency by leading to inertia and to a sense of vulnerability. This can damage as much as resource scarcity may be stimulating if it gives individuals the opportunity to re-examine frames of thinking (Cunha et al., 2014). Thus, "resources can be a double-edged sword, both stimulating and inhibiting competitive advantage" (Debruyne et al., 2010; p.175).

Accordingly, scarcity is enacted. Previous research about obstacles in entrepreneurship has also provided tentative evidence for this subjective nature of constraints. Van Gelderen and colleagues' (2011) work highlighted that starting entrepreneurs do not differ from abandoning entrepreneurs in terms of quantity, type, and impact (i.e., implement or not the venture idea) of encountered problems. Thus, the argument of the authors is that they might differ in terms of their appraisals about the problems (Van Gelderen et al., 2011).

This conceptualization prompted the emergence of a recent approach of obstacles in entrepreneur concerned with the subjective mechanisms inherent to this relationship (see Kollmann et al., 2017). That is, individuals have distinct reactions to the same constraint, a conceptualization that provides a more comprehensive understanding on why not everyone succeeds in their entrepreneurial aspirations.

**CHAPTER II: Why only some individuals pursue their entrepreneurial aspirations?**

## **Why only some individuals pursue their entrepreneurial aspirations?**

The entrepreneurial process starts with the entrepreneur, as he/she is the main driver of the venture creation process (Baum, Frese, Baron & Katz, 2007). In this dissertation, we define entrepreneur as the individual who recognizes and exploits new business opportunities by founding new ventures (Shane & Venkataraman, 2000). The process of identification of business opportunities and taking action is not straightforward, mainly due to the innumerable obstacles and setbacks that hamper the entrepreneurs' ability in keeping up the drive required to perform the necessary activities (Van Gelderen, Kautonen & Fink, 2015). According to the Global Entrepreneurship Monitor (GEM, 2016), 42% of worldwide working-adults population identifies business opportunities, but only 22% expresses the intention to start a new business. These numbers decrease when we consider people actually involved in early-venture activity (8.5% in Europe, for instance).

These rates suggest that not all entrepreneurs behave in the same way, which prompted scholars to study different patterns in entrepreneurs' behavior (McClelland, 1967). Specifically, the aim was to provide answers to the question of why some people act over identified business opportunities, while others do not (Stevenson & Jarillo, 1990).

As any other process, entrepreneurs' behavior has been studied through different perspectives. We highlight six broad streams of research on the entrepreneur. The first one is concerned with the entrepreneur's **personality** and aims to explain how the dispositional characteristics of the individual affect fundamental entrepreneurial elements such as opportunity recognition and the decision to become an entrepreneur (e.g., McClelland, 1987; Rauch & Frese, 2007; Zhao & Seibert, 2006). The second stream is concerned with the **attitudes** and motivation towards an

entrepreneurial career. This stream of research is focused on the process of development of entrepreneurial intentions, as they are commonly stated as the best predictor of entrepreneurial behavior (Bird, 1988; Krueger, 2009). The third stream explores the entrepreneurs' **cognition**, or how entrepreneurs make assessments, judgments, or decisions involving opportunity evaluation and venture creation (e.g., Baron, 1998; Mitchell, Smith, Morse, Seawright, Peredo & McKenzie, 2002). The fourth stream derives from the notion that entrepreneurship is an emotional process (Cardon, Foo, Shepherd & Wiklund, 2012), thus it aims to understand the effect of the entrepreneur's **emotions** in decision-making and behavior (e.g., Baron, 2008; Cardon et al., 2012; Foo, 2011). The fifth stream is concerned with how the individual's **human capital** (e.g., education, experience) influences entrepreneurial entering (e.g., Unger, Rauch, Frese & Rosenbusch, 2013; Westhead, Ucbasaran, & Wright, 2005). Finally, as entrepreneurship is a social embedded phenomenon, the sixth research stream explores how the entrepreneurs' **social capital** (e.g., social networks) promotes and/or deters entrepreneurial activity (Aldrich & Zimmer, 1986; Davidsson & Honig, 2003; Lin, 1999)

### **Personality**

Because creating a new venture takes extraordinary drive in the face of what would be, to many, daunting obstacles (Miller, 2015) – e.g., acquiring essential resources, dealing with governmental bureaucracies, competitors' aggressiveness and market fluctuations –, it prompted scholars to hypothesize the existence of a *special type* of personality when it comes to entrepreneurship. Personality is defined as dispositions to exhibit a certain kind of response across various situations (Caprana & Cervone, 2000).

Prior research on entrepreneurs' personality paid particular attention in the assumption that entrepreneurs differ from managers in terms of a broad range of personality traits (Zhao, Seibert & Lumpkin, 2010). For instance, the entrepreneur was initially portrayed as a "creative destroyer" (Schumpeter, 1942) due to his/her ability to disrupt the markets and introduce significant innovations. McClelland (1987) depicted entrepreneurs, in contrast with managers, to have higher needs for achievement, autonomy, power and independence. Miller, Kets de Vries and Toulouse (1982) suggested that successful entrepreneurs tend to believe that they (and not the environment) control their destinies. That is, entrepreneurs have an internal locus of control (Miller et al., 1982).

By the late 1980s, research on entrepreneurs' personality found inconsistent and even contradictory results (e.g., Brockhaus & Horwitz, 1986; Chell, 1985; Gartner, 1988; Robinson, Stimpson, Huefner, & Hunt, 1991). For instance, Brockhaus (1980) found no differences in the general risk preference patterns of entrepreneurs and managers. In a similar vein, Sexton and Bowman (1985), found no significant difference in risk propensity between entrepreneurship students and those of the general student body, thus concluding that risk-taking propensity is not a determinant in the decision to become an entrepreneur. Furthermore, Brockhaus and Nord (1979) and Hull, Bosley and Udell (1980) found that entrepreneurs and managers do not differ significantly regarding their locus of control (both hold higher internal locus). However, Brockhaus (1975), correlating entrepreneurs' personality with venture success, found that successful entrepreneurs hold more internal locus of control than entrepreneurs whose business had ceased to exist. Thus, while locus of control is not an accurate way to distinguish entrepreneurs from managers, it could help to distinguish successful from unsuccessful entrepreneurs (Brockhaus & Horwitz, 1986).

Further meta-analytic efforts provided more evidence about the role of individuals' personality in entrepreneurship. For instance, Zhao and Seibert (2006), using the Five Factor model of personality (FFM; Costa & McCrae, 1992) found differences between entrepreneurs and managers on four personality dimensions – Conscientiousness, Openness to Experience, Neuroticism and Agreeableness - which provided additional support for the existence of considerable differences between entrepreneurs and managers. Their results indicate that entrepreneurs scored higher than managers on Conscientiousness and Openness to Experience factors, and lower than managers on Neuroticism and Agreeableness. That is, contrasting with managers, entrepreneurs demonstrate higher persistence and higher motivation to work hard in the pursuit of goals (Conscientiousness), a higher curiosity and tendency to seek new experiences (Openness to Experience), are more self-confident and resilient in the face of stress (Neuroticism) and are less altruistic and cooperative (Agreeableness).

What is interesting about Zhao and Seibert's (2006) results is that while the effect of the full set of personality traits was moderate ( $R=.37$ ; Cohen, 1988) - which provided some support for considerable differences between entrepreneurs and managers -, the effect of each personality dimension was small ( $\beta=.26$ , for Conscientiousness;  $\beta =.18$ , for Openness to Experience;  $\beta = -.12$ , for Neuroticism;  $\beta = -.22$ , for Agreeableness; Cohen, 1988). The authors advanced a possible explanation for this, by arguing that some personality constructs, such as the ones conceptualized in the Big Five model, are broad, which can *hide* the effect of certain personality facets. For instance, two primary facets compose Conscientiousness: achievement motivation – i.e., the preference for situations in which performance is due to their own efforts rather than other factors - and dependability – i.e., the extent to which one is organized, deliberate, and methodical and can be relied on to fulfill one's duties and

responsibilities (McClelland, 1961; Mount & Barrick, 1995). These different facets that belong to the single primary dimension of Consciousness have different relationships with entrepreneurial behavior (e.g., Rauch & Frese, 2007; Zhao & Seibert's, 2006). Collins, Hanges, and Locke (2004) and Stewart and Roth (2004) found that achievement motivation was higher in entrepreneurs than in managers, because of the entrepreneurs' preference for situations in which performance is due to their own efforts rather than to other factors. Managers, on the other hand, are not characterized by a high need for achievement because in the organizational environments where they work, they must be willing to work with and through others (McClelland, 1961).

Accordingly, subsequent research on personality in entrepreneurship was focused on the role of narrow traits that distinguish entrepreneurs from managers, and also with their predictive value of other entrepreneurial outcomes such as the entrepreneur's intentions, venture creation and success (Brandstatter, 2011; Rauch & Frese, 2007). For instance, results from Rauch and Frese (2007) and Leutner, Ahmetoglu, Akhtar and Chamorro-Premuzic (2014) found better predictive power of entrepreneur's specific personality traits (e.g., achievement motive; proactive personality; self-efficacy) with venture-related tasks (e.g., business creation), than broad categories of personality dimensions such as Big Five Factors. According to Rauch and Frese (2007), global traits lose specific criterion-related variance. Moreover, a good match between traits and venture-related task (e.g., business creation) business produced higher effect sizes, which allows for higher validities in the context of entrepreneurship research (Rauch & Frese, 2007). This consideration is important to understand entrepreneurial behavior (Rauch & Frese, 2007), because entrepreneurs, in contrast with managers, act in situations characterized by low



structure and higher ambiguity, which makes it more likely for disposition characteristics to express strongly when performing entrepreneurial tasks (Hattrupp & Jackson, 1996).

The following research on personality has found consistent results between specific traits such as entrepreneur's self-efficacy (Markman, Balkin & Baron, 2002), self-esteem (Arora, Haynie, & Laurence, 2011), self-enhancement (Holland & Shepherd, 2011), eudaimonic vigor (Hahn, Frese, Binnewies, & Schmitt, 2012), and entrepreneurial-related behaviors, such as persistence (e.g., Cardon & Kirk, 2015; Holland & Shepherd, 2011). These recent findings support the notion that personality traits are fundamental to understand entrepreneurial behavior (Rauch & Frese, 2007).

### **Attitudes**

The aforementioned turbulent times in the entrepreneur's personality research during the late 1980s opened the avenues for the study of other variables involved in the venture-creation process. Scholars switched their focus from *who* the entrepreneur is, to *what* the entrepreneur does. The remarkable paper of Barbara Bird in 1988 published in *Academy of Management Review*, "Implementing Entrepreneurial Ideas: The Case for Intention", set the tone for the next chapter of entrepreneurship research:

"Even though entrepreneurial ideas – for new products, new services, new social movements – begin with inspiration, sustained attention and intention are needed in order for them to become manifest. Entrepreneur's intentions guide their goal setting, communication, commitment, organization, and other kinds of work. Although behavior can result from unconscious and unintended antecedents, what is of interest here is a conscious and intended act, the founding of a firm." (Bird, 1988; pp. 442).

Since Bird's influential article<sup>2</sup>, a large and still growing number of studies have focused on entrepreneurial intentions. Entrepreneurial intentions are usually

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<sup>2</sup> Also the ones by Shapero (1975) and Shapero and Sokol (1982) are worth noting.

defined as one's desire to start a new business (Krueger, 2009). The venture creation process requires planning and thinking by the entrepreneur, which makes entrepreneurship an intentional behavior (Bird, 1988). Thus, intention models have been largely applicable to the study of venture creation. To explain the emergence and development of entrepreneurial intentions scholars have relied on two models: the theory of planned behavior<sup>3</sup> (Ajzen, 1991) and the entrepreneurial event model<sup>4</sup> (Krueger, 1993; Shapero, 1975; Shapero & Sokol, 1982).

According to the theory of planned behavior, entrepreneur's intentions are determined by *attitude toward the behavior* – that reflects the individual's awareness of the outcome -, *subjective norm* – i.e., the perceived normative beliefs about significant others regarding the behavior -, and *perceived behavioral control* – the individual's belief about his/her ability to execute the behavior and the perception that it is within the individual's control (Ajzen, 1991).

The entrepreneurial event model posits that the entrepreneur's intentions depend on the *perceived desirability*, i.e., the degree to which he/she feels attracted to becoming an entrepreneur; the *propensity to act* upon opportunities which concerns the individual perception of control; and the *perceived feasibility*, or the degree to which individuals are confident that they are personally able to start their own business (Krueger, 1993; Shapero, 1975; Shapero & Sokol, 1982).

The meta-analysis of Schlaegel and Koenig (2014) aimed to integrate these two models, and to provide a more complete and detailed picture of the process through which entrepreneurial intentions develop. According to their findings, the

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<sup>3</sup> The theory of planned behavior has been widely applied as a frame of reference to explain and predict behavioral intentions in different research contexts, was introduced to the entrepreneurship literature by Krueger and Carsrud (1993).

<sup>4</sup> Literature also referred to it as the entrepreneurial intention model or the Krueger–Shapero model.

determinants of the theory of planned behavior (i.e., attitude towards the behavior, subjective norm and perceived behavioral control) and perceived feasibility (from the entrepreneurial event model), affect entrepreneurial intentions because they influence the individuals' attractiveness towards entrepreneurship, i.e., their perceived desirability. This finding suggests that it is through the individual's desire to become an entrepreneur that the other determinants are transformed into entrepreneurial intentions. The results also revealed that perceived desirability only partially mediated the effect of those determinants, and suggested that if an individual has more perceived control over starting a business, perceived behavioral control becomes also an important predictor of entrepreneurial intentions next to the desire to start a business. Thus, perceived desirability and perceived behavioral control are the main attitudes underlying entrepreneurial intentions (Schlaegel & Koenig, 2014).

This finding brings fundamental implications to understanding the development of entrepreneurial intentions, as it suggests that contextual variables affecting entrepreneurs' intentions do it so by influencing the perceptions of desirability and behavior control. In this regard, Schlaegel and Koenig (2014) found that cross-country differences moderate the relationships between entrepreneurial intentions and its determinants. Specifically, the authors found that subjective norm and perceived desirability have a stronger effect on entrepreneurial intentions in western societies. When compared to non-western countries, western societies are characterized by different cultural norms and values, such as higher levels of independence and individualism, emphasizing the uniqueness of individuals' goals and achievements (Brandl & Bullinger, 2009). Individuals in western societies define themselves in terms of their actions and, at the same time, are bound to societal norms (Schlaegel & Koenig, 2014).

At this point, entrepreneurship scholars acknowledge that forming strong intentions is a key first stage for the emergence of entrepreneurial behavior (Gollwitzer & Sheeran, 2006). Further research concerned with the entrepreneurial intentions-behavior relationship (Hulsink & Rauch, 2010; Van Gelderen, Kautonen, & Fink, 2015; Kolvereid & Isaksen, 2006) demonstrated that the variance explained by entrepreneurial intentions on entrepreneurial behavior is 37%, a fairly large effect size (Cohen, 1992) when compared to personality traits (13%; Zhao et al., 2010). This provides evidence for the predictive capacity of the individuals' perceptions about the entrepreneurial behavior, rather than their dispositional characteristics.

However, recent empirical evidence has supported the assumption (e.g., Frese, 2007; Gielnik, Barabas, Frese, Namatovu-Dawa, Scholz, Metzger & Thomas, 2014; Van Gelderen et al., 2015), that intentions are not the sole factor predicting entrepreneurs' behavior (Van Gelderen, Kautonen & Fink, 2015). For instance, Gielnik and colleagues (2014) found that psychological action planning (Frese, 2009) moderates the effect of entrepreneurial intentions on new venture creation. Action plans are mental simulations of actions that are not necessarily written down and that have some degree of flexibility (Frese, 2009; Frese & Gielnik, 2014). These plans help initiate and maintain action (Gollwitzer 1999) because they specify the when, where, and how of action and the sequence of operational steps leading to goal achievement. By specifying the sub-steps, action plans structure the process and direct efforts to key activities important for goal achievement (Frese & Gielnik, 2014). This helps a person to return to an action path after a distraction. Thus, action plans increase persistent goal pursuit. Finally, action plans with specific substeps allow people to get feedback about where they stand and to monitor their progress and make

necessary corrections. In summary, action plans help people initiate, maintain, and evaluate the actions necessary for goal accomplishment (Frese, 2009).

## **Cognition**

The role of the entrepreneurs' cognitive processes was highlighted in Comegy's paper, "Cognitive dissonance and entrepreneurial behavior", in 1976, published in *Journal of Small Business Management*. However, the circumstantial assumption that in real-life situations the effects of cognitive phenomena could often be dominated by organizational or socio-economic dynamics (e.g. McNamara & Bromiley, 1997) numbed researchers' interest in this topic until the late 1980s. The contradictory findings in personality awakened researchers' interest on why and when entrepreneurs identify and pursue business ideas (Baron, 1998).

Entrepreneurial cognition refers to "the knowledge structures that people use to make assessments, judgments, or decisions involving opportunity evaluation, venture creation and growth" (Mitchell et al., 2002, p.10). Several cognitive mechanisms have been proposed to disentangle these questions (Baron, 1998). These include: *counterfactual thinking* – the effects of imagining what might have been; *attributional styles* – tendencies to attribute agency effects to either internal or external causes; and *the planning fallacy & overoptimism* – tendency to underestimate the amount of time needed for tasks.

*Counterfactual thinking.* As an intentional behavior (Bird, 1988), entrepreneurial activity requires the entrepreneur to envision the future (Haynie, Shepher, & McMullen, 2009). Thus, scholars have suggested that these conceptualizations about the future and prospect outcomes are regularly based in counterfactual thinking. Gaglio (2004) relates counterfactual thinking to opportunity recognition. The author suggests that, because counterfactual thinking involves

deconstructing and reconstructing scenarios, such thought processes may result in the identification of otherwise unforeseen opportunities.

Counterfactual thinking is far more than an exercise of imagination (Gaglio, 2004). A growing body of research has demonstrated that what we think when we engage in such mental simulations can have significant effects, for example, on our emotional states, our conclusions regarding the causes of various events or outcomes, our subsequent decisions, and even our manifest behavior (e.g., Mandel & Lehman, 1996). Initial research proposed that frequent unpleasant counterfactual thoughts have a negative effect on the entrepreneur's self-efficacy, due to the experience of regret (Baron, 1997). Woods, Williams and Drover (2017), have produced preliminary findings of such effects for entrepreneurs. Their study demonstrated that initial inaction decisions, i.e., deliberated choices of not pursuing a perceived business opportunity, negatively affect entrepreneurs' likelihood of subsequent action judgments, because these past choices creates doubts that will dampen subsequent opportunity judgments. Moreover, this effect is lessened when entrepreneurs perceive succeeding opportunities as dissimilar, rather than similar, which suggests that opportunity characteristics can spur entrepreneurs back toward action.

Arora, Haynie and Laurence (2013) challenged this assumption by providing empirical evidence that counterfactual thinking might actually benefit the entrepreneurs, mainly due to its positive effects in their self-efficacy. According to the authors, the negative relationship between counterfactual thoughts and self-efficacy is moderated by the dispositional attributes of the entrepreneur, namely self-esteem and dispositional affect. Their findings revealed that the negative relationship between counterfactual thinking and self-efficacy was buffered when individuals' self-esteem was high because self-esteem lessens the effects of fear of failure or regret due to a

missed opportunity. Moreover, positive affect also leads individuals to interpret bad events in a positive light, leading them to interpret past situations with less regret.

*Attributional style.* The study of attribution styles has produced strong evidence about the entrepreneurs' willingness to persist in the face of obstacles (Gatewood, Shaver & Gartner, 1995). For example, it seems reasonable to assume that individuals who believe they can control the environment through their actions will be more likely to persist in entrepreneurial activities when difficulties in the start-up process are encountered (Brockhaus & Horwitz, 1986). As Baron (1998) suggested, the most relevant construct for entrepreneurship is the *self-serving bias*, which is composed of two distinct and related processes. The first concerns the individual's tendency to attribute positive outcomes to internal causes (e.g., skill, hard work). The second one regards to the corresponding tendency to attribute negative outcomes to external causes (e.g., actions of other persons, a lack of needed resources). The effect of these attribution processes on entrepreneurial behavior is likely to be contingent on the entrepreneur's prior entrepreneurial experience (Shaver, Gartner, Crosby, Bakalarova, & Gatewood, 2001). As argued by Gatewood and Shaver (1999), if past failure is attributed to an internal, but unstable, cause (e.g., invested effort), that attribution would probably change that element of expectancy known as the "effort-performance link" (Porter & Lawler, 1968), but not their effort and quality of performance. Thus, the consequences of attributional style in performance will be most important when the behavior in question is one with which the individual has little prior experience with (Shaver et al., 2001).

Although self-serving bias may be beneficial for enhancing entrepreneur's self-esteem, it has a downside. Prior research indicates that self-serving bias can be a source of interpersonal friction (Baron, 1998). Entrepreneurs show a strong

preference for exerting personal control over the outcomes and take credit for positive outcomes (Shaver & Scott, 1991), while assigning blame for negative results to others. This might create interpersonal frictions, namely within the founding team, whenever contrasting perspectives become apparent.

More recently, attributions have also been studied in recovering from failure. Mantere, Aula, Schildt & Vaara's (2013) work elaborates on how failure can be a social construction, by analyzing narrative attributions produced by different stakeholders. Their findings highlighted seven generic types of narrative attributions: *Catharsis* (personal responsibility), *Hubris* (venture-wide responsibility), *Zeitgeist* (industry-wide responsibility), *Betrayal* (responsible agent inside the venture), *Nemesis* (responsible external agent), *Mechanistic* (uncontrollable non-human element within the venture), and *Fate* (uncontrollable non-human element external to the venture). Most strikingly, entrepreneurs voice more *Catharsis* and *Hubris* narratives when facing failure. This means that accepting responsibility is important to recover from it (Shepherd, 2003). Furthermore, these narratives help individuals to address the emotional process of grief recovery and the cognitive process of self-justification. The *Catharsis* narrative forces the entrepreneurs to face their personal responsibility in bringing about the loss, building up resilience to the risk of becoming over-confident in the future (Hayward et al., 2006). Moreover, *Catharsis* and *Hubris* imply a contrast between the previous and current self of the entrepreneur. These are important self-justification strategies because they allocate faulty beliefs and actions as belonging to the old *self*, and learn by abandoning it in favor of a new one.

These narratives are important for the cognitive and emotional needs of the entrepreneur as they maintain positive self-esteem and help recover from the loss of the venture (Mantere et al., 2013).



*The planning fallacy & overoptimism bias.* The planning fallacy occurs because, when formulating estimations about the time to complete a task, individuals tend to focus primarily on the future (e.g., how they will perform the tasks; what steps they will take), neglecting their past experiences (Buehler, Griffin, & Ross, 1994). While this process is not exclusive to entrepreneurs, scholars have suggested that they might be more susceptible to it than other people, for two reasons. First, entrepreneurial activity requires the entrepreneur to envision the future (Haynie, Shepherd, & McMullen, 2009), thus prompting mental simulations. Second, the entrepreneurial tasks are generally embedded in novelty and uncertainty. This makes cognitive biases to operate strongly, because they help entrepreneurs making fast decisions without putting too much strain on their time and cognitive resources and thus staying actionable in spite of high cognitive demands on new learning and complex situations (Frese & Gielnik, 2014).

The major downside of the planning fallacy is that it produces a false sense of comparative optimism, i.e., tendency for entrepreneurs to report they are less likely than others to experience negative events, and more likely than others to experience positive events (Ucbasaran, Westhead, Wright, & Flores, 2010). Whereas comparative optimism might be necessary for individuals to engage in entrepreneurship, it may also be a factor leading to venture failure (Ucbasaran, et al., 2010).

Overoptimism can instigate business entering because it increases entrepreneurs' motivation to initiate action and to persist even in the presence of high failure rates and low expected returns (Cassar, 2010; Simon & Shrader 2012). Nonetheless, because over optimistic individuals might become *trapped* into their positive expectations and desires for the venture (Cassar, 2010), they tend to neglect

external sources of information, which leads to flawed decisions and suboptimal performance (Hmieleski & Baron, 2008; Simon & Houghton, 2002). Consistently, research found over optimism to have a negative effect on their venture growth (Hmieleski & Baron, 2009), and a positive effect on the continue investment in unsuccessful ventures for longer periods of time, thus wasting valuable resources (Lowe & Ziedonis, 2006).

Hence, overoptimism has distinct effect across different phases of the entrepreneurial process positive (Frese & Gielnik, 2014). Especially at the beginning of the entrepreneurial process, a certain degree of over optimism may be necessary to make the decision to take action over a business idea (Cassar, 2010). However, in later phases, overoptimism may be detrimental to performance, reducing the likelihood of survival and venture growth and leading to unfounded commitments to unsuccessful ventures (Hmieleski & Baron, 2009).

## **Emotions**

The influence of affect on cognition and behavior is well documented in research about mature and established organizations (e.g., Copranzano & Wright, 1999; Isen & Labroo, 2003; Staw & Barsade, 1993). Robert Baron (2008) remarkably argued the extension of these findings to the entrepreneurship field, in his influential paper “The Role of Affect in the Entrepreneurial Process”, published in *Academy of Management Review*.

Entrepreneurship is clearly an emotional process (Cardon et al., 2012) and two main assumptions have led this stream of research. First, in highly uncertain environments, such as the entrepreneurial, affect is likely to readily “tip the balance” toward specific actions or decisions, which carries important implications (both negative and positive) for the entrepreneur and his/her venture. Second, prior research

demonstrated that affect plays a key role in the majority of the entrepreneurial-related tasks, such as creativity (that is linked to opportunity recognition), and persuasion and decision-making (that is correlated with resource-acquisition) (Baron 2008; Cardon et al., 2012).

Most of empirical work about affect in entrepreneurship is concentrated in either early or later stages of business (Cardon et al., 2012). Regarding the early stages, scholars have focused on opportunity identification. The most influential work on this topic is from Maw-Der Foo. His initial paper from 2011 provided strong evidence that the entrepreneur's perception of risk and opportunity evaluation is significantly influenced by emotions. The author's findings revealed that risk perceptions were significantly lower for anger and happiness-induced participants than for fear and hope-induced participants. Despite their differences in valence, anger and happiness are related to lower risk perception because they both are associated with high certainty and individual control, contrary to fear and hope that are related with outcomes perceived as controlled by the situation (Foo, 2011).

Hayton and Cholakova (2012) developed a thought-provoking framework to understand the role of affect on idea perception and intention to work on the idea. Through a set of testable propositions the authors argue that, rather than affect impacting cognition or cognition impacting affect, the two are interwoven in an iterative process through which entrepreneurs feel, think, and act in a synchronized manner. Building on the limitation of the existing cognitive models in explaining the source of beliefs, perceptions, and intentions, the authors argue for the consideration of emotions as a source of such attitudes that explain entrepreneurial intentions.

Another important advance in the field was the study from Podoyntsyna, Van de Bij and Song (2012) that focused on the role of mixed emotion in the risk

perception of entrepreneurs, rather than on the effect of distinct emotions. They found that mixed and conflicting emotions associated with different cognitive appraisals (i.e., challenge vs threat) have a much stronger relationship with the risk perception of entrepreneurs than mixed and conflicting emotions based on their valence (i.e., positive vs negative). Their findings also suggested that there is qualitative change in the way entrepreneurs engage emotions in their risk judgments of strategic issues after they found their third venture. Specifically, there is a negative association of anger with risk perception in novice entrepreneurs (i.e., individuals who have found up to two ventures), but this relationship flips over and becomes positive or neutral for serial entrepreneurs (i.e., individuals who have found more than two ventures). The authors argued that the appraisal of some emotions could change from one situation to another, especially over constant series of success or failures (typical of serial entrepreneurs), as entrepreneurs gain more experience.

Research has also suggested that positive affect, and particularly entrepreneurial passion (Cardon, Wincent, Singh, & Drnovsek, 2009) drives a person to persist through the many obstacles and challenges involved in starting and running a business (Baron, 2008), because the intense positive feelings of entrepreneurial passion emerge from the individuals' identification with the entrepreneurial activities (Houser-Marko & Sheldon, 2006; Cardon & Kirk, 2015). Foo, Uy, and Baron (2009) found that such positive affect increases efforts toward future entrepreneurial goals, even when controlling for general self-efficacy. According to the authors, the combination of identification with a particular role and positive feelings toward that role – both components of entrepreneurial passion – might have an even greater effect on behavioral persistence for entrepreneurs.

Emotions do also play an important role in the relationships that entrepreneurs establish with the stakeholders, thus affecting the entrepreneurs' ability to acquire absent resources (e.g., funding). For example, Chen, Yao, and Kotha (2009) explored whether entrepreneurs' expression of passion during a pitch predicted investor's intention to fund. Their findings demonstrated that, above and beyond the quality of the pitch, entrepreneurs' preparedness was more important, because it sends trustful signs to the investor about the entrepreneurs' invested effort. In contrast, Mitteness, Sudek, and Cardon (2012) found a positive relationship between perceived passion and funding potential for angel investors. What is interesting, however, is that this relationship depends in part on the characteristics of the investor. Specifically, their findings indicate that this relationship is stronger for angel investors who are older, more intuitive, with high openness to experience, and who are motivated to mentor, because these characteristics enable individuals to accurately assess the affective cues of the entrepreneur and to consider them during the decision-making process.

Research at the end stages of business venture highlight that venture termination is an emotional process. The most challenging work on this topic is from Shepherd and colleagues (e.g., Shepherd, 2003, 2009; Shepherd, Wiklund & Haynie, 2009). He argues that an individual has recovered from grief when thoughts surrounding the loss of the business no longer generate a negative emotional response (Cope, 2011). Shepherd's work converged on a model of the process of grief recovery from failure. He defines two distinct processes (labeled as *orientations*) to grief recovery: 1) a *loss orientation*, that involves actively confronting the loss and associated negative emotions in order to "work through" what happened and make sense of the failure; and 2) a *restoration orientation*, i.e., actively distracting oneself from loss-related thoughts. It will allow for the gradual vanishing of memories

associated with the loss. Shepherd concludes by suggesting that the alternation between the loss orientation and restoration orientation is the most effective strategy to the recovery process, because the oscillation between the two provides a central regulating mechanism, enabling the person to obtain the benefits of each and to minimize the costs of maintaining one for too long (Shepherd, 2003).

### **Human Capital**

Human capital attributes, i.e., individual's education, experience, knowledge, and skills, have long been argued to be an acute resource for the implementation, development and success of entrepreneurial firms (Unger, Rauch, Frese, & Rosenbusch, 2011).

Prior research found that human capital is positively related to effective planning and strategy, and to the acquisition of resources such as financial (Brush, Greene, & Hart, 2001). The meta-analysis of Unger and colleagues provided evidence about the magnitude of the effect of human capital in entrepreneurial success (Unger et al., 2011). The results demonstrated a significant but small relationship between human capital and success. Two important considerations emerged from their findings. First, the relationships between human capital and business success was higher for the outcomes of human capital investments (i.e., knowledge/skills) than for human capital investments (i.e., education/experience), because human capital investments are, in fact, indirect measures of human capital, while their outcomes (knowledge) are direct indicators (Davidsson, 2004). Second, the relationship was higher for human capital with high task-relatedness (e.g., owner experience, start-up experience) than for low-task relatedness (e.g., general education, employments experience), because human capital leads to higher performance if its applied and transferred to the specific tasks that need to be performed. Moreover, the transfer

process is easier if the human capital is related to the tasks the entrepreneurs have to perform (Unger et al., 2011). This suggests that research should overcome a static view of human capital and should rather investigate the processes of learning, knowledge acquisition, and the transfer of knowledge to entrepreneurial tasks (Unger et al., 2011).

The most prominent dimension of entrepreneurs' human capital is the accumulation of experience, because it is associated with enhanced entrepreneurial alertness (Westhead, Ucbasaran, & Wright, 2005). Scholars acknowledge that entrepreneurs learn from prior experiences and this knowledge influences their future behavior, especially for those who make the decision to re-enter as serial entrepreneurs (i.e., individuals who own one business at a time; Jenkins, Wiklund & Bundin, 2014; Ucbasaran, Shepherd, Lockett & Lyon, 2013). However, the emerging body of literature on serial entrepreneurship suggests that previous business ownership experiences have different effects on the future behaviors of entrepreneurs (e.g., Alsos & Carter, 2006; Westhead et al., 2005; Ucbasaran, Alsos, Westhead, & Wright, 2008). For instance, entrepreneurial experience is positively associated with the entrepreneur's increased ability to create, identify and exploit opportunities (e.g., Schaper, Mankelow & Gibson, 2007; Westhead et al., 2005) because experience-based knowledge can direct entrepreneur's attention and drive new means-ends relationships (Ucbasaran et al., 2008; Westhead et al., 2005). However, empirical research has also highlighted this effect to be especially significant for portfolio entrepreneurs (i.e., experienced entrepreneurs who run several ventures at a time) when compared to serial entrepreneurs (Asos & Carter, 2006; Westhead et al., 2003; Ucbasaran et al., 2008). Moreover, prior research demonstrated that serial entrepreneurs do not significantly differ from portfolio entrepreneurs regarding the

identification of assets and liabilities influencing venture performance, but are less likely than portfolio entrepreneurs to develop more innovative ventures over time (Westhead et al., 2005).

Scholars have provided further evidence to disentangle the contribution of entrepreneurial experience, by exploring the extent that the usage of heuristics and beliefs affect entrepreneurial decision-making (Baron, 1998; Mitchell et al., 2002). As serial entrepreneurs have more experience to draw upon, they are more likely to rely on heuristics, or mental short cuts, that impact their attitudes towards entrepreneurship (Ucbasaran et al., 2008). For instance, Westhead et al. (2003) found that serial entrepreneurs are more likely than novice entrepreneurs to find the process of starting a venture very daunting, to disregard external advice and to be less prone to suffer from an illusion of control.

Literature has also identified some venture-strategy differences of serial entrepreneurs. For instance, Alsos et al. (2006) found that serial entrepreneurs invest more capital in their businesses than novices. Moreover, the former are more likely than the later to use personal savings as their part of capital (Westhead et al., 2003), which can be consistent with the views of venture capital firms of not funding serial entrepreneurs because of their inability to identify attractive subsequent venture ideas (Wright et al., 1997). Westhead et al. (2003) identified that serial entrepreneurs were more likely than novices and portfolio to establish alliances with other business, but less likely than portfolio entrepreneurs to recruit people based on their skills, to provide training activities, to engage in innovative marketing techniques and acquiring new business to grow the current venture.

Research has found little agreement with regards to the association between prior business ownership and venture superior performance (Parker, 2013; Ucbasaran



et al., 2008). Gompers, Kovner, Lerner and Scharfstein (2010) demonstrated that habitual entrepreneurs (i.e., both serial and portfolio) with a track record of success are more likely to succeed in future ventures than novice entrepreneurs, because their proven success record can more easily attract suppliers and customers. Lafontaine and Shaw (2016), using a longitudinal dataset, found that serial entrepreneurs are more likely to run more lasting ventures than novice entrepreneurs, because prior entrepreneurship experience is a learning experience that imparts skills (e.g., running businesses more efficiently; selecting better ideas) that are valuable in subsequent businesses.

However, Parker's (2013) findings challenge this assumption. In his effort to understand whether serial entrepreneurs run successively better-performing ventures, Parker found that serial entrepreneurs' performance trajectories exhibit mean reversion. That is, although good past performance enhances performance in subsequent ones, these positive effects are temporary and nearly exhausted over time, because the skills acquired in one venture, gradually became less applicable in subsequent ones as circumstances change.

His findings extend human capital theory by emphasizing that the acquisition of knowledge and skills stems directly from the venturing process, and is embodied in a sequence of venture performance outcomes, contrary to prior research focused on education and other types of formal human capital (e.g. Parker & van Praag, 2006). Moreover, it draws attention to a neglected aspect of human capital in the entrepreneurship domain, namely its depreciation and how that affects future entrepreneurial performance (Parker, 2013).

## **Social Capital**

We have been assisting to an increased recognition of entrepreneurship as a socially embedded phenomenon (Gedjlovic, Honig, Moore, Payne & Wright, 2013). Scholars have argued that a more comprehensive understanding of entrepreneurship, which combines individual and environmental perspectives, is needed to further develop entrepreneurship as an independent field of research (Sarason, Dean, & Dillard, 2006; Zahra & Wright, 2011).

The social capital of entrepreneurs refers to their available goodwill created through their personal external ties (Adler & Kwon, 2002). Social capital involves relationships of trust and reciprocity that emerge in social networks (Light & Dana, 2013). Such personal networks encompass all kinds of individuals with whom the entrepreneur has direct contact (Stam et al., 2014), including business contacts (partners, customers, suppliers, co-founders, etc.) and private contacts (friends and family).

According to social capital theory (Aldrich & Zimmer, 1986; Lin, 1999), these relationships constitute a source of competitive advantage for the entrepreneur (Florin et al., 2003) because they signal reputation (Hoang & Antoncic, 2003), provide information, (Davidsson & Honig, 2003), and are also a source of emotional support to the entrepreneur (Brüderl & Preisendörfer, 1998). Although the key benefits of social capital are intangible in nature (Hoang & Antoncic, 2003), research has linked social capital to several outcomes, including nascent entrepreneurial activity (Davidsson & Honig, 2003), entrepreneurial intention (Liao & Welsch, 2003), venture performance (Stam et al., 2014), and growth (Maurer & Ebers, 2006).

These social ties function as an intermediary between the webs of relationships and the recognition of opportunities, financing of ventures, innovative

discoveries, or new market prospects, which ultimately lead to more concrete performance outcomes, such as profitability (Gedjlovic, et al., 2013). Social capital might enable the entrepreneur to have access to certain resources (e.g., financial), especially in penurious environments (Grichnik, Brinckmann, Singh, & Manigart, 2014). For instance, De Carolis, Litzky and Eddleston (2009), found that nascent entrepreneurs with more social ties are more likely to launch and successfully establish new ventures, because social networks enhances individual's illusion of control, which is important to manage uncertain environments like the entrepreneurial.

Building on De Carolis and colleagues' work, Grichnik et al's (2014) findings suggest that nascent entrepreneurs draw especially on their weak social ties (e.g., neighbors, industry networks, professional organizations, academic institutions; Nahapiet & Ghoshal, 1998) for bootstrapping<sup>5</sup> activities, but not on their strong social ties (e.g., parents, close family members, friends; Nahapiet & Ghoshal, 1998). This happens for two reasons (Grichnik, et al., 2014). First, strong ties are likely to lack relevant resources for venture developing. For example, entrepreneurs' strong ties might lack relevant target customers, supplier connections, or adequate monetary means to support a risky venture. In contrast, weak tie networks are broader and more extensive in scope and, hence, can be more likely to link to the relevant business community and enable access to a greater resource base (Grichnik, et al., 2014).

Second, the use of resources obtained from strong ties could create a dilemma (Grichnik et al., 2014): either entrepreneurs refrain from investing in risky assets in order to preserve these resources and thereby might not be able to seize promising

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<sup>5</sup> A set of innovative and resourceful managerial activities for accessing and utilizing resources to reduce the overall cost and risk of operations, while avoiding the accumulation of dependencies with powerful formal investors (Winborg, 2009).

opportunities, or they invest in risky activities that might carry a risk of personal conflicts at some point if the resources are lost (Hanlon & Saunders, 2007).

Several scholars have also argued that too much social capital might flatten entrepreneurship whether because it protects mediocrities (Light, 2010), reduces objectivity (Locke, 1999), imposes mental group conformity (Aldrich & Kim, 2007), or inhibits escape from failing allies and partners (Adler & Kwon, 2002). As Coleman (1990) put it, a higher reliance on social networks may produce environments where individual freedom of action is limited due to the rigid enforcement of social norms, thus hampering the emergence of radical innovations.

**CHAPTER III: What management strategies are more effective for new ventures?**

### **What management strategies are more effective for new ventures?**

If founding a new venture requires the entrepreneur to persist over many setbacks, the management process also imposes new challenges for the entrepreneur. Nearly 50% of the new ventures fail during the first 3 years of its activity, and this number rises to 70% if the first 5 years are considered (Informa D&B, 2016).

Both liability of newness and smallness (Carroll, 1983; Singh, Tucker, & House, 1986; Stinchcomb, 1965) arguments assume that the lack of sufficient resources keeps impeding new ventures from success (Boeker, 1989). First, in contrast with well-established organizations that have well grounded routines and social ties, new ventures have to spend a significant amount of time and effort to learn new roles and attract social actors like clients and suppliers (Singh & Lumsden, 1990). Moreover, the incipient management practices of these new ventures (Eisenhardt & Schoonhoven, 1990; Larson, 1992) are likely to create shortcomings thus raising the risk of failure (Baum, Calabrese & Silverman, 2000). Second, as new ventures are generally smaller than well-established firms, they have greater difficulty in raising capital and cannot offer the long-term stability that larger organizations already have, thus making difficult the resource acquisition (Aldrich & Auster, 1986; Singh & Lumsden, 1990).

Because organizations' strategy is constrained by, and dependent on, resources (Collis, 1991; Tallman, 1991), understanding the nuances of their behavior (e.g., the strategies to manage their daily activities, their resource acquisition efforts) is a fundamental research topic. Surprisingly, we know very little about how new ventures react to adversity (Powell & Baker, 2014).

The initial view of entrepreneurship as an economic driver suggests an idealized linear model of successful entrepreneurship in which advantage goes to

those who discover lucrative opportunities (Kirzner, 1997; Shane & Venkataraman, 2000), adopt regular goals and strategies to exploit them (Wiklund & Shepherd, 2005), marshal appropriate high quality resources and deploy these resources in a capable and disruptive manner (Schumpeter, 1934). This process has been primarily described as strategically planned and is an appropriate starting point for investigating entrepreneurial behavior.

### **Business Planning**

Business plans are written documents that describe the current state and presupposed future of a business (Honig, 2004). They usually cover various areas, such as products/services, customers, competitors, industry, business strategy, operations, and financial projects, and include forecasts and models of future scenarios, evaluation of risks, and calculations of financial developments (Castrogiovanni, 1996). Their usefulness, however, has been subject to much controversy in the literature (Brinckmann, Grichnik & Kapsa, 2010; Chwolka & Raith, 2012), where different empirical samples have been used to investigate whether it is worthwhile for entrepreneurs to “look before they leap” (Gruber, MacMillan, Thompson & 2008) or simply skip planning, go ahead, and “just do it” (Lange, Mollov, Pearlmutter, Singh & Bygrave, 2007)

Supporters of business planning argue that business plans have three main functions (Castrogiovanni, 1996). The first function is a symbolic one, as business plan demonstrates that entrepreneurs are committed to their business ideas and that they have invested effort (Frese & Gielnik, 2014). Second, business plan has a learning function, because their preparation forces entrepreneurs to gather information about their industries and stakeholders that contributes to both greater knowledge and better understanding of the business environment (Frese & Gielnik, 2014). Third,

business plans have an efficiency function, because they structure the process and provide a framework that allows quick decision-making and more efficient management of resources (Delmar & Shane, 2003).

Extant empirical evidence supports the benefits of business planning, namely on the entrepreneur's persistence over the entrepreneurial process (Liao & Gartner, 2006). Business plans help to anticipate potential problems and information needs, thus founders can identify solutions without engaging in slower trial-and-error (Delmar & Shane, 2003). Furthermore, by specifying operational steps to achieve broader goals, business planning keeps founders from diverting their attention to other business activities that sidetrack their efforts. Therefore, entrepreneurs are better able to focus attention on those activities that will help achieve venture goals, and thus are more likely to complete those activities in a timely manner (Bird, 1992; Delmar & Shane, 2003). Business plans also help on the legitimization of the new business, because founders have to provide evidence that their venture's concept is feasible and viable (Frese & Gielnik, 2014), thus enhancing their trustfulness for critical resource suppliers (c.f., Stone & Brush, 1996).

On the other hand, opponents of business plans have argued that business planning is damaging because it is time consuming, hampers flexibility, and is based on insufficient knowledge about future events (Frese & Gielnik, 2014). Accordingly, instead of planning, entrepreneurs should spend their time on organizing activities, such as acquiring capital or equipment (Carter, Gartner & Reynolds, 1996). Plans are often interpreted as fixed and rigid structures and thus they reduce adaptability and flexibility even when environmental changes call for changes in the business concept (Gruber, 2007; Honig, 2004).



Moreover, planning also lacks explaining how entrepreneurs and their ventures behave within the highly uncertain, novel, and turbulent environments in which they often operate (Baron, 1998). Also, empirical research suggests that much entrepreneurial activity, and even successful entrepreneurship, sometimes violate multiple assumptions of this strategic planning approach (Carter et al., 1996; Alvarez & Barney, 2007; Lichtenstein, et al., 2007).

Accordingly, scholars have proposed new theoretical perspectives to understand how entrepreneurs think and behave (Archer, Baker, & Mauer, 2009). These include effectuation (Sarasvathy, 2001), improvisation (Miner, Bassoff, & Moorman, 2001), and bricolage (Baker & Nelson, 2005). These new perspectives are useful in making sense of these discordant patterns and provide a useful alternative theory of entrepreneurial success (Archer, et al., 2009). Table 1 summarizes the contrasts among them.

### **Effectuation Theory**

Sarasvathy (2001) suggests that what makes entrepreneurs entrepreneurial is precisely their ability to think differently from the predictive managerial reasoning. According to the effectuation theory (Sarasvathy, 2001), the entrepreneur starts with a set of means and allows goals to emerge contingently over time from the varied imagination and diverse aspirations of the founders and the people they interact with.

All entrepreneurs begin with three categories of means or resources: 1) who they are (e.g., dispositional features and abilities; 2) what they know (e.g., their education, training, expertise, and experience); and 3) who they know (e.g.,

**Table 1 - Contrasting between Effectuation, Improvisation and Bricolage (Adapted from Baker et al., 2003)**

<i>Construct</i>	<b>Effectuation</b>	<b>Improvisation</b>	<b>Bricolage</b>
<b>Effectuation</b>	Effectuation processes take a set of means as given and focus on selecting between possible effects that can be created with that set of means (Sarasvathy, 2001, p. 245)		
<b>Improvisation</b>	The temporal dimension between them, seems to be similar—that is, being urgent and of the immediate present (Smets, Morris, & Greenwood, 2012).	The convergence of design and execution (Miner et al., 2001).	
<b>Bricolage</b>	Both bricolage and effectuation involve starting with a set of means. However, <i>bricoleurs</i> may use materials at hand both to see “What can I accomplish with my current resources?” (effectuation) and to find out “How can I meet my pre-existing goal through what is at hand?” (causation).	Bricolage may often occur during improvisation (Weick, 1998). However, it may also occur in the implementation of pre-existing plans. Most improvisation relies on bricolage, although some research has suggested that some improvisation producing new-to-the-world innovations may not (Gong et al., 2005).	Making due with the means or resources at hand (Levi-Strauss, 1966)

entrepreneur’s social and professional network). Based on these means that are closest at hand, the entrepreneur starts to imagine and implement possible effects that can be created with them. Unlike causal reasoning, that requires careful planning and subsequent execution, in effectual reasoning plans are made and unmade and revised and recast through action and interaction with others on a daily basis. Eventually, some of the emerging effects coalesce into clearly achievable and desirable goals.

Inherently to the effectuation logic, Sarasvathy (2001) proposes four main principles that would guide the entrepreneurs’ behavior: 1) the affordable loss principle; 2) the strategic alliances principle; 3) the leveraging contingencies principle; and 4) the controlling an unpredictable future principle.

***The affordable loss principle.*** Causal reasoning focuses on expected return, i.e., meaning that managers are taught to analyze the market and choose to target segments with highly potential return. Entrepreneurs tend to find ways to reach the market with minimum expenditure of resources: “The *effectuator* prefers options that create more options in the future over those that maximize returns in the present” (Sarasvathy, 2001; pp. 252).

***The strategic alliances principle.*** Whereas managers rely on detailed competitive analysis, entrepreneurs emphasize the establishment of strategic alliances and pre-commitment with stakeholders as a way to reduce uncertainty. This principle combines very well with the affordable loss principal to bring the entrepreneur’s idea to market at really low levels of capital. The expanding networks of strategic partnerships determines to a great extent which market or markets the venture will end up with.

***The leveraging contingencies.*** Causal reasoning tends to focus on the avoidance of surprises. Conversely, the *effectuator* realizes that not every setback is bad and they can be used as inputs into the new venture creation process.

***The controlling an unpredictable future principle.*** Causal reasoning focuses on the predictable aspects of an uncertain future. The logic for its usage is: *To the extent that we can predict the future, we can control it.* Effectual reasoning, however, focuses on the controllable aspects of an unpredictable future. The logic for using effectuation processes is: *To the extent that we can control the future, we do not need to predict it* (Sarasvathy, 2001).

The effectuation theory represents a paradigmatic shift in the way we understand entrepreneurship (Perry, Chandler, & Markova, 2012). It provides a useful

framework to deliver prescriptions about how entrepreneurs might behave, especially in constrained and highly uncertain environments.

Some empirical evidence is worth noting, namely with regards to how entrepreneurs and non-entrepreneurs process risk and returns. For instance, Sarasvathy (1998) provides evidence that entrepreneurs accept risk as given, and appraise it differently from non-entrepreneurs, while focusing on controlling outcomes. To predict uncertain future demands, entrepreneurs rely on the logic of identity (who you are) as opposed to the logic of preferences, the logic of action (what you know) as opposed to the logic of belief, and the logic of commitment (whom you know) as opposed to the logic of transaction (Sarasvathy & Dew, 2005). Also, research has found support for the assumption that entrepreneurs use effectuation, more than causation, when making decisions concerning their ventures (Dew, Read, Sarasvathy & Wiltbank, 2008). This means that, in line with the effectuation theory, entrepreneurs think more holistically about the business, and are more means-driven and less concerned with expected returns (Perry et al., 2012).

The meta-analysis of Read, Song and Smith (2009) provides a starting point to understand the relationship between an effectual approach to strategy making and new venture performance. Their results demonstrated that all the dimensions that describe effectuation, except control (that was not measured) and affordable loss, are positively related to new venture performance. However, these results should be interpreted with caution because none of the studies included in the meta-analysis conceptualized their variables in terms of effectuation. In creating the meta-analytic study, Read and colleagues (2009) reconceptualized the variables as effectuation variables.

Further research has tried to disentangle the effects of effectuation components. For instance, Wiltbank et al. (2009) examined the control dimension of

effectuation, and found that, in cases of uncertainty, investors who emphasized control were generally more successful than investors who emphasized prediction (causation dimension) because, “in doing so, the investors ensure that the venture is in a less precarious position when negative surprises occur, and remain flexible to positive surprises because they are not overcommitted to their initial goals” (Wiltbank et al., 2009; p.121).

More recently Deligianni, Voudouris and Lioukas (2017) examined the role of effectuation processes in the relationship between product diversification and performance in new ventures. Their findings indicate that, with the exception of affordable loss, effectuation processes exert a positive effect on the diversification–performance relationship. Experimentation can assist firms in gathering customer feedback and generate learn-by-doing, which can be used to update products and to derive performance. Flexibility promotes improvisation that can help to cope with unpredictable factors and make the necessary adjustments in products to achieve higher product adoption (i.e., performance). Pre-commitments were found to constitute a critical asset for new ventures because they allow organizations to access complementary resources, increase venture legitimacy and/or to share responsibility of a specific action with other stakeholders.

Moreover, when starting a venture, entrepreneurs engage in both causal and effectual decision-making logic. Smolka, Verheul Burmeister-Lamp and Heugens (2016) tested their synergistic potential, and found that the articulation of causation and effectuation contribute to venture performance. Specifically, the effectual principle of experimentation significantly strengthens the relationship between causation and performance, because it allows the entrepreneur to enjoy the benefits of both approaches. That is, designing business strategies based on long-term objectives

may be combined with short-term experiments, such as making changes to product features (Frese, 2009), because while the entrepreneur draws on the currently available means to shape the new venture along the way, the identification of future goals helps determine growth ambitions (Frese et al., 2007). Accordingly, entrepreneurs are able to reap the benefits from both approaches, employing causation and effectuation concurrently to strengthen venture performance. This result advises entrepreneurs to focus on effectuation while remaining committed to planning mechanisms.

### **Improvisation theory**

Improvisation occurs when the design and execution of novel activities converge (Miner et al., 2001), due to the lack of available heuristics or pre-composed plans to guide them (Baker, Miner & Esley, 2003). According to Cunha, Cunha and Kamoche (1999), improvisation is *deliberate*, i.e., is an intention behavior; is *extemporaneous*, which means that it cannot be planned for and *occurs during action*, as individuals do not stop to think on what would be the best response to a problem (Moorman & Miner, 1998).

Improvisation is often considered to be an elemental component of entrepreneurial ventures (Hmieleski & Corbett, 2008), for two main reasons. First, new ventures do not possess the slack resources that would allow time to plan actions or to experiment with different contingencies, even if planning might indeed pay off (Delmar & Shane, 2003). Second, their limited experience dictates - especially in the very earliest stages - that they will be confronted with many situations they have never seen before. Without adequate time or resources to plan fully, and without a large repertoire of prior experience, they will often be forced to improvise to create or enact solutions (Zahra, Sapienza & Davidsson, 2006).

Improvisation is not inherently good or bad (Vera & Crossan, 2005) and its effects are greatly moderated by contextual factors (Hmieleski & Corbett, 2008). The most notorious research about improvisation in entrepreneurship is the one by Hmieleski and colleagues. Hmieleski and Corbett (2006) found that nascent entrepreneurs exhibiting a proclivity for improvisation display a strong tendency toward self-selecting themselves into the field of entrepreneurship, i.e., have higher intention towards starting their own business. Moreover, proclivity for improvisation appears to add explanatory value above and beyond other well-known significant predictors, namely personality, motivation, cognitive style, and social models (i.e., having friends and family who are entrepreneurs) (Hmieleski & Corbett, 2006).

Later, the same authors explored the relationship between improvisation and venture performance (Hmieleski & Corbett, 2008). No direct relationship between improvisation and venture performance was found, which is aligned with the assumption that improvisation is not inherently good or bad (Vera & Crossan, 2005). However, improvisational behavior presented a positive relationship with new venture performance (i.e., sales growth), specifically when exhibited by founders who were high in entrepreneurial self-efficacy. Conversely, improvisation was found to have a negative relationship with new venture performance when exhibited by founders who were low in entrepreneurial self-efficacy. Thus, entrepreneurial self-efficacy appears to be an important moderator of the linkage between improvisational behavior and performance because “if faced with the likelihood of failure, entrepreneurs without sufficient belief in their abilities are likely to give up mid-way through improvisational episodes rather than persisting through the process until reaching a successful result” (Hmieleski & Corbett, 2008; p.486).

At the organization level, improvisation also explains why and how new ventures behave contrary to the utility of strategic planning (Shane & Venkataraman 2000). For instance, the qualitative study of Baker et al. (2003) examined the nascent activities of 68 firms. According to their findings none of the firms in the study behaved in a manner that was primarily strategically planned. Moreover, many of the firms lacked the background to have formed heuristics to guide their actions through the process. Instead, the authors described the behavior of these firms as being characteristic of improvisation. They concluded that the norm for these new ventures was to extemporaneously compose and execute novel solutions to the problems and opportunities that they encountered.

### **Bricolage theory**

Intrigued by the fact that some ventures are able to *create something from nothing*, Baker and Nelson (2005) introduced the notion of bricolage<sup>6</sup> in entrepreneurship. Bricolage refers to “making do by applying combinations of the resources at hand to new problems and opportunities” (Baker, 2007; p. 695; Levi-Strauss, 1966). According to Baker and Nelson (2005), bricolage has three key elements. First, *making do*, which implies a bias towards action and active engagement with problems. Thus, the *bricoleur* refuses to enact the objective limitations of resources, insisting instead on trying out solutions, observing and dealing with results. Second, *the combination of resources for new purposes*, that refers to the usage of resources for different applications than those for which they were originally intended. This suggests the *bricoleur* challenges the social constructed meaning resources, by recombining them for new purposes. The third

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<sup>6</sup> Originally proposed by Levi-Strauss in his book *The Savage Mind* (1966).



element refers to *the resources at hand*, which includes the usage of resources that are available very cheap or for free.

Bricolage was introduced as an alternative to the “engineering” approaches in which individuals create solutions that specify requirements for particular skills, tools, and materials. Contrary to this glamorized image of the engineer, someone engaged in bricolage instead “makes do” with whatever skills, tools and materials are at hand. For instance, bootstrapping activities often take the form of bricolage because, by drawing upon and combining other resources that are available cheaply or for the taking, it allows the entrepreneur to have access and utilize resources at a reduced cost and risk of operations (Ebben & Johnson, 2006; Winborg, 2009).

Prior research produced evidence about the contributions of bricolage for resource-constrained organizations. For instance, Garud and Karnoe’s (2003) study contrasts two wind turbine industries: the Danish, composed by engineers with a practical interest in wind energy but few financial resources, and the American, whose engineers purchased or fabricated new components designed specifically for their competing wind turbines. The authors observed that, in contrast with the American industry, the Danish firms’ demonstrate a bias for action through a drive to overcome obstacles and a willingness to find ways to make do with the resources at hand. They are willing to treat as resources what other organizations saw as worthless (Garud & Karnoe, 2003). As a result, the Danish industry produced an innovative new product that competed effectively against much better financed product development efforts in the United States.

Bechky and Okhuysen (2011) observed that bricolage was useful for small and temporary groups, specifically in environments where it is essential to find quick and innovative solutions based on the resources at hand. Senyard, Baker, Steffens and

Davidsson's (2014) findings suggest that bricolage has a positive significant effect on the innovativeness of new resource-constrained ventures.

In their seminal paper, Baker and Nelson suggest that bricolage can bring benefits, but also limitations and even downsides for organizations that overlie bricolage (Baker & Nelson, 2005). The authors suggest an interesting distinction between two forms of bricolage: *parallel bricolage* – in which firms engage in bricolage across several domains of activity, simultaneously, generally for long periods of time - and *selective bricolage* – where bricolage is used more thoughtfully and typically only in one or a few domains of activity and for limited time periods.

Baker and Nelson (2005) suggest that parallel bricolage can be a trap that makes it very difficult for firms to grow. The indiscriminate application of bricolage to many aspects of the business and its innovation processes will reduce the firm's ability to make the most of the incipient innovations generated through bricolage. The authors' argument suggests that resource-constrained firms may achieve more innovation if they apply bricolage more selectively by generating innovative solutions through bricolage, but then by rejecting further use of bricolage and adopting more standard innovation practices.

## CHAPTER IV: **Lingering questions**

## Lingering questions

As exposed in Chapter II (“Why only some individuals pursue their entrepreneurial aspirations?”), prior research has provided evidence on who the entrepreneur is, by identifying what dispositional characteristics distinguish entrepreneurs from managers (e.g., Rauch & Frese, 2007), how individuals’ develop entrepreneurial intentions (e.g., Bird, 1988; Schlaegel & Koenig, 2014), how entrepreneurs think (e.g., Baron, 1998), how their affective influences their decisions (e.g., Foo, 2011; Cardon et al., 2012) and how the entrepreneur’s human and social capital, are related with their activity (e.g., Unger et al., 2013; Davidsson & Honig, 2003).

Such efforts were meaningful as they contributed to the development of entrepreneurial research as an independent research field. However, while prior research might explain why individuals pursue their entrepreneurial ambitions, they fail to adequately explain why does not every individual who chooses to become an entrepreneur actually succeed (Davidsson & Gordon, 2016; Hsu et al., 2016; Khan et al., 2014; Kollman et al., 2017). Answering this question will advance our knowledge about the nuances of the entrepreneurs’ behavior, and specifically why nascent entrepreneurs withdraw from such entrepreneurial efforts when they encounter constraints (Kollman et al., 2017).

To answer this question, we rely on the assumption that constraints are not obstacles in nature (Lazarys & Folkman, 1984), but depend on how an individual appraises them (Van Gelderen et al., 2011; Gonzales-Morales & Neves, 2014). Following this trend, in **Study1** we develop a measure to evaluate constraint-appraisal.

Second, we follow the recommendations of recent research (e.g., Davidsson &

Gordon, 2016; Kollman et al., 2017) by providing a mechanism that explains the relationship between constraints and the emergence of nascent entrepreneurial behavior (**Study 2**). While we do not question the importance of entrepreneurial intentions as an explanatory mechanism for entrepreneurial behavior, we propose a different one (via entrepreneurial passion) through which constraint-appraisal impacts entrepreneurial behavior, because recent research has demonstrated that entrepreneurial passion is an important driver of behavior (Cardon et al., 2009), specifically in the persistence over obstacles (Cardon & Kirk, 2015).

As stated in Chapter III (“What management strategies are more effective for new ventures?”), the effect of formal planning in venture performance is still controversial (Frese & Gielnik, 2014). While we acknowledge that formal planning might be detrimental for new ventures in conditions of higher uncertainty and in the turbulent environments where they operate (Gruber, 2007), new ventures cannot sustain and develop their activity only through informal strategies. At a certain point of its development stage they must develop the ability to keep the balance between formal and informal practices. For instance, if founders are not able to delegate, they might find themselves trapped into micromanagement activities at the expense of neglecting key strategic functions. Moreover, when a firm is fast growing, or competing in a dynamic environment, these choices can have important consequences for survival (Lichtenstein & Brush, 2001). Building on the arguments that growth is a fundamental condition for formalization to become fully established (Quinn & Cameron, 1983) and that formalization is central to manage the challenges that growth imposes (e.g., loss of control) (Delmar & Shane, 2003), **Study 3** provides preliminary results for this query. Specifically we analyze the effect of formal human

resource practices in the performance of high-growth companies, contingent to the firm development stage (i.e., whether the organization is established or a new venture).

## **PART II: EMPIRICAL STUDIES**

CHAPTER V - Studies 1 & 2: *Light the fire*: the mediating role of entrepreneurial passion in the relationship between constraint-appraisal and taking action



***Light the fire: the mediating role of entrepreneurial passion in the relationship  
between constraint-appraisal and taking action***

**Abstract**

We explore the evaluative nature of entrepreneurial constraints and its consequences for entrepreneurs' behavior. In study 1, we develop a measure of constraint-appraisal and argue that distinctive appraisals about the same constraint (i.e., challenge vs. threat) produce different effects in behavior. In study 2, using a time-lagged panel design, we examine the mediating role of entrepreneurial passion in the relationship between constraint-appraisal and taking action. Our findings suggest that entrepreneurial passion mediates the positive relationship between challenge-appraisal and taking action (both 3 and 9 months after). Our study challenges the conventional assumption of entrepreneurial constraints as being obstacles in nature.

***Keywords:*** Constraint-Appraisal; Entrepreneurial Passion; Taking Action.

## Introduction

Prior research has provided insights about why some individuals, but not others, engage in entrepreneurial efforts (e.g., Mitchell & Shepherd, 2011; Morgan & Sisak, 2016). Nonetheless, it lacks to explain why only a few succeed in the face of obstacles (Hsu, Wiklund, Anderson, & Coffey, 2016; Kollmann, Stöckmann & Kensbock, 2017). This is especially important in the nascent stage where obstacles are more likely to hamper entrepreneurial activity (Dewald and Bowen, 2010; Cacciotti, Hayton, Mitchell & Giazitzoglu, 2016). If an aspirant entrepreneur withdraws their venturing aspirations in the face of such constraints, potentially successful ventures are not created (Van Gelderen, Kautonen & Fink, 2015). National economies suffer from this phenomenon because entrepreneurial activity has shown strong competence for employment growth and innovation dissemination (Eckhardt & Shane, 2011).

Prior research has identified major entrepreneurial-related constraints, such as access to funding (e.g., Kollmann et al., 2017); institutional factors (e.g., Jackson, 2010); environment hostility (e.g., Davidsson & Gordon, 2016); competitors' aggressiveness (e.g., Bitzenis & Nito, 2005); lack of business skills (e.g., Fatoki & Chindoga, 2011), and lack of social support (e.g., Baron & Markman, 2003; Schlaegel, Engle, Dimitriadi, & Taureck, 2015) as the major obstacles of nascent entrepreneurship. These findings certainly add to our understanding about the lower success rates during the nascent entrepreneurship stage, by suggesting that these constraints should reduce the effort that nascent entrepreneurs invest in entrepreneurial endeavors (Van Gelderen, Thurik, & Fink, 2011). Nonetheless, they have conceptualized these constraints as being obstacles in nature. We argue that this conceptualization restricts our knowledge about why some entrepreneurs withdraw from their entrepreneurial aspirations, while others do not. Indeed individuals have

different reactions to a particular constraint, which may affect the decision to withdraw or continue chasing their entrepreneurial aspirations. For instance, literature about workplace stressors acknowledges that an individual can appraise the same constraint as engendering different levels of challenge and threat (Webster, Beehr & Love, 2011). Furthermore, there is robust empirical evidence showing that differences in the appraisal carry distinctive consequences for individual behavior, with challenge-appraisal being positively related with performance, while threat-appraisal having a negative relationship (González-Morales & Neves, 2015).

Moreover, past research about obstacles in entrepreneurship also suggests for the consideration of this evaluative nature of constraints. For instance, Van Gelderen et al.'s (2011) findings demonstrate that starting entrepreneurs do not differ from abandoning entrepreneurs in terms of the amount of constraints perceived. Thus, "the nature of problems is essentially evaluative, and therefore subjective. The same condition or issue may be seen as a problem by one person but not by another." (Van Gelderen et al., 2011, p.72).

Based on the cognitive theory of stress (Lazarus & Folkman, 1984), we argue that when an entrepreneurial-related constraint is appraised as a challenge, thus evaluated as beneficial and as an opportunity to grow, to develop mastery or have gains (Lazarus & Folkman, 1984), individuals should feel more confident and motivated (González-Morales & Neves, 2015) to invest effort on their entrepreneurial aspirations. On the other hand, when an entrepreneurial-related constraint is appraised as a threat, therefore as a menace or danger (Lazarus & Folkman, 1984), individuals should feel low initiation of and persistence towards entrepreneurial tasks, because of the higher perception of potential for loss, with little - if anything - to be gained (González-Morales & Neves, 2015).

Furthermore, we propose that this relationship between constraint-appraisal and behavior is mediated by the individuals' entrepreneurial passion (Cardon, Wincent, Singh, & Drnovsek, 2009), i.e., the "intense positive feelings experienced by engagement in entrepreneurial activities associated with roles that are meaningful and salient to the self-identity of the entrepreneur" (Cardon et al., 2009, p.517). Prior findings suggest a positive relationship between entrepreneurial passion and entrepreneur's persistence in the face of obstacles (Cardon & Kirk, 2015; Drnovsek, Cardon, & Patel, 2016; Gielnik, Uy, Funken, & Bischoff, 2017), over and beyond other motivating factors and/or affective dimensions, such as discrete positive emotions (Cardon, Gregoire, Stevens & Patel, 2013). We claim that, when the constraint is appraised as a challenge, thus felt as beneficial, it should enhance the expression of positive feelings and the identification with the tasks associated with that role, i.e., entrepreneurial passion (Cardon & Kirk, 2015), thus the individual should be more likely to take action over such constraints, like investing more resources such as effort, time and money.

Conversely, when a constraint is appraised as a threat, therefore felt as a menace with higher probability of loss, individuals should be less likely to take action, because threat-appraisal should diminish individual's entrepreneurial passion, thus his/her positive affectivity and self-meaning regarding the entrepreneurial-related tasks are reduced.

This manuscript examines the relationship of constraint-appraisal, entrepreneurial passion, and taking action in the emergence of nascent entrepreneurial behavior, as it is a critical stage where obstacles threatening the success of new ventures occur more frequently (Cacciotti et al., 2016). To achieve this aim, we first developed a measure of constraint-appraisal in a sample of 179 founders and tested

for its relationships with entrepreneurial behavior (study 1). Then, using a time-lagged panel design, we followed a sample of potential entrepreneurs during their transition to nascent entrepreneurship (study 2). Specifically, we examined the mediating role of entrepreneurial passion (Time 1; T1) in the relationship between constraint-appraisal (Time 1; T1) and taking-action over their own business ideas, both three and nine months after T1 (i.e., T2 and T3, respectively).

We contribute to the literature in several ways. First, we advance the literature on constraints in entrepreneurship (e.g., Van Gelderen et al., 2011; Jackson, 2010; Davidsson & Gordon, 2016; Kollman et al., 2017) by testing the notion of appraisal. Because different appraisals should produce distinct behavioral reactions (González-Morales & Neves, 2015), we argue that this approach provides a more nuanced view about the effect of constraints in the nascent stage, especially on why some individuals, but not others, withdraw from their entrepreneur endeavors.

Second, we contribute to the literature on entrepreneurial passion, and specifically regarding the passion experienced by the entrepreneur (e.g., Cardon & Kirk, 2015). In one hand, we corroborate the assertion that entrepreneurial passion is a key driver of entrepreneurial behavior (Cardon et al., 2009) as it helps entrepreneurs to hold their course and persist in the face of difficulties (e.g., Baron, 2008; Cardon & Kirk, 2015). On the other hand, we extend the theory by providing evidence that entrepreneurial passion carries prolonged behavioral effects over time (e.g., Cardon et al., 2009), an assumption that has been far neglected by past research (see Muller, Wolfe & Syed, 2017, for an exception).

Third, we contribute to the external validity of the cognitive theory of stress (Lazarus & Folkman, 1984) by demonstrating that the appraisal framework might be generalizable different contexts, such as the entrepreneurial. That is, we highlight the

utility of the cognitive theory of stress to the study of the individuals' reactions to obstacles in general (Lucas, 2003), and also inform entrepreneurship scholars that the cognitive theory of stress is a useful framework for our understanding about the effect of obstacles in the entrepreneurial process.

### **The evaluative nature of constraints and its implications for entrepreneurial behavior**

Founding a venture takes extraordinary drive in the face of what would be, to many, daunting constraints (Miller, 2015). For instance, acquiring funding may prove more difficult to obtain than originally planned, information may turn out to be unreliable or even government regulations may delay the process (Van Gelderen et al., 2011). These setbacks make difficult for nascent entrepreneurs to implement their own business (Stam, Thurik & Van der Zwan, 2010) because they are likely to hamper the individual's ability to keep up the required enthusiasm and effort (Van Gelderen et al., 2011).

Interesting, prior research about the effect of these constraints in the entrepreneurs' behavior has produced mixed results (Kollmann et al., 2017). For instance, Young and Francis (1989) found a positive relationship between government support and starting a firm, while Del Monte and De Luzenberger (1989) found no significant relationship. More recently, Jackson (2010) found that when nascent entrepreneurs perceive the external environment to be deterrent, they are more likely to abandon their entrepreneurial ambitions. On the other hand, Davidsson and Gordon (2016), in their efforts to analyze the effects of the 2008 economic crisis on entrepreneurial behavior, did not find a significant effect.

The *a priori* assumption of past studies about entrepreneurial constraints is that these are always undermining entrepreneurs' behavior, i.e., they are obstacles in

nature. Whereas we acknowledge that some conditions (e.g., lack of social support, environmental munificence; Grichnik, Brickmann, Singh, Manigart, 2014) might objectively be more deterrent than others (Diamond, 1998), recent research has demonstrated that individuals can simultaneously appraise the same constraint differently, namely as involving different degrees of challenge and threat (e.g., González-Morales & Neves, 2015; Lepine, Podsakoff & LePine, 2005; Webster et al., 2011).

The cognitive theory of stress (Lazarus & Folkman, 1984) argues that, argues that environmental conditions, such as constraints, are not the direct precipitating cause of a behavior, but rather it is the person's appraisal of challenge and/or threat that determines the response (Lazarus, 1999; Webster, Beehr & Love, 2011). The theory conceptualizes primary appraisal at the center of the individuals' reaction to problems, and it is one of the main ways by which a person evaluates the meaning and significance of a situation (Webster et al., 2011). According to the theory, when individuals appraise the constraint as a challenge, they feel an opportunity for self-growth, develop mastery and have gains (Holroyd & Lazarus, 1982; Lazarus & Folkman, 1984). By contrast, when the individual appraises the constraint as a threat, they feel a menace and source of failure only (Drach-Zahavy & Erez, 2002), with little chances of gains (Holroyd & Lazarus, 1982; Lazarus & Folkman, 1984).

These differences in appraisal are associated with distinct behavioral responses towards constraints (Drach-Zahavy & Erez, 2002; Holroyd & Lazarus, 1982; Lazarus, 1999). Challenge appraisal indicates to the individual that with effort, the demands of a situation can be mastered (Skinner & Brewer, 2002). Thus, challenge appraisal is associated with high effort expended on managing such constraints because individuals believe that there is a positive relationship between

the effort expended on managing them and the outcomes that will emerge (Lepine et al., 2005). Conversely, threat appraisal is associated with low effort because people are likely to believe that no reasonable level of effort will be adequate to meet the demands of these constraints (Lepine et al., 2005).

Research about workplace stressors supports this differential effect of appraisals on behavior. For instance, Webster et al. (2011) found that employees' appraisal, i.e., as challenge and as hindrance, of the same stressor mediated the relationship between job stressors (e.g., role ambiguity, responsibility) and work outcomes (emotional exhaustion, physical symptoms, job dissatisfaction and turnover intentions). In a similar vein, González-Morales and Neves (2015) assessing how "good stressors" (Canavaugh, Boswell, Roehling & Bouderau, 2000) are connected to performance, found that opportunity and threat appraisals, present a positive and negative relationship with in-role performance, respectively.

Entrepreneurship literature has also provided evidence about the subjective nature of constraints. Van Gelderen et al. (2011) found that starting entrepreneurs do not differ from abandoning entrepreneurs in terms of quantity, type, and impact (i.e., implement or not the venture idea) of encountered problems. Thus, the argument of the authors is that they might differ in terms of their appraisals about the problems (van Gelderen et al., 2011).

We build on the proposition of Van Gelderen and colleagues and argue that the consideration of the evaluative nature of entrepreneurial-related constraints, i.e., as involving different degrees of challenge and threat, provide a more nuanced view about why some entrepreneurs, but not others, persist/give up in the face of obstacles. Therefore, we argue that depending on the whether the constraint is appraised as a



challenge and as a threat, it can promote or deter the entrepreneur's behavior, respectively. Thus:

*H1: Challenge appraisal has a positive effect on entrepreneurial behavior.*

*H2: Threat appraisal has a negative effect on entrepreneurial behavior.*

### **The mediating role of entrepreneurial passion**

Entrepreneurship scholars have recognized the importance of the entrepreneurs' emotionality during the entrepreneurial process, because in highly uncertain environments such as the entrepreneurial, characterized by the lack of well-learned scripts and prescribed set of procedures, affect is likely to readily "tip the balance" toward specific actions or decisions (Baron, 2008; Cardon, Foo, Shepherd, & Wiklund, 2012). Accordingly, scholars recognize the role of affect in fundamental entrepreneurial activities such as opportunity identification (Hayton & Cholakova, 2012), risk perception (Foo, 2011) and recovering from failure (Shepherd, 2003).

With regards to the entrepreneurs' persistence over the demanding entrepreneurial-related tasks, research has suggested that, unlike discrete emotions (positive and negative) that occur in reaction to such environmental contingencies, it is the emotions the entrepreneurs' experience from the identification with entrepreneurial tasks (e.g., entrepreneurial passion) that significantly determine entrepreneurs' behavior (Baron, 2008; Cardon & Kirk, 2015; Chen, Yao, & Kotha, 2009; Drnovsek, Cardon, & Patel, 2016).

Entrepreneurial passion is conceptualized as an intense positive feeling for activities that are central and meaningful to an individual's self-identity (Cardon et al., 2009), and it has been related to drive, tenacity, willingness to work long hours, courage, high levels of initiative (Bierly et al., 2000; Bird, 1989). Entrepreneurial

passion is an important driver of the entrepreneur's persistence (Cardon & Kirk, 2015; Muller, Wolfe, Syed, 2017), because "it has a motivational effect that stimulates entrepreneurs to overcome obstacles and remain engaged" (Cardon et al., 2009, p.512). Its positive feelings are more enduring than the experience of discreet positive emotions (Wincent et al., 2008), because passion feelings emerge from activities that are meaningful to individuals' identity (Cardon et al., 2013).

The motivational effect of entrepreneurial passion is explained by its two components: intense positive feelings and self-identity. Positive affect enhances the entrepreneur's capacity to respond effectively to highly dynamic environments and to tolerate intense levels of stress raised by constraints (Baron, 2008). The second component derives from the engagement in activities that are meaningful to the subjective concept that the entrepreneur has about him/herself, i.e., his/her self-identity. According to self-determination theory (Deci & Ryan, 2000), individuals who identify more strongly with a certain task are more persistent and demonstrate greater attainment regarding established goals (Houser-Marko & Sheldon, 2006). Thus, entrepreneurs should be more likely to take action, because those tasks are consistent with their internalized identity (Vignoles, Jen, Regalia, Manzi, & Scabini, 2006).

We argue that the appraisal the individual does about an entrepreneurial-related constraint (i.e., as challenge vs as threat) should affect his/her degree of entrepreneurial passion, thus carrying different consequences for entrepreneurial behavior. We propose that when entrepreneurs appraise constraints as a challenge, they are more likely to experience higher entrepreneurial passion, therefore prompting the entrepreneur to take action. Challenge-appraisal is associated with the experience of "eustress" (Canavaugh et al., 2000; Lazarus, 1991), which allows the individual to

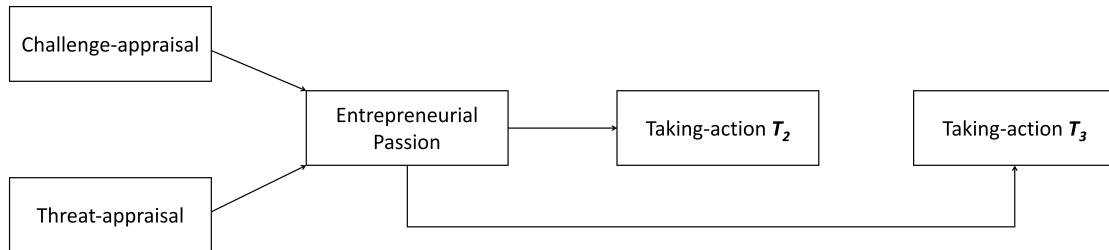
feel positive emotions related with motivation, fulfillment and achievement (Selye, 1982). Moreover, the anticipation of gains, or potential for develop mastery and to grow is likely to enhance entrepreneurs perception about the self-meaning that the resolution of that constraint, and execution of that task, has for their identity (e.g., Vignoles et al., 2006). This increase in entrepreneurial passion should in turn encourage the entrepreneur to strive in the face of such constraints (Cardon & Kirk, 2015) and to take action over their business aspiration.

Conversely, threat-appraisal is associated with the experience of “distress”, which is conceptualized as a maladaptive stress (Canavaugh et al., 2000; Lazarus, 1991). This appraisal carries less positive emotions (Selye, 1982), because constraints are felt as a menace (Gonzales-Morales & Neves, 2015). Furthermore, as the chances for achievement and self-development are weakened (Lepine et al., 2004), entrepreneurs should feel lower self-meaning in performing that activity (Vignoles et al., 2006). Thus, threat-appraisal should be negatively associated with entrepreneurial passion, and consequently, reduce the amount of effort people are willing to invest in their entrepreneurial projects.

As mentioned earlier, an interesting aspect of passion is that, because it emerges from tasks that are meaningful to the individual’s identity, its motivational effects in behavior are expected to persist over time (Cardon et al., 2009). Despite this recognition, this assumption is far neglected in empirical research (Mueller et al., 2017). Advancing our knowledge on this query can add to our understanding about different patterns of nascent entrepreneurship behavior. Therefore we propose:

*H3: Entrepreneurial passion mediates the positive relationship between challenge-appraisal and tacking action (both at T2 and T3)*

*H4: Entrepreneurial passion mediates the negative relationship between threat-appraisal and tacking action (both at T2 and T3)*



**Figure 1.** Hypothesized mediation model

## **STUDY 1: The development of a constraint-appraisal measure**

### **Method**

#### **Sample and procedure**

To develop the constraint-appraisal measure and test the first two hypotheses (H1 and H2) we contacted founders using personal connections and through *LinkedIn*. We started by scanning the profiles with key words of *founder*, *CEO* and *entrepreneur*. We disregarded profiles of individuals that worked in a startup, but were not its founders, since our aim was to study the obstacles in the founding process and through the eyes of the entrepreneur. Further, we only considered founders of new ventures up to six years old because prior research has identified this period to be critical for their development due to the experience of constraints (Shrader, Oviat, & McDougall, 2000). Over 2 months, a private message was sent to the profiles that matched our selection criteria. We briefly explained the scope of the research (to study constraints in the entrepreneurial process) and invited the founder to participate. For those who accepted to participate, we sent a second message with a link for an online questionnaire.

A total of 343 messages were sent, to which 209 founders answered (60.35% response rate). Thirty surveys were incomplete, thus our final sample was 179 founders. All of them were founders from Portuguese startups. The average age was 35.52 years (SD=8.94) and 85.5% were male. The small representativeness of women in our sample is aligned with the reported rate of women involved in entrepreneurial activity in Europe - 6% - according to the Global Entrepreneurship Monitor (GEM, 2016). Regarding their educational level, 1.1% did not complete high school, 3.4% had a high school diploma, 33.3% had an undergraduate degree and 52.7% held a

graduate degree. Regarding their previous startup experience, 79.3% mentioned they worked for a startup in the past (not considering the current startup).

## **Measures**

***Control Variables.*** We controlled for gender (“male”=1, “female”= 2), age (assessed in years), and previous startup experience, as these have been found significant predictors of entrepreneurial behavior (Davidsson & Honig, 2003; Gielnik et al., 2014). Participants were asked if they ever worked for a start-up in the past (“no”=0, “yes”=1) as a measure of previous startup experience.

***Development of the constraint appraisal measure.*** We first listed the tasks and conditions that are contingent to the entrepreneurial process and which every entrepreneur should deal with when launching a business. According to the GEM (2016), there are nine structural conditions that can act as constraints of entrepreneurial activity. These conditions were derived from both a survey administered to the adult population and interviews to experts on entrepreneurship (GEM, 2016). The nine conditions are: (1) access to funding, (2) government policies (e.g., tax burden, bureaucracies), (3) existing government entrepreneurship programs, (4) current education available, (5) access to R&D, (6) existing commercial and legal infrastructures (e.g., availability of consulting, accounting, legal and finance services), (7) market barriers, (8) access to physical infrastructures (e.g., facilities), (9) cultural and social norms towards entrepreneurship. Additionally we included four items, proposed by Carter, Gartner and Reynolds (1996), regarding internal tasks that are required in new venture implementation: (10) building the team, (11) prepare a business plan, (12) full time dedication to the project, and (13) hiring employees.

Three of the previous items (i.e., current educational level; government policies; cultural and social norms towards entrepreneurship) were removed since they have been constantly rated as hampering entrepreneurial activity during the past decade (GEM, 2016). This suggests that these items are clear situations that invariably represent threats to entrepreneurship, thus it would be hard to find their silver lining and appraise them as challenging (Canavaugh et al., 2000; Gonzalez-Morales & Neves, 2015).

According to the cognitive theory of stress challenge and threat appraisals are not necessarily mutually exclusive; thus, an individual can appraise a situation as being both a challenge and a threat simultaneously (Lazarus & Folkman, 1984). Thus, when assessing individuals' appraisal of a situation it is important to measure the extent to which the situation is appraised both as a challenge and/or a threat (Webster et al., 2011). Accordingly, participants were instructed to rate each of the remaining 10 items in terms of how much they saw it as a challenge and as a threat. We followed the procedure outlined by Gonzalez-Morales and Neves (2015) and included a paragraph that described what a threat or a challenge meant in relation to the development of their business.

Participants rated the two scales separately, using a scale from 1 (I am completely certain it is not a threat/challenge) to 5 (I am completely certain it is a threat/challenge)

***Entrepreneurial behavior.*** We developed a measure of entrepreneurial behavior based on the work of Carter et al. (1996). According to the authors, behaviors that make business ideas more tangible to others (e.g., look for financial support, development of the product) depict greater efforts from the owners in implementing their business idea than behaviors towards activities internal to the

startup (e.g., preparing a business plan). We asked our participants to indicate their current venture idea stage, according to the following options: 1= idea; 2= elaboration of the business plan; 3= searching for funding; 4= development of the product/service; 5= sales.

## **Results**

### **Constraint-appraisal measure development**

Following the recommendations of González-Morales and Neves (2015), we first ran item inter-correlations between challenge and threat appraisal ratings to the same described constraint, to test whether participants rated the challenge and threat appraisals independently. We obtained non-significant coefficients for four items, small positive correlations (Cohen, Cohen, West, & Aiken, 2003) for access to funding ( $r=.20$ ,  $p<.01$ ), existing commercial and legal infrastructures ( $r=.29$ ,  $p<.01$ ), market barriers ( $r=.17$ ,  $p<.05$ ), hiring employees ( $r=.25$ ,  $p<.01$ ), and moderate positive correlations (Cohen et al., 2003) for access to physical infrastructures ( $r=.34$ ,  $p<.01$ ) and full time dedication to the project ( $r=.32$ ,  $p<.01$ ). These results suggest that participants assessed challenge and threat appraisals independently. Fully dependent answers would be suggested by high and negative correlations: low threat ratings when high challenge was rated and vice versa (González-Morales & Neves, 2015)

We conducted exploratory factor analysis (principal components with OBLIMIN rotation with Kaiser normalization), to further examine the distinctiveness of the appraisals. A Cattell scree plot and Kaiser's criterion identified a two-factor solution that explained 33% of the variance: challenge appraisal factor and threat appraisal factor. Table 2 shows how the items load on each factor.



**Table 2 - Measurement development: EFA loadings of challenge and threat appraisal ratings (founders' sample, N=179).**

	Factor 1	Factor 2
<i>Challenge ratings</i>		
1. Access to physical infrastructures	-	.49
2. Commercial & Legal infrastructures	-	.52
3. Market barriers	-	.52
4. Government entrepreneurship programs	-	.58
5. Access to funding	-	.40
6. Access to R&D	-	.47
7. Building a team	-	.62
8. Prepare a business plan	-	.62
9. Full time dedication	-	.72
10.Hiring employees	-	.64
<i>Threat ratings</i>		
1. Access to physical infrastructures	.55	-
2. Commercial & Legal infrastructures	.60	-
3. Market barriers	.45	-
4. Government entrepreneurship programs	.41	-
5. Access to funding	.44	-
6. Access to R&D	.51	-
7. Building a team	.60	-
8. Prepare a business plan	.62	-
9. Full time dedication	.57	-
10.Hiring employees	.77	-

Note: Blanks (-) indicate factor loadings <.20.

Finally, we assessed whether the factors were internally consistent by computing both challenge appraisal and threat appraisal as the average of the items that loaded on the respective factors. The Chronbach alpha was .76 for both challenge and threat appraisal factors.

### **Test of hypothesis**

Descriptive statistics, reliabilities, and correlations are presented in Table 3.

**Table 3 - Descriptive statistics, reliabilities and zero-order correlations**<sup>a,b</sup>

	Mean	SD	1	2	3	4	5	6
1. Challenge Appraisal	3.67	.64	(.76)					
2. Threat Appraisal	2.49	.68	.09	(.76)				
3. Entrepreneurial behavior	4.27	1.14	.15*	.02	--			
4. Age	35.52	8.94	.00	-.14	-.12	--		
5. Gender	--	--	.13	.07	.07	-.18*	--	
6. Previous startup experience	--	--	-.19*	.22**	.02	.02	-.26**	---

Note. N=179; † p<.10; \* p<.05; \*\* p<.01

<sup>a</sup> 5-point scales, Age was measured in years; Gender was coded as 1=Male, 2= Female. Previous start-up experience, was coded as 0=No, 1=Yes.

<sup>b</sup> Cronbach's alpha reported on the diagonal

We ran a linear regression to test hypotheses 1 and 2, where we predicted that challenge appraisal (H1) and threat appraisal (H2) should have a positive and negative relationship with entrepreneurial behavior, respectively. The main results are presented in Table 4. Following our prediction in H1, challenge appraisal was positively related to entrepreneurial behavior (B=.29, p<.05); for threat appraisal the relationship was not significant (B=-.08, p>.05). Thus, H2 was not supported.

**Table 4 - Linear regression results**

Predictors	Outcome		
	B	t	R <sup>2</sup>
<i>Control variables</i>			
Age	-.02	-1.48	
Gender	.17	.64	
Previous startup experience	.10	.45	.02
<i>Main effects</i>			
Challenge Appraisal	.29	2.07*	
Threat Appraisal	-.04	-.30	.04

Note. Tabled values are unstandardized regression coefficients.; \* p<.05

## **STUDY 2: The mediating role of entrepreneurial passion**

### **Method**

#### **Sample and Procedure**

In study 2, our goal was to examine the constraint-appraisal framework in the emergence of nascent entrepreneurial behavior. We focused on this stage because prior research acknowledged that nascent entrepreneurs are frequently confronted with obstacles that can be critical to the success of their new ventures (Dewald & Bowen, 2010; Cacciotti et al., 2016; Morris et al., 2012), and there is a need to shed light on the actual effects of these obstacles in this stage (Kollmann et al., 2017).

To meet this aim we approached individuals facing career decisions, i.e., senior college students<sup>7</sup>, as prior research highlighted that, for senior students, starting a business is a realistic option (Krueger, Reilly, & Carsrud, 2000). In January of 2015 we scanned all the existing entrepreneurship courses in a Portuguese university. We examined all nine schools that are part of the university in order to increase the generalizability of our results beyond the context of one scientific area, and control for the effect of familiarity with business fundamentals and tasks that might differentiate distinct areas.

Based on the recommendations of past research (Hsu, Wiklund & Cotton, 2017; Kollmann et al., 2017; Souitaris, Zerbinati & Al-Laham, 2007), three criteria were used for selecting the courses and the participants to be included in our study. First, we approached participants who were currently dealing with career options, i.e., senior students, because we wanted to follow them further in their transition to nascent entrepreneurship. Second, the course should be an elective module with assigned credits. This way we could augment the likelihood of having participants

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<sup>7</sup> We considered senior students from both undergraduate (i.e., bachelor degree) and graduate programs (i.e., Masters degree and PhD)

motivated to complete the course and willing to invest time and energy. Third, the structure of the course should involve students by intensively engaging in an exemplary venture creation and the development of a business model to be evaluated at the end in a final pitch. If they had no prior entrepreneurial experience, students could experience some of the constraints that were targeted in the study. This criterion was important because such business planning processes can be regarded as nascent entrepreneurial activities; thus, the participating students can be considered to be (early) nascent entrepreneurs (Hsu et al., 2017; Souitaris et al., 2007).

A total of four courses met these criteria. We contacted each program director asking permission to collect data. One of them refused to participate due to time constraints and another did not open the course due to the small number of students enrolled. The two remaining programs were from the business school, which is in the Top-25 European Business School ranking (Financial Times, 2016), and from the rectory's entrepreneurship program that is available for all senior students of the university.

In February 2015, in the first class of each course, and before the students were exposed to any entrepreneurship-related contents, we collected the first wave of data (Time 1). Participants were asked to create a personal code they could easily recall, in order to match data from the three measurement points. Confidentiality was guaranteed, and any identifying information was removed once the data was paired. The initial pool of participants consisted of 285 potential entrepreneurs. Demographics were as follows: 45.2% were female, with an average age of 23.20 (SD=3.46). 60.4% completed college (i.e., bachelor degree), 22.8% worked for a startup in the past, and 9.5% had founding experience. The majority (80.9%) had work experience and 57.5% had received previous training in entrepreneurship.

In May 2015 (i.e., 3 months later) in the class that anteceded the final pitch, we again approached participants (Time 2). This procedure was repeated in the courses that took place in the following semester, with Time 1 in September 2015, and Time 2 in December 2015, respecting the same time lag between T1 and T2.

We were able to match 170 surveys in T2 (response rate of 59.65%). Six months after they graduated (i.e., six months after T2 and nine months after T1) we sent another invitation (Time 3). Only 81 participants completed the survey at Time 3 (response rate of 47.6% from T2).

Given the response rates we checked for non-response bias by comparing the characteristics of each sample regarding individuals' age, gender, pre-startup experience, founding experience, work experience and previous training in entrepreneurship. No statistically significant differences were found between our sample in T1 and T3, suggesting that nonresponse bias not be a concern in our sample (Groves & Peytcheva, 2008).

## **Measures**

The Time 1 survey measured, constraint-appraisal, entrepreneurial passion, and demographics. Time 2 and Time 3 surveys (3 months and 9 months after T1, respectively) measured entrepreneurial behavior (i.e, taking action).

### **Time 1**

*Control Variables.* Similar to study 1 we controlled for age and gender. Additionally we controlled for educational level, previous founding experience, previous work experience and previous entrepreneurship training because they have been significantly related with nascent entrepreneurship (Davidsson & Honig, 2003). Similarly to Gielnik et al., (2014) and Gielnik, Spitzmuller, Schmitt, Klemann and Frese (2015), we asked participants if they had ever started a business in the past

(“yes”=1, “no”=0) for our measure of *founding experience*; if (“yes”=1, “no”=0) they had worked for a company (not a start-up) as a measure of *work experience*; if (“yes”=1, “no”=0) they had obtained training in areas related to creating a venture (e.g., marketing, sales, strategy) as a measure of *previous entrepreneurship training*.

***Constraint appraisal measure.*** Similar to the study 1, participants rated each of the 10 validated constraint items in terms of the degree of challenge and threat. Cronbach alpha was .71 for challenge appraisal and .76 for threat appraisal.

***Entrepreneurial Passion.*** We measured entrepreneurial passion using the items developed by Cardon et al. (2013). The measure focuses on three distinct roles that entrepreneurs adopt throughout the process: founder, inventor and developer. As our research aims to study the nascent entrepreneurial behavior of potential entrepreneurs, we focused on founding passion. The scale included three items assessing the intense positive feelings and one item assessing the identity centrality of the founding role (Cardon et al., 2013). Participants rated the four items in a seven-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). Sample items include “Owning my own company energizes me “ and “Being the founder of a business is an important part of who I am”. We followed the recommendations of previous treatment of entrepreneurial passion as a multiplicative interaction between intense positive feeling towards an activity and the identity centrality of the activity (Cardon et al., 2013; Cardon & Kirk, 2015; Mueller et al., 2017). We first, averaged the three feeling items to form a single composite measure of the intense positive feelings. A final score was computed by multiplying the composite measure of feelings with the identity-centrality item, leading to a weighted score of passion for founding.

### **Time 2 & Time 3**

***Taking action.*** We defined entrepreneurial behavior as actions taken with the aim of starting a new venture (Van Gelderen et al., 2015). To assess the entrepreneurial behavior undertaken by participants we adapted the measure used by Van Gelderen et al. (2015). First, participants provided a brief description of the business idea they were working on, to ensure that they were not considering the business model developed for the purpose of the course. Then, they rated how much effort, time and money they had put into activities regarding the development of a business ideas, using a 6-point rating scale, ranging from 1 (too little) to 6 (very much). These 3 items referred to the 3-month period that had elapsed since T1. Sample item included: “In the past three months” (1) “how much effort have you put into activities regarding other business ideas outside the scope of this course” Cronbach alpha was .86.

We applied our third questionnaire (Time 3), six months after they graduated (nine months after T1). The time lag of six months is in line with previous research about employability in early graduates (e.g., Smith, McKnight, & Naylor, 2000) and also with the emergence of nascent entrepreneurship (Davidsson & Honig, 2003; Gielnik, et al., 2014). The participants rated the same taking action measure but now referring to the 6-month period that had elapsed since T2. Cronbach alpha was .82.

### **Bootstrapping analysis**

To test our hypotheses we used bootstrapping analysis (SPSS macro, PROCESS, model 4; Hayes, 2012) - because it avoids statistical power problems resulting from asymmetric and other non-normal sampling distributions due to the test of indirect effects (MacKinnon, Lockwood & Williams, 2004). Moreover, it is

suitable for smaller samples, since it calculates the intended statistical test in multiple resamples of the database (Preacher, Rucker & Hayes, 2007).

## **Results**

### **Constraint-appraisal measure: Confirmatory Factor Analysis**

In time 1 (N=285), we conducted a confirmatory factor analysis (CFA), with Maximum Likelihood Estimation (MLE) procedures, using AMOS 20. In line with the recommendations put forth by Edwards (2001), we used several fit indices to evaluate the soundness of our models. We focused on indices that are deemed more stable even in smaller samples, such as the comparative fit index (CFI) and root mean square error of approximation (RMSEA) (Fan, Thompson & Wang, 1999; Hu & Bentler, 1998). Using chi-square difference tests (Bentler & Bonett, 1980), we compared the fit of the proposed model and four alternative models that include the same indicators with different path specifications (Table 5). These tests revealed that the proposed model presented the best fit to our data:  $\chi^2$  (df = 162) = 232.878,  $p < .01$ ; CFI = .92; TLI = .91; RMSEA = .04; SRMR=.05). Our model meets the conventional cut-off-criteria and therefore fits the data well.



**Table 5.** CFAs for the hypothesized and alternative models (T1 Sample, N=285)

	<i>df</i>	$\chi^2$	CFI	TLI	RMSEA	SRMR
2 <sup>nd</sup> order factors (proposed model) <sup>a</sup>	162	232,878**	.92	.91	.04	.05
2 <sup>nd</sup> order factors <sup>b</sup>	162	247,707**	.89	.88	.04	.07
Two-factor model <sup>c</sup>	166	337,947**	.79	.76	.06	.07
Two-factor model <sup>d</sup>	166	497,811**	.59	.53	.08	.10
One-factor model	167	547,357	.53	.47	.09	.10

Notes. \*\*  $p < .01$ ; <sup>a</sup> Equating two 2<sup>nd</sup> order factors (challenge-appraisal and threat-appraisal); <sup>b</sup> Equating two 2<sup>nd</sup> order factors internal-constraints and external-constraints; <sup>c</sup> Equating two-factor model challenge-appraisal and threat-appraisal; <sup>d</sup> Equating two factor model internal-constraints and external-constraints

CFAs = confirmatory factor analyses; *df* = degrees of freedom; CFI = comparative fit index; TLI = Tucker–Lewis index; RMSEA = root mean square error of approximation; SRMR = standardized root-mean- square error residual;

### Test of hypothesis

Descriptive statistics, reliabilities, and correlations are presented in Table 6. Similarly to study 1 we ran a linear regression to test the direct effects of challenge and threat appraisal in taking action (H1 and H2, respectively). We did not find any significant relationship between our predictors and taking action in T2 ( $B=.22, p>.05$ ;  $B=-.13, p>.05$ ; for challenge and threat appraisal, respectively), nor in T3 ( $B=.01, p>.05$ ;  $B=.00, p>.05$ ; for challenge and threat appraisal respectively).

We predicted that entrepreneurial passion mediates the positive relationship between challenge-appraisal and taking action (H3) and the negative relationship between threat-appraisal and taking action (H4), measured both 3 and 9 months later (T2 and T3, respectively). We found that challenge-appraisal was positively related to entrepreneurial passion ( $B=5.57, CI[2.23, 8.92]$ ;  $B=9.08, CI[2.89, 15.26]$ ; T2 and T3 samples, respectively), which in turn predicted taking action in T2 ( $B=.02, CI[.00, .03]$ ) and T3 ( $B=.02, CI[.00, .03]$ ). The indirect effect of challenge-appraisal on

**Table 6.** Descriptive statistics, reliabilities and zero-order correlations <sup>a,b,c</sup> (potential entrepreneurs sample)

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Challenge appraisal (T1)	3.74	.54	(.71)											
2. Threat appraisal (T1)	2.64	.64	.06	(.76)										
3. EP founding- feelings (T1)	5.25	1.32	.23**	-.04	(.74)									
4. EP founding – identity centrality (T1)	4.23	1.65	.20**	.04	.65**	---								
5. Taking action (T2)	2.26	1.19	.11	-.05	.18*	.21**	(.86)							
6. Taking action (T3)	1.92	.83	.01	-.06	.26*	.32**	.19	(.82)						
7. Age	22.68	2.80	-.01	.12	.13	.05	.20**	.12	---					
8. Gender	---	---	.06	.10	-.20**	-.16*	.01	-.08	-.08	---				
9. Educational level	---	---	.06	.11	.21**	.11	.21**	.37**	.50**	-.14	---			
10. Previous founding experience	---	---	-.07	-.13	.11	.21**	.25**	.31**	.07	-.17*	.18*	---		
11. Previous work experience	---	---	-.13	-.14	.02	-.05	.06	.10	.21**	.01	.10	.15*	---	
12. Previous training	---	---	.10	.06	.02	.07	.18*	.03	.03	.02	.05	.00	.09	---

Note. N=170; T1= Time 1; T2=Time2; T3=Time 3

<sup>a</sup> 7-point scales, Challenge appraisal and Threat appraisal that was coded as 1= I am completely certain it is NOT a challenge/threat to 5= I am completely certain it is a challenge/threat;

Taking action was coded as 1= Too little to 6=Very much; Age was measured in years; Gender was coded as 1=Male, 2= Female. Educational level was coded as 1= 4<sup>th</sup> grade, 2=9<sup>th</sup> grade, 3=high school, 4= some college, 5= completed college, 6= Master, MBA, PhD; Previous founding experience, previous work experience and previous training were coded as 0=No, 1=Yes.

<sup>b</sup> Cronbach's alpha reported on the diagonal;

<sup>c</sup> N=170 (T1 and T2); N=81 (T3)

\* p< .05; \*\* p< .01

taking action, i.e., via entrepreneurial passion, was significant in T2 ( $B=.09$ ;  $CI[.01; .24]$ ) and in T3 ( $B=.16$ ;  $CI[.02; .44]$ ). Thus, H3 was confirmed.

Regarding H4, threat appraisal was not statistically related to entrepreneurial passion ( $B=-.32$ ,  $CI[-3.29, 2.65]$ ;  $B=1.48$ ,  $CI[-3.53, 6.48]$ ; T2 and T3 samples, respectively) nor via passion to taking action in T2 ( $B=-.01$ ;  $CI[-.07; .06]$ ) and in T3 ( $B=.03$ ;  $CI[-.06; .19]$ ). Thus H4 was not confirmed.

**Table 7 - Bootstrapping Analysis Results**

Predictors	Outcomes											
	Model 1 (3 months)						Model 2 (9 months)					
	Passion for founding (T1) (mediator)			Taking action (T2)			Passion for founding (T1) (mediator)			Taking action (T3)		
	B	t	95%CI	B	t	95%CI	B	t	95%CI	B	t	95%CI
<b>VI: Challenge appraisal</b>												
<i>Control Variables</i>												
Age	.22	.57	[-.57, .96]	.06	1.58	[-.01, .13]	-.06	-1.11	[-1.08, .97]	-.02	-.50	[-.08, .05]
Gender	-4.37	-2.30	[-8.13, -.62]	.28	1.54	[-.08, .64]	-5.35	-1.80	[-11.29, .60]	.13	.68	[-.26, .52]
Educational level	.96	.57	[-2.37, 4.30]	.16	.97	[-.16, .47]	1.58	.59	[-3.73, 6.88]	.43	2.50*	[.09, .77]
Previous founding experience	6.67	1.87	[-.35, 13.69]	1.08	3.17**	[.41, 1.76]	13.74	2.40*	[2.31, 25.15]	.55	1.42	[-.22, 1.32]
Previous work experience	-.91	-.38	[-5.61, 3.79]	-.07	-.32	[-.52, .37]	-4.74	-1.34	[-11.81, 2.31]	.17	.74	[-.29, .63]
Previous training	.59	.32	[-3.11, 4.29]	.38	2.12*	[.03, .73]	-.57	.20	[-5.08, 6.22]	.09	.47	[-.28, .45]
Threat appraisal	-.32	-.21	[-3.29, 2.65]	-.12	-.86	[-.41, .16]	1.48	.59	[-3.51, 6.48]	-.01	-.04	[-.33, .32]
<i>Main Effects</i>												
Challenge appraisal	5.57	3.29**	[2.23, 8.92]	.15	.93	[-.18, .48]	9.08	2.92**	[2.89, 15.26]	-.14	.21	[-.56, .28]
<i>Mediator</i>												
Passion for founding				.02	2.07*	[.00, .03]				.02	2.31*	[.00, .03]
<b>R<sup>2</sup></b>					.13 (F=2.94, p<.01)						.22 (F=2.39, p<.05)	
<b>VI: Threat appraisal</b>												
<i>Control Variables</i>												
Age	.22	.57	[-.53, .96]	.06	1.58	[-.01, .13]	-.06	-1.11	[-1.08, .97]	-.02	-.50	[-.08, .05]
Gender	-4.38	-2.30*	[-8.13, -.62]	.28	1.53	[-.08, .64]	-5.35	1.79	[-11.29, .59]	.13	.68	[-.26, .52]
Educational level	.96	.57	[-2.37, 4.30]	.16	.97	[-.16, .47]	1.58	.59	[-3.73, 6.88]	.43	2.50*	[.09, .78]
Previous founding experience	6.67	1.87	[-.35, 13.69]	1.08	3.17**	[.41, 1.78]	13.74	2.40*	[2.31, 25.18]	.55	1.42	[-.22, 1.31]
Previous work experience	-.91	-.38	[-5.61, 3.79]	-.07	-.32	[-.52, .38]	-4.74	-1.34	[-11.81, 2.31]	.17	.74	[-.29, .63]
Previous training	.59	.32	[-3.11, 4.29]	.38	2.12*	[.03, .73]	.57	.20	[-5.08, 6.22]	.09	.47	[-.28, .45]
Challenge appraisal	5.57	3.29**	[2.23, 8.91]	.15	.92	[-.18, .48]	9.08	2.93**	[2.89, 15.26]	-.14	-.66	[-.56, .28]
<i>Main Effects</i>												
Threat appraisal	-.32	-.21	[-3.29, 2.65]	-.12	-.86	[-.41, .16]	1.48	.59	[-3.52, 6.48]	-.01	-.04	[-.33, .32]
<i>Mediator</i>												
Passion for founding				.02	2.07*	[.00, .03]				.02	2.31*	[.00, .03]
<b>R<sup>2</sup></b>					.13 (F=2.94, p<.01)						.22 (F=2.39, p<.05)	

Note. Tabled values are unstandardized regression coefficients; T2= Time 2; T3=Time 3, \* p<.05; \*\* p<.01

## Overall discussion

Recent research suggests that entrepreneurial constraints *per se* cannot fully explain entrepreneurs' behavior, but the underlying processes that are triggered by them (Kollmann, et al., 2017). In this manuscript we examined the effect of constraint appraisal (i.e., challenge vs threat) on entrepreneurial behavior. Specifically, we argued that challenge appraisal should be associated with enhanced entrepreneurial behavior, while threat appraisal should inhibit it. Furthermore, we proposed these relationships to be mediated by entrepreneurial passion. Our findings partially supported our predictions. In study 1, we developed a measurement of constraint appraisal and found that challenge appraisal is positively associated with entrepreneurial behavior. In study 2 we demonstrated that entrepreneurial passion mediates the positive relationship between challenge appraisal and taking action. No significant effects were found for threat appraisal.

### Theoretical Implications

Our study carries several theoretical implications. First, we move away from previous assumption that constraints are obstacles in nature (e.g., Jackson, 2010; Davidsson & Gordon, 2016) by testing the notion of appraisal (Lazarus & Folkman, 1984). Our results suggest that entrepreneurs appraise the same constraint as involving different degrees of challenge and threat (study 1). Moreover, we found that challenge appraisal is related with entrepreneurial behavior, both directly (study1) and via entrepreneurial passion (study 2). Because challenge appraisal entails seeing the constraint as beneficial for the individual and with higher likelihood of gains (González-Morales & Neves, 2015), it affects the experience of positive emotions and enhances the self-meaning of performing entrepreneurial-related tasks. Consequently, individuals should invest more effort in entrepreneurial activities.

We did not find a significant relationship between threat-appraisal and entrepreneurial behavior, contrary to the past findings about stressors at the workplace (e.g., González-Morales & Neves, 2015; Webster et al., 2011). We advance two possible explanations. In one hand, it might have to do with the peculiarities of the entrepreneurial tasks, i.e., its role characteristics. In contrast with employees, entrepreneurs experience fewer emotions related to threat (e.g., worry, fear, anxiety), because entrepreneurial tasks provide individuals' high levels of autonomy and decision latitude to easily cope with threat demands (Patzelt & Shepherd, 2010). For instance, entrepreneurs have the freedom to include breaks in their daily routines or to align their schedule with their personal preferences (Shane et al., 2003). Consequently, this impedes the effects of threat appraisal to translate into negative consequences for behavior (Patzelt & Shepherd, 2011). On the other hand, while threat appraisal might not influence entrepreneurial behavior, it might influence individuals' career intentions. That is, individuals who develop the idea - through environmental influences such as the family, peer groups, schools and communities (Blustein, 2001; Correll, 2004) - that an entrepreneurial career is very daunting with little to be gained, they should disregard entrepreneurship as a viable career option. Consequently, their further career investments (e.g., course choices over their education) would not even consider entrepreneurship related matters (cf., Hoekstra, 2011). Policy reports do also give clues about this phenomenon. According to GEM (2016), 42% of worldwide working-adults population identifies business opportunities, but only 22% expresses the intention to start a new business, which suggest that a great percentage of individuals disregard an entrepreneurial career, even when business opportunities are identified. We advise future research to explore the appraisal framework in initial stages of the entrepreneurial

process (e.g., career choice development), and using different outcomes such as entrepreneurial intentions.

Second, we contribute to the literature of entrepreneurial passion, and specifically regarding the passion experienced by the entrepreneur (e.g., Cardon & Kirk, 2015). Our results support the assumption that entrepreneurial passion is a significant driver of entrepreneurial behavior (Cardon et al., 2009), namely to take action over constraints appraised as a challenge. In challenge-appraised situations, individuals have higher expectations about potential benefits such as personal achievements (González-Morales & Neves, 2015), thus experience more positive emotions and enjoyment of doing something with self-meaning for them. Believing that achievements come along with personal development makes entrepreneurs feel confident and motivated to persist on their entrepreneurial endeavors (e.g., Baron, 2008; Cardon et al., 2009; Cardon & Kirk, 2015).

We extend the theory by demonstrating that entrepreneurial passion can be instigated situationally (e.g., Bélanger, Lafrenière, Vallerand & Kruglanski, 2013; Vallerand, 2010), i.e., in the face of constraints, rather than a stable individual characteristic (Vallerand et al., 2003). Moreover, we provide evidence for the lingering behavioral effects of entrepreneurial passion, which highlights its role in sustaining entrepreneurs' efforts in such turbulent environments as the entrepreneurial.

Third, we contribute to the literature about workplace stressors by providing evidence about the external validity of the appraisal framework. Prior research about stressors appraisal was conducted with employees in well-established organizations (e.g., Canavaugh et al., 2000; González-Morales & Neves, 2015; Webster et al., 2011). To the best of our knowledge our study is the first one to test this framework in the entrepreneurship context and to provide evidence that this framework can be extended

to this field. This informs entrepreneurship scholars about the utility of the cognitive theory of stress to understand the effect of obstacles in the entrepreneurial behavior.

### **Practical Implications**

Our study has practical insights, especially for educators, mentors and investors dealing with nascent entrepreneurs. For instance, entrepreneurial programs are known to affect individuals' entrepreneurial aspirations (Bae, Qian, Miao, & Fiet, 2014), especially when their content exposes potential entrepreneurs to the start-up activities performed by real entrepreneurs (Edelman, Manolova, & Brush, 2008). We advise educators to be aware that not everyone appraises those tasks equally, thus it would be important to help potential entrepreneurs to see constraints as a challenge, namely by highlighting the benefits that overcoming a certain constraint might bring for individuals. Constraint appraisal might also be highly informative for predicting individuals' persistence in or withdrawal from the nascent entrepreneurial stage. Therefore, mentors and investors should help nascent entrepreneurs to seize the chance about the positive outcomes of the (inevitable) constraints (Kollman et al., 2017), as this can prompt nascent entrepreneurs to invest more effort in their entrepreneurial endeavors.

Moreover, recent research demonstrates that training programs in entrepreneurship, and specifically those using didactical elements from action regulation theory such as active learning and feedback (Frese & Zapf, 1994; Gielnik et al., 2017) result in positive feelings associated with passion (Gielnik et al., 2015). Our study supports the claim that "entrepreneurial passion can be identified, harnessed, and nurture" (Cardon & Kirk, 2015; pp. 1045), rather than a personality trait. Thus we advise educators and universities that their entrepreneurship courses can affect the level



of entrepreneurial passion of their students (potential entrepreneurs), and this is a fundamental driver of future entrepreneurial behavior.

### **Limitations and future research**

This study is not without limitations, which can open avenues for future research. Our research covered the most significant constraints to nascent entrepreneurship reported by both policy-makers (GEM, 2016) and scholars (e.g., Schlaegel et al., 2015; Iakovleva, Kolvereid, Gorgievski, & Sorhaug, 2014). However, according to the institutional theory (Meyer & Rowan, 1977), environmental characteristics, like cultural differences, are likely to influence constraint-appraisal (Iakovleva et al., 2014). For instance, a country's uncertainty avoidance, i.e., the extent to which the members of a culture feel threatened by uncertain or unknown situations (Hofstede, 2001), might affect the degree a constraint is appraised as a challenge and/or threat. That is, it is plausible to assume that in countries scoring low on uncertainty avoidance, people are more likely to appraise a constraint as a challenge. Further research should address the role of cultural values in the appraisal process.

Another concern is the size of our sample in study 2, especially in T3 (N=81). While our concerns are minimized by the fact that small samples reduce statistical power (Aguinis & Harden, 2009), thus making effects harder to detect, it is important to re-test our hypotheses with larger samples. Moreover, the use of a potential entrepreneurs' sample was suitable to meet our goals as provided meaningful cues for understanding the emergence of nascent entrepreneurship. However, the accumulation and quality of entrepreneurial experience is likely to influence the way a constraint is perceived (Ucbasaran, et al., 2010), thus we recommend future research to test our model in later stages of the entrepreneurial process.

The purpose of our study was to understand the effect of individuals' primary appraisal about the constraint. However, the cognitive theory of stress (Lazarus & Folkman, 2004) also posits that, when facing a constraint, individuals also consider the available resources (internal and external) to cope with the demands imposed by those constraints (i.e., secondary appraisal). For instance, Davidsson and Honig (2003) found that entrepreneur's social capital diminished the perception about the entrepreneurial process being threatening because entrepreneurs perceived to have enough resources to cope with constraints. Moreover, the quality of the past entrepreneurial experience (e.g., experience of failure) of the founders is also likely to reduce the perception of constraints as being threats, as past research found repeat entrepreneurs, who had not experience business failure, to be more likely than novices, in reporting that they are less likely to experience negative events (Ucbasaran, Westhead, Wirght & Flores, 2010). We advise future research to look at the interplay of those two appraisals (primary and secondary) to advance our understanding about the differential effect of constraints in behavior.

Our goal was to study the effect of the entrepreneurial passion experienced by individuals in their ability to take action. However, recent research (Gielnik, et al., 2015) has suggested that entrepreneurial passion might also be a consequence of entrepreneurial behavior, because the evaluation about the behavioral outcomes (e.g., perceived progress) leads to emotional experiences (Carver, 2006). Thus, it would be important that future research to examine the conditions that facilitate each link. For instance, according to the affect infusion model (Forgas, 1995), affect has little or no impact in the judgments of familiar situations, because in this circumstances individuals are more likely to rely their decisions on the knowledge from past experiences. Thus, we can argue that the effect of entrepreneurial passion in entrepreneurial behavior might

be reduced with the entrepreneurs' human capital, like prior work experience and entrepreneurial experience. On the other hand, the self-perception theory (Bem, 1972) posits that the process of inferring our one's emotions depends on the attribution one does about their behavior. Accordingly, it would plausible to assume that the link between entrepreneurial behavior and subsequent experience of passion should be stronger for individuals who believe that are responsible for their achievements, and disregard the influence of the environment.

### **Conclusion**

We intended shed further light on what causes some entrepreneurs to take action over their entrepreneurial aspirations while others do not, by suggesting that the way they appraise constraints carries distinct impacts in their behavior. Our results suggested that appraising entrepreneurial-related constraints as a challenge is fundamental to *light the fire* that will fuel entrepreneurs' efforts in such lengthy and demanding process.

**CHAPTER VI - Study 3: *Small birds in big cages*: A high-growth firm  
contingency test of the formalization-performance relationship**

***Small birds in big cages: a high growth firm contingency test of the formalization-performance relationship***

**Abstract**

Past research has highlighted the positive effect of formal human resource practices in firm performance. However, the effect of these practices in different stages of firm development is still unclear. This posits a problem as the use of inadequate skills can restrain firm development and even cause failure. Applying a contingency-based approach, we propose that formalized commitment-based human resource practices contribute positively to financial performance of established high-growth firms but present a little impact on emergent ones (i.e., *gazelles*). Based on a sample of 101 high-growth companies our results suggest that having a formal training activity has a significant negative impact on financial performance of emergent firms only, while having a performance appraisal and a formal R&D function only positively contribute to for the financial performance of established firms only. These findings provide a more fine-grained view of the impact of formal practices on firm performance, with implications for the strategy of high-growth firms.

**Keywords:** Formalization; High-growth companies; Human resource practices; Firm's development stage.

## **Introduction**

Formalization refers to the extent to which the firm's decision-making process is based on formally documented procedures rather than on informal processes (Schminke, Ambrose & Cropanzano, 2000). Organizations rely on formalized processes to gain guidance and clarity about roles and responsibilities, thus reducing the uncertainty of organizational functioning (Juillerat, 2010). Formal systems equip the organization with speed and efficiency through the creation conditions that sustain employees' commitment towards the organization.

Past research has emphasized the positive influence of formalization on the overall firms' functioning (Hofmann & Jones, 2005; MacDuffie, 1995). However, this stream of research is generally coined with established and mature firms (Barrett & Mayson, 2007). When it comes to the study of the impact of formal practices on new ventures' performance, the literature presents conflicting perspectives.

For instance, Cardon and Stevens (2004) pointed out that formal systems are likely to be disadvantageous in dynamic environments, namely shortly after the firm is created, as new ventures face unique burdens based on their youth and small size at inception. In such cases, formalized procedures may restrain creativity (e.g., Robey, 1991) and reduce opportunities for personal initiative (e.g., Harrison, 1987), both of which are key for these organizations to develop and grow. On the other hand, Delmar and Shane (2003) suggested that a certain degree of planning seems to be beneficial for new ventures. The authors argue that some formalization may promote faster decision-making through the identification of missing information, by providing tools for managing the supply and demand of resources in a manner that avoids time-consuming bottlenecks, and it helps identifying the action steps needed to achieve broader goals in a timely manner. Moreover, Cardinal, Sitkin and Long (2004) have found that control

balance is important for organizational functioning, yet also fragile during the founding years.

We acknowledge that established firms are more likely than emergent ones to implement and experience the benefits of formalization in their performance, due to their increased financial and knowledge-based capacity (e.g., Cardon & Stevens, 2004). Nevertheless, at some point of its development stage, new ventures start suffering from the decreasing ability of the owner in controlling its functioning through informal structures (Davila, Foster & Oyon, 2009). This creates a control imbalance (Cardinal et al., 2004), which demands the development of formal structures to sustain organizational activities (e.g., Ardishvili, Cardozo, Harmon & Vadakath, 1998; Delmar & Shane, 2003; Flamholtz, 1990).

Unraveling this issue is particularly important for high-growth firms because, due to the pace at which growth occurs, they are more likely to become unstable entities (Hambrick & Crozier, 1985). As Flamholtz (1990) proposed, the pains imposed by high growth, such as the loss of control by the owner, are responsible for the failure of firms when not properly addressed by formal management systems. Thus, literature calls for the tools to solve the problems of disaffection, inadequate skills, and inadequate systems of high-growth (Greiner, 1998).

This study contributes to the formalization-performance debate by identifying the human resource practices that contribute for the financial performance (i.e., net profits) of high-growth firms, depending on their development stage, i.e., whether they are established or emergent. Applying a contingency approach, this manuscript attempts to provide a more nuanced understanding of the formalization-performance relationship.

We tested our hypotheses with a sample of high-growth companies. High-growth firms are those with a growth rate (regarding number of employees and financial

turnover) greater than or equal to 20% in all of the years of a considered period (generally 3 years), with more than 10 employees at the beginning of the period (Organization for Economic Cooperation and Development; OECD, 2010). Within this group of high-growth companies a distinction can be made regarding the firm's development stage, that is, whether the firm is emergent or established. Emergent high-growth firms, also called gazelles, are the youngest high-growth firms (less than 5 years old), while the others (above 5 years old) are considered to be established businesses.

The contribution of this paper is relevant for both theory and practice. First, we contribute to the scarce literature on the behavior of high-growth firms despite the claims concerning their economic contribution on employment, productivity, innovation, and utility (Henrekson & Johansson, 2010). Second, we build on Delmar, Davidsson and Gartner (2003) call for an increased differentiation among high-growth firms as they do not grow in similar ways, and stress the fact that new ventures are likely to achieve high-performance through alternative mechanisms to formalization. Third, our study helps to refine the human resource practices chosen by different organizations, by ensuring that these are designed to reinforce the strategies adopted by firms, according to their development stage.

### **The perks and downsides of formalization**

Past research points to both positive and negative effects of formal practices in organizations (De Clercq, Dimov, & Thongpapanl, 2013). On the negative side, scholars have argued that formalization constraints flexibility, adaptation, innovation, or motivation (Juillerat, 2010). Formal systems are seen as limiting the scope of the decisions that individuals can make (Burns & Stalker, 1961) thus resulting in boredom, alienation, job dissatisfaction, absenteeism and turnover (Hackman & Lawler, 1971). High obedience to formal rules may also inhibit creativity (Hirst, van Knippenberg,



Chen & Sacramento, 2011) particularly if such rules become ritualistic or coercive, and also impedes managers from critically evaluating their firm's past decisions (Miller, 1987). Because formalization engenders bureaucratic decision-making and acting, it may also block innovation (Dougherty & Corse, 1995). Formalization has also been referred to as detracting organizations' performance across industries as it inhibits adaptability and rapid competitive response (Khandwalla, 1977).

However, as suggested by Levinthal and Rerup (2006), such negative view might be overly simplistic and based on unrealistic assumptions of promoting mindless obedience to routines (Juillerat, 2010). Accordingly, despite these negative effects, formalization should not be neglected, as it could enable the organizations with effective tools. For instance, Briscoe (2007) have found that organizations can enhance employees' flexibility by using certain formal systems (e.g., partly standardizing client-related work practices; promoting the share of knowledge about clients between workers) that facilitate workers hands-off. This way, workers could achieve the flexibility necessary to vary their schedules, which promotes work-life balance, enhances commitment and their productivity.

Formal practices might offer guidance and clarity about roles and responsibilities, therefore decreasing individuals' role ambiguity and role conflict (Michaels, Cron, Dubinsky, & Joachimsthaler, 1988), which empirical evidence has suggested to negatively affect individuals' attitudes and performance (Rizzo, House, & Lirtzman, 1970). Formal practices can also support competitive advantages because firms become able to make more effective decisions about the types of resources to develop or acquire (Dibrell, Craig & Neubaum, 2014).

In conclusion, formalization might deter or enhance organization functioning, and therefore it is critical for managers to understand under what circumstances and/ or

through what processes, formalization may or may not be useful for pursuing organizations' goals. In this manuscript, we devoted our attention to the formalization of human resource practices because these systems are key to high-growth firms in addressing growth pains (e.g., loss of control) resulting from their increased numbers of employees (Barret & Mayson, 2007; Kotey & Slade, 2005).

### **Formal human resource practices and firm performance**

Past empirical evidence supports the assumption that firm performance is influenced by formal human resource practices (e.g., Adler, 1999; Delmar & Shane, 2003; Davila, 2005; Delaney & Huselid, 1996; Huselid, 1995; Laursen & Foss, 2003; Miller & Cardinal, 1994). Formal human resource practices such as developing employees' skills through providing training experiences (Russell, Terborg & Powers, 1985), encouraging employees to work harder by assessing their performance regularly or linking it with incentives (Borman, 1991), and even through providing organizational structures that encourages employees' participation and allow them to improve their jobs (e.g., cross-functional teams), have a positive impact on employees' productivity (Huselid, Jackson & Schuler, 1997) which helps the organization to achieve higher performance (Huselid, 1995).

What is important to point out, however, is that not every formal HRP is able to produce such desirable positive impact on firm performance. As stated by Collins and Smith (2006) only practices able to impact employees' commitment with the organization are capable of contributing to firm performance. The argument is that these formal practices with a commitment orientation are able to create a reciprocally reinforcing high-investment employer-employee relationship (Arthur, 1994; Rousseau, 1995). In this manuscript we argue that, as a consequence to this perceived investment

of the organization on their interests, employees become more likely to work harder to accomplish the organization's goals (Arthur, 1994).

The impact of formal human resource practices has also been assessed in firm financial performance (e.g., Cascio, 1991; Flamholtz, 1990). For instance, Huselid (1995) found that formal HRP to have a statistically significant impact on both employee performance (i.e., turnover and productivity) and firm financial performance (i.e., profits). In this manuscript we argue that the consideration of financial performance is of significant importance for high-growth firms, for two main reasons. First, past research has demonstrated that high-growth and financial performance (e.g., profitability) is usually unrelated (Markman & Gartner, 2002). This posits a problem for high-growth firms as their rapid growth might diminish its ability to generate profits, which in turn is likely to hinder their development or even, compromise their survival (Gartner, 1997; Hambrick & Crozier, 1985). Thus, it is key to identify whether formal practices applied to sustain growth are aligned with firm's ability to generate the necessary profit to survive. As proposed by Huselid (1995), financial performance provides important clues, namely for human resource managers, who must effectively allocate their resources to sustain growth. Second, research has been questioning the importance of growth as a measure of entrepreneurial success, over profitability. For instance, Davidsson, Steffens and Fitzsimmons (2009) have demonstrated that new ventures that grow without first securing high profitability tend to be less successful. This calls attention for the consideration of firm profitability as a key measure of future success.

We argue that an investment on formal human resource practices with commitment approach will enhance employees' productivity, therefore promoting firm financial performance. Thus, we propose:

*Hypothesis 1: Formal commitment-based human resources practices are positively related to firm financial performance.*

### **The moderating role of the firm's development stage**

As organizations evolve through time, structural and process changes occur. Scholars have proposed life cycle models of organizations that, despite being based on different organizational phenomena (e.g., structure, individual mentalities, and functional problems), go through similar life cycle changes. Generally, over time, organizations go through a regular pattern of development, and organizational activities and structure in one stage are not the same as the activities and structure present in another stage (Quinn & Cameron, 1983).

Life cycle theorists generally consider formalization as occurring in later stages of the organization's life cycle, ignoring the contribution of formalization in establishing early efficiency and effectiveness (Walsh & Dewar, 1987). Hence, formalization is unlikely to be found in small firms (Marlow, 2006) as it emerges along with firm growth, due to the necessity to manage the tensions that growth imposes (Davila, 2005). For instance, whereas in the early years of the firm control is easily achieved by the entrepreneur giving orders or setting goals (Galbraith, 1977), in later stages, with the increasing size and complexity, such practices prove to be inefficient in dealing with many fairly routine decisions and, therefore, several responsibilities are delegated. Mazzarol (2003) emphasized the resistance of small firm owners in giving up the control of the employment relationship until the firm had grown quite substantially (employing more than 120 employees) at which point they were no longer able to cope personally with the responsibilities that growth imposes. It is generally assumed that,

over time, organizations move from an informal management approach to the need for formal management tools (Barrett & Mayson, 2007; Davila, 2005).

Another liability present in new ventures is their newness. It implies lack of experience, so we may expect to see in new ventures a reduced reliance on formal systems and more informal and unsystematic employee management systems (Cardon & Stevens, 2004). Unlike established firms, new ventures have less information to support their strategy and are exposed to higher degrees of uncertainty (McMullen & Shepherd, 2006).

Acknowledging the impact that formal systems have on firm performance, namely on speeding their decision-making, and their general absence in new ventures, one can hypothesize how emerging high-growth companies achieve such growth rates so fast. Sarasvathy (2001, 2007) advanced an explanation concerning how decision-making occurs at the level of new firms. According to effectuation theory (Sarasvathy, 2001, 2007), in the context new ventures operate, information is generally ambiguous and scarce, and formal planning processes are less effective for the organization's performance and survival. Due to the uncertain profit potential of the new business, successful ventures would rather engage in managing and controlling potential losses than attempting for maximum profits. Thus, in their early stages, successful ventures focus their resources and define their strategy around controllable business aspects such as building alliances or partnerships, rather than on prediction and planning procedures (Wiltbank, Dew, Read & Sarasvathy, 2006).

As Quinn and Cameron (1983) posit, organizations are not born with formalized structures and these structures emerge in response to the problems posed by growth, in order to increase efficiency. Therefore formal systems should be less effective in firms that are not facing such challenges yet. Thus, we hypothesize:

*Hypothesis 2: The positive relationship between formal commitment-based human resources practices and firm financial performance is moderated by the development stage of the firm, such that when the firm is established this relationship will be stronger than when the firm is emergent.*

## **Method**

### **Sample and Procedure**

In the beginning of 2011, *Informa D&B*, a multinational consultancy company that collects marketing, financial and economic information about firms, identified all the high-growth firms in Portugal, during the period of 2006-2009. The identification of high-growth firms followed the recommended of the OECD: (1) growth (regarding number of employees and turnover) greater than or equal to 20% in all of the years of the period, (2) more than 10 employees at the beginning of the period. Firms that had gone through a merge or acquisition were excluded. Therefore, 913 high-growth firms were identified and eligible for the study: 620 established (age above 5 years old; OECD, 2010) and 293 gazelles (age below 5 years old; OECD, 2010).

*Informa D&B* contacted all the 913 high-growth firms and asked their CEOs permission to collect data. The data were collected between July and August of 2011, through an online survey. The survey's goal was to extend the knowledge about the Portuguese high-growth firms' profile. It encompassed questions regarding the founding and management team, firm management practices and strategy, sales practices, internationalization approach, innovation strategy, quality, products and production processes. All questions referred to the period they were considered high-growth, i.e., 2006-2009.

101 CEOs answered the survey, which correspond to 11% of the high-growth in Portugal: 58 established high-growth companies (57.4%) and 43 gazelles (42.6%). This

response rate is in line with the response rates of previous survey-based research that targets CEOs (e.g., Pettigrew, 1992; Story, Barbuto, Luthans & Bovaird, 2011; Zona, Zattoni & Minichilli, 2013).

The firms were from three different sectors: 44 from services (47.7% established; 52.3% gazelles), 26 were from commerce (61.5% established; 38.5% gazelles), and 31 were from industry (67.7% established; 32.3% gazelles). The sample distribution is in line with the literature, which suggests that high-growth companies are overrepresented in the services sector (Henrekson & Johansson, 2010).

Regarding the variation of their size during the period, established firms have an average of 393.78 % (SD=814.0) and gazelles 582.54 % (SD=788.23). For the variation of net profits during the period, established firms presented an average of 1445.04 % (SD=3810.03) and gazelles an average of 3059.63 % (SD=9804.74).

### **Choice for the period (2006-2009)**

In this study, we focused on firms that were considered high-growth before and after the beginning of the crisis in Portugal, i.e., during 2008-2009 (Chau, Thomas, Clegg & Leung, 2012). As these firms were among the few to grow significantly during a period of economic hostility, the study of their management practices like human resource, provide important insights for both theory and policymaking.

### **Measures**

For all the variables the participants indicated if they had implemented the referred formal practice during the period of 2006-2009, by using a dummy coded variable (1= No; 2= Yes). The performance indicators (i.e., net profits) were measured in euros and the size of the firm was assessed through the number of employees.

**Control variables.** Businesses of different sizes may exhibit different organizational and environmental characteristics, which in turn may influence performance (e.g., Wiklund & Shepherd, 2005). Therefore we controlled both for the variation of the financial indicator (net profits) and variation firm size (number of employees) during the period when they were considered high-growth companies (2006-2009).

**Formal human resource practices.** Past research acknowledges that human resource practices impact firm performance through their influence on three key dimensions, that strongly affect employees' commitment with the organization (Collins & Smith, 2006): 1) employee skills; 2) employee motivations; 3) organizational structures intended to empower employees to control and develop their roles (e.g., Bailey, 1993; Huselid, 1995). Moreover, as rapid growth imposes specific challenges for firms (e.g., loss of control; fast inadequacy of skills) it would be plausible to assume that certain practices would be more relevant for high-growth firms. As proposed by Flamholtz (1990), the effect of rapid growth requires the firm to develop new abilities such as planning, motivation, leadership and control, to help preserve the firm's effectiveness. Therefore, practices such as having a performance appraisal and a regular training activity seem key for these firms (Flamholtz, 1990). Research on high-growth firms has also evidenced the relevance of innovation for the performance of this type of firms (e.g., Segarra & Teruel, 2014), thus we argue that human resource practices intended to sustain innovation activities (e.g., Cardinal, 2001) should also be key for high-growth performance.

Considering the above mentioned criteria, five items were selected. One item regarding human resource practices that impact employees skills: *the organization had a regular training activity* (HRP1); three items regarding practices aimed to influence



employees motivation- *the organization has a program of goals and incentives based on results* (HRP2), *the organization has an annual written appraisal of the performance and training needs of each employee* (HRP3) and, *the employees' contribution for innovation is used in their performance appraisal* (HRP4); for the practices depicting organizational structures intended to empower employees to control and develop their roles, one item was selection: *the organization has the R&D role identified and formalized* (HRP5).

***Firm performance.*** As accounting data are the focus of human resource managers (Huselid, 1995) we assessed firm net profits. This measure was assessed in euros, in 2011, two years after the end of the period in which the firms were considered high-growth.

### **Preliminary analysis**

We first assessed the distribution of our predictors: 61.7% of the firms in our sample referred having a formal regular training activity (HRP1), in the 2006-2009 period; 64.2% mentioned to have implemented a program of goals and incentives based on results (HRP2) during the period; 51.2% mentioned to had an annual written appraisal of the performance and training needs of each employee (HRP3); 16.0% stated the consideration of employees' contribution for innovation their performance appraisal (HRP4) and 32.1% had the R&D role identified and formalized (HRP5) during 2006-2009.

Due to a reluctance of gazelles to engage in costly or restrictive practices (Greiner, 1998), we examined whether established firms significantly differed from gazelles on the adoption of formal practices. We performed an Analysis of Variance (ANOVA) to test for this assumption. No significant differences between established

firms and gazelles were found, for any human resource practice in our study: HRP1- the organization had a regular training activity ( $[F(1,79)=1.95, p>.05]$ ); HRP2 - the organization has a program of goals and incentives based on results ( $[F(1,79)=1.03, p>.05]$ ); HRP3- the organization has an annual written appraisal of the performance and training needs of each employee ( $[F(1,79)=1.35, p>.05]$ ); HRP4 - the employees' contribution for innovation is used in their performance appraisal ( $[F(1,79)=.11, p>.05]$ ) and HRP5 - the organization has the R&D role identified and formalized ( $[F(1,79)=.27, p>.05]$ ).

One could expect that both financial performance and the need for formalization to vary greatly across sectors (Markman & Gartner, 2002). Therefore, we tested, in both subsamples of established firms and gazelles, for differences among the three sectors (i.e., services, commerce and industry), regarding both financial results (i.e., variation of net profits during the period of 2006-2009) and in the HRP considered in our study. No differences were found, for the established or gazelles subsamples. Specifically, for established high-growth firms: variation of the net profits during the period ( $[F(2,55)=.30, p>.05]$ ); The organization has a regular training activity for each employee (HRP1) ( $[F(2,44)=1.12, p>.05]$ ); The organization has a program of goals and incentives based on results (HRP2) ( $[F(2,44)=1.75, p>.05]$ ); The organization has an annual written appraisal of the performance and training needs of each employee (HRP3) ( $[F(2,43)=.60, p>.05]$ ); the employees' contribution for innovation is used in their performance appraisal (HRP4) ( $[F(2,44)=1.99, p>.05]$ ); the organization has the R&D role identified and formalized (HRP5) ( $[F(2, 44)=1.13, p>.05]$ ). For gazelles: variation of the net profits during the period ( $[F(2,40)=1.36, p>.05]$ ); The organization has a regular training activity for each employee (HRP1) ( $[F(2,31)=2.17, p>.05]$ ); The organization has a program of goals and incentives based on results (HRP2) ( $[F$

(2,31)=.69,  $p>.05$ ]; The organization has an annual written appraisal of the performance and training needs of each employee (HRP3) ( $[F(2,31)=.04, p>.05]$ ); the employees' contribution for innovation is used in their performance appraisal (HRP4) ( $[F(2,31)=.13, p>.05]$ ); the organization has the R&D role identified and formalized (HRP5) ( $[F(2, 31)=.21, p>.05]$ ).

### **Bootstrapping analysis**

To test our hypotheses we used bootstrapping analysis because it is suitable for small samples, since it calculates the intended statistical test in multiple resamples of the database (Preacher, Rucker & Hayes, 2007). Thus it avoids statistical power problems resulting from asymmetric and other non-normal sampling distributions due to the test of indirect effects (MacKinnon, Lockwood & Williams, 2004).

## **Results**

### **Sample descriptives and correlations**

Means, standard deviations, and correlations are presented in Table 8. Having an annual written appraisal of the performance and training needs of each employee (HRP3), and having the R&D role formalized (HRP5) were positively correlated with the net profits, two years after they were considered high-growth (i.e., 2011) ( $r=.26, p<.05$ ;  $r=.28, p<.05$ , respectively).

### **Results of hypotheses testing**

We ran five bootstrapping models, one for each of interaction effect (model 1 of PROCESS), to test hypotheses 1 (H1) and 2 (H2). For H1 we predicted that the

formalization of commitment-based human resource practices would be positively related to firm performance net profits. Regarding H2, we hypothesized that the relationship between formalization of HRP firm performance would be moderated by the firm development stage, such that when the firm is established the relationship is stronger than when the firm is young. The main results are displayed in Table 9.

**Table 8.** Descriptive statistics and zero-order correlations<sup>a</sup>

	Mean	SD	1	2	3	4	5	6	7	8	9
1. The organization has a regular training activity for each employee. (HRP1)	--	--	--	--	--	--	--	--	--	--	--
2. The organization has a program of goals and incentives based on results. (HRP2)	--	--	-.01	--	--	--	--	--	--	--	--
3. The organization has an annual written appraisal of the performance and training needs of each employee. (HRP3)	--	--	.48*	.20	--	--	--	--	--	--	--
4. The employees' contribution for innovation is used in their performance appraisal (HRP4)	--	--	.14	.05	.16	--	--	--	--	--	--
5. The organization has the R&D role identified and formalized. (HRP5)	--	--	.20	.07	.23*	.29*	--	--	--	--	--
6. Firm development stage	--	--	.16	.11	.13	.04	.06	--	--	--	--
7. Net profits of 2011	492222.57	3736243.42	.16	-.06	.26*	-.04	.28*	-.10	--	--	--
8. Variation of net profits [2006-2009]	2123.4356	7020.96	-.22*	-.08	.03	-.10	.23*	.11	-.03	--	--
9. Variation of size [2006-2009]	451.16	802.00	.05	.05	.11	.21	.13	.08	-.03	.35**	--

Note. N=101<sup>a</sup>. 2-point scale (1=No; 2=Yes). The Net profit was measure according the number of employees; \* p< .05; \*\* p< .01

**Table 9. Bootstrapping results<sup>a</sup>**

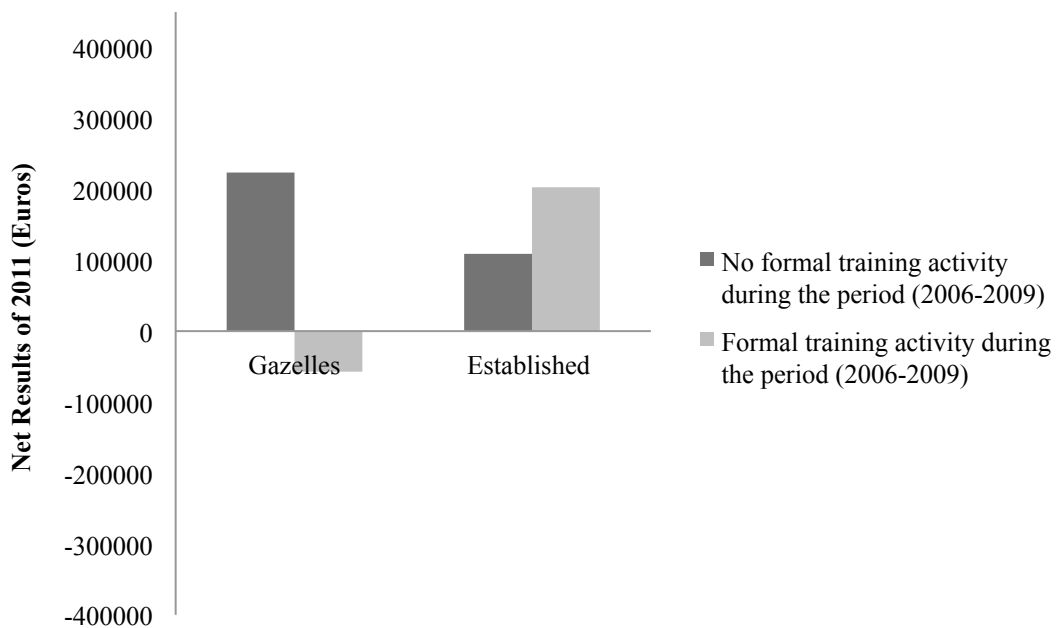
Predictors	Outcomes					
	Step 1	Step 2	Step 3 <sup>b</sup>	Step 3 <sup>c</sup>	Step 3 <sup>d</sup>	
Net profits (2011)						
<i>Controls:</i>						
Variation net profits [2006-2009]	-3.54	-11.54	-14.70	-8.6860	-7.66	-3.08
Size [2006-2009]	29.53	28.18	26.84	22.50	15.52	4.15
<i>Direct Effects:</i>						
HRP1		-30568,44	-47184.93	-15072.61	-2396.90	-20826.45
HRP2		-82600,59	-63969.14	-58667.25	-52853.31	-83126.47
HRP3		159810.45	194430.28*	167635.55	159974.49	173387.89*
HRP4		-163020.88	-191162.52*	-159724.92	-135895.57	-157694.91
HRP5		231012.60*	218222.12**	229441.54**	209245.37*	221005.28**
<i>Moderator:</i>						
Development Stage			-122485.98	-137235.15	-131641.48	-138920.59
<i>Interaction Effects:</i>						
HRP1 x DS			-358025.47*	76682.51	-288318.05*	
HRP2 x DS						
HRP3 x DS						
HRP4 x DS					235116.62	
HRP5 x DS						-342336.54*
<i>R</i> <sup>2</sup>	.01	.18	.28	.23	.27	.28

*Notes:* \* p < .05; \*\* p < .01; <sup>a</sup> Tabled values are unstandardized regression coefficients; <sup>b</sup> Equation for HRP1xDS; <sup>c</sup> Equation for HRP2xDS; <sup>d</sup> Equation for HRP3xDS; <sup>e</sup> Equation for HRP4xDS; <sup>f</sup> Equation for HRP5xDS; HRP1 – The organization has a regular training activity; HRP2- The organization has a program of goals and incentives based on results; HRP3-The organization has an annual written appraisal of the performance and training needs of each employee; HRP4- The employees' contribution for innovation is used in their performance appraisal; HRP5- The organization has the R&D role identified and formalized; DS- Firms' development stage (1=established,2=gazelles).

Concerning hypothesis 1, having the R&D role identified and formalized (HRP5) presented a significant positive impact on high-growth financial performance ( $B=231012.60$ ,  $p <.05$ ). That is, as formalization of R&D increases, the net profits of high-growth firms increase. We did not find any significant relationship between the remaining human resource practices considered in our study, i.e., having a regular training activity (HRP1), having a program of goals and incentives based on results (HRP2), having an annual written appraisal of the performance and training needs of each employee (HRP3) and the employees' contribution for innovation is used in their performance appraisal (HRP4), and firm's net profits ( $B=-30568.44$ ,  $p >.05$ ;  $B=-82600.59$ ,  $p >.05$ ;  $B=159810.45$ ,  $p >.05$ ;  $B=-163020.88$ ,  $p >.05$ , respectively). Thus, H1 was partially supported.

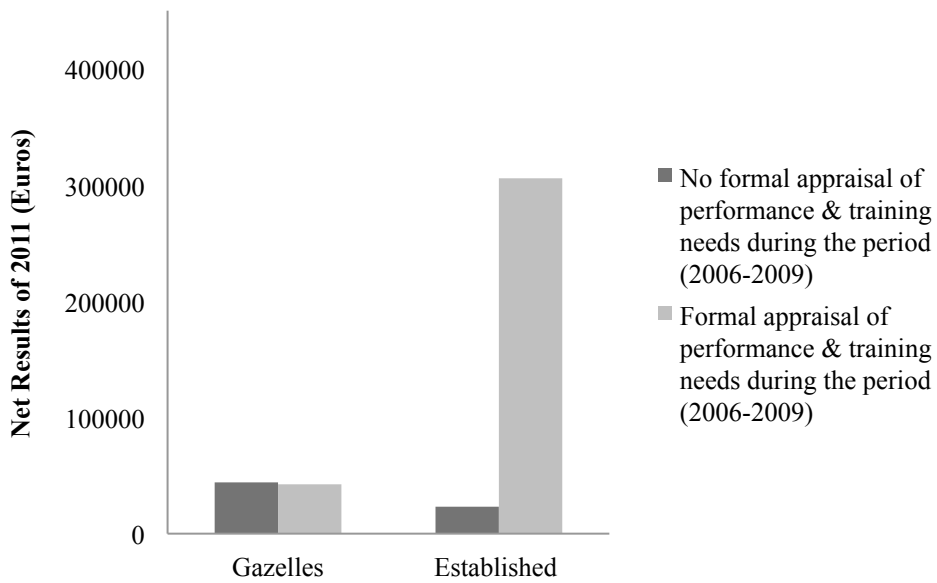
Regarding hypothesis 2 – whether the positive relationship between formalization of HRP is moderated by the development stage of the firm, such that when the firm is established the relationship will be stronger than when the firm is young - we found significant interaction effects for having a regular training activity for each employee (HRP1), having an annual written appraisal of the performance and training needs of each employee (HRP3) and the organization has the R&D role identified and formalized (HRP5) on firms net profits ( $B=-374761.51$ ,  $p <.05$ ;  $B=-283693.95$ ,  $p <.05$ ;  $B=-332835.04$ ,  $p <.05$ , respectively). This means that the impact of HRP1, HRP3 and HRP5 on net profits is contingent on the development stage of the high-growth firm. No significant interaction effects of having a program of goals and incentives based on results (HRP2) and the employees' contribution for innovation is used in their performance appraisal (HRP4) on net profits were found ( $B= 90988.86$ ,  $p >.05$ ;  $B= 262893.28$ ,  $p >.05$ , respectively). Taken together, these findings partially support our predictions.

To further examine the interaction effects, we plotted the simple slopes for each significant effect using the procedure outlined by Cohen, Cohen, West and Aiken (2003) (Figure 2, 3 and 4). Having a regular training activity (HRP1), presented a significant negative relationship for the net profits of gazelles companies ( $t=-2.03$ ,  $p<.05$ ) but not for the established ( $t=.91$ ,  $p>.05$ ). Having an annual written appraisal of the performance and training needs of each employee (HRP3) had a significant positive impact on the net profits of established high-growth companies ( $t=2.74$ ,  $p<.01$ ) and little impact for gazelles ( $t= -.01$ ,  $p>.05$ ). Finally, that having the R&D role identified and formalized (HRP5) presented a significant positive impact for established companies ( $t=3.49$ ,  $p<.05$ ) but not for gazelles ( $t=.24$ ,  $p>.05$ ).

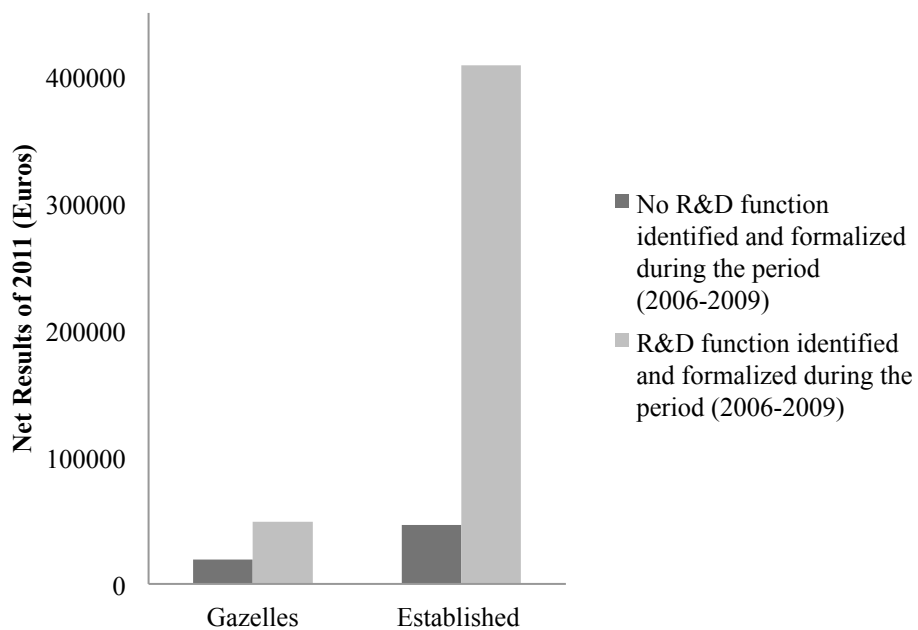


*Figure 2 - Plot of formal training activity and firm development stage interaction effect*





**Figure 3** - Plot of formal appraisal of performance & training needs and firm development stage interaction effect



**Figure 4.** Plot of R&D function identified & formalized and firm development stage interaction effect

## **Discussion**

### **Discussion of the findings**

Despite the recognition of the positive impact of formal systems on firm performance, little is known about the nuances of this relationship, namely how this is influenced by the organization's development stage (Brinckmann, Grichnik & Kapsa, 2010). The purpose of this study was to extend our knowledge about the formalization-performance relationship, by assessing its differential effects in both established and emergent high-growth firms. Our findings reveal that having a formalized R&D system (HRP5) has a positive direct impact on the net profits of both types of high-growth firms (i.e., established and emergent). Furthermore, we found evidences that certain practices present distinct effects according to firm development stage. Particularly, having a regular training activity (HRP1) have a significant negative impact on emergent high-growth only. Having annual written appraisal of performance and training needs (HRP3) and a formalized R&D system (HRP5), presented a significant positive impact on established high-growth but not for emergent firms or gazelles.

Our results are aligned with existing theory suggesting that the effect of formalization on firm performance is contingent on the firm's development stage, such that this relationship might be more relevant for established companies than for emergent ventures (Cardon & Stevens, 2004; Davila, 2005)

What managers do to exert influence on the workforce evolves throughout time (Naldi & Davidsson, 2014), as the characteristics of the workforce change as well. When the organization is small, management's influence is preferably achieved through informal channels (Chao, 1997). Once the firm grows, control becomes difficult to sustain informally (Cardon & Stevens, 2004) and it creates the urge to

develop formal mechanisms that enable managers to keep exerting the necessary control on employees, maintaining the productivity standards. Formalized practices, such human resource, have the ability to create conditions (e.g., fast decision-making) where employees become highly committed with the organization's strategy and work harder to meet the organization's goals (e.g., Arthur, 1994), which impacts firm performance. This statement would be especially important for high-growth companies, due to their rapid growth (Smallbone, Leigh & North, 1995).

Our findings from hypotheses 1 and 2 encouraged this assertion. Having a formal R&D (HRP5) role increases so does the firm's net profit. A formal R&D function fosters speed management and the coordination of research projects through the generation of procedures that facilitate the flow of routine tasks. For instance, in a product development procedure that specifies a set of documents required at each phase, having a manual or established procedures can provide copies, not only of the blank forms for these documents, but also the "best example to date" from the organization's prior projects (Adler & Borys, 1996), which can fuel the process. Additionally, having this function delegated to someone else rather than the manager (who already has other functions), can provide access to complementary resources from external sources, contributing to an early adoption of successful new products or techniques (Jones, Lanctot & Teegen, 2000).

Moreover, some human resource practices in our study presented a distinctive impact on firm performance, contingent on the firm's development stage, i.e., whether the firm was emergent or established. Having a formal training activity (HRP1) presented a significant negative impact on emergent firms only. We argue that in an environment with high levels of uncertainty and change, formal training in emerging ventures could be ineffective because it produces highly specialized staff unable to

adapt to changing work requirements (MacMahon & Murphy, 1999). Moreover, investing in formal training is a costly activity, which can be a burden for new ventures with scarce resources. As our findings suggest, allocating resources to formal training activities is likely to harm firm profitability, which according Davidsson et al. (2009) might compromise new venture success. Thus, emergent firms would probably benefit more from managing their employees' performance and knowledge through informal ad hoc processes (Naldi & Davidsson, 2014). We did not test for this assumption, thus future research should focus on alternative ways for new ventures to develop new skills, such as planning, motivation, leadership, as past literature has point them as important for new ventures to cope with rapid growth (Flamholtz, 1990). Having an annual written appraisal of performance and training needs (HRP3) and having a formal R&D function (HRP5) presented a positive impact on the net profits of established firms, with little contribution for the net profits of emergent firms. Operational data from the outcomes of performance appraisal and formalized R&D systems are a useful competitive advantage as they play an important role on employees' motivation and productivity, and facilitate knowledge sharing and the recombination of existing and new knowledge (Levinthal & March, 1993). However, as our findings suggested, formalizing these processes in emergent firms might not produce the expected outcomes. Based on the assumption that growth is a necessary condition for formalization to become fully developed (Walsh & Dewar, 1987), we argue that it has to do with the two main characteristics that distinguish gazelles from established firms: their newness and smallness. Regarding their newness, as gazelles do not have as much of available financial resources (Garnsey, 1998), and because formalization is costly, an investment in formal practices in early stages might not compensate for this investment. Due to their smallness, an extensive performance

appraisal could for instance restrain its ability to quickly identify potential areas of development and thus to provide a fast reaction in the threatening environment gazelles usually operate in. In a similar vein, emergent firms seem not to benefit, at least significantly, from having the R&D function identified and formalized as well. We argue that it might have to do with some softening that formalization is likely to have on new ventures absorptive capacity (Van den Bosch, Volberda & Boer, 1999).

### **Implications for theory and practice**

Our findings have several implications for theory and practice. The main contribution is that it provides evidence that the high-growth firm's development stage influences the impact of formalization on financial performance. While the examination of the formalization-performance relationship is not new, to the best of our knowledge, this is one of the first attempts to examine how this relationship changes depending on the firm's development stage.

Managers can also benefit from these findings. Management practices recommended for smaller and newer companies are usually based on textbook prescriptions that require the adoption of formal management procedures that are best suited to large firms (Kotey & Slade, 2005). As the strategic management and contingency theory literatures explicitly assume, some firms perform better than others because they adopt more appropriate strategies within a given environmental context (Hölzl, 2009). Therefore, the lack of effective management tools can restrain growth and even cause the failure of firms (Greiner, 1998). In growth-oriented firms, in order to cope with the increased complexity resulting from a greater numbers of employees, formal policies and practices are necessary to be cultivated if growth is to be sustained (Arthur, 1994). What our results suggest is that the benefits of formalization for performance are likely to be *felt* mainly on later stages of

development. We advise that in the early entrepreneurial stage, managers should lean on other aspects like encouraging creativity (Robey, 1991), individual contribution (Harrison, 1987) simple rules (Sull & Eisenhardt, 2015), and controllable business aspects (e.g., building alliances, partnerships, etc.) rather than on prediction and planning (Sarasvathy, 2001; Wiltbank et al., 2006).

A second contribution is that formalization is important on transition. Understanding how this transition from informal systems to more formalized ones happens is an important issue, especially for high-growth companies (Davila, 2005), where the challenges imposed by their rapid growth could compromise their success. Being a gazelle is necessarily a temporary phenomenon (Hölzl, 2009), and successful gazelles transform themselves into larger and stable enterprises, while unsuccessful firms remain small or exit the market. However, this does not rule out that firms can have above average growth rates for quite some time, but the adoption of management control systems is a key element in managing the tension that growth imposes to young firms. This transition is crucial to keep achieving high-growth performance in later stages of the development cycle of firms.

### **Limitations and future research**

The present study aimed to provide preliminary results about this phenomenon. However it is not without limitations, which may also open valuable avenues for future research. First, some human resource practices (e.g., training activities; performance appraisal) are likely to influence firm performance indirectly, through a causal chain of mediating variables (Sels, De Winne, Maes, Delmotte, Faems & Forrier, 2006) such as employees' attitudes (e.g. satisfaction, commitment), behaviors (e.g. voluntary turnover, absenteeism), and performance (e.g. individual

productivity). However, other practices are likely to influence the organizational performance on the group level. For instance, Craig (1995) found that formalization help coordinate larger-scale projects namely by allowing the organization to make fast decisions (e.g., leading to the early adoption of new products or improved business models) that provide competitive advantages (Jones, Lanctot, & Teegen, 2000). Future research should explore the mechanisms underlying formalization-firm performance relationship, as the identification of some of the means through which these practices affect high growth firms' performance would help to understand the nuances of the process.

Second, another potential limitation concerns the structure of our questions. We used dummy coded variables, as we were interested in understanding the impact of whether the formal practice was implemented or not. However, it does not let us to assess the level of formalization of each practice. This could allow us to develop a more granular understanding of the extent to which high growth companies need to be formalized. Future research should also take this into account and explore their differential contribution for both early and later performance.

Third, we could argue that prior performance drives firms to adopt certain formal human resource practices. We performed binary logistic regression analysis to provide initial clues for this assumption. Specifically we tested whether the net profits in the beginning and at the end of the 2006-2009 period predicted the adoption of each formal human resource practice in our study. No significant coefficients were found, which provides some support for our proposed model. However, we advise future research to test the directionality of the variables in our model with different designs, for instance, through a cross-lagged panel design.

A final limitation concerns the small number of high-growth firms in our sample (N=101). While our concerns are minimized by the fact that small samples reduce statistical power (Aguinis & Harden, 2009), thus making effects harder to detect (and we found consistently strong interaction effects), it is important to re-test our hypotheses with larger samples.

A major strength of this study is the inclusion of data from two different sources – internal (questionnaire from CEOs) and external (financial performance indexes) - thus minimizing vulnerability to common method bias (Podsakoff, MacKenzie, Lee & Podsakoff, 2003).

Our study also provides additional cues in relation to future research possibilities. Considering that gazelles achieve high-growth performance with little contribution of highly formalized systems, future research should explore the alternative processes through they do rely on to achieve such high-performance. New firms must engage in processes to reconfigure this resource base and learn about new ways to achieve increased efficiency in operations. A possible explanation is provided by the effectuation effect proposed by Sarasvathy (2001). This effect acknowledges that formal planning techniques are less effective for an organization's survival and performance in circumstances of high uncertainty, like new ventures. Thus, entrepreneurs should focus on controllable things by taking a set of means as given and focus on selecting between possible effects that can be created with that set of means. Future research should assess if effectuation is indeed relevant for high-growth companies and, moreover, if its contribution for firm performance is as powerful as that of formalization for established companies.



## **Conclusion**

A strategic approach to managing employees is vital for the success of all firms (Pfeffer, 1998), and particularly for growth-oriented firms as these are the ones most likely to make significant contributions to a nation's economy (Barret & Mayson, 2007). The present study provided evidence about the role of formalization on these companies' financial performance, suggesting that the effect of some formal human resource practices on high growth firms' performance is contingent on the firms' development stage. Established high-growth companies are more likely to incorporate the effects of formal systems on performance. We hope our study stimulates scholars to take a closer look into the nuances of the management of new ventures, because more research is needed to provide entrepreneurs with appropriate management tools to effectively direct their firms.

## **PART III: GENERAL DISCUSSION & CONCLUSION**

## General discussion & Future research

Entrepreneurial activity is depicted by innumerable constraints (Van Gelderen et al., 2011), which defy entrepreneurs' ability to keep their motivation levels (Bird, 1988) and to be effective in their management skills (Lichtenstein & Brush, 2001). These constraints are responsible for the higher withdrawn behavior of entrepreneurs and the lower success rates of their ventures (Kollman et al., 2017).

This dissertation aims to advance literature by providing insights about the main research questions still lacking clarification in the entrepreneurship field: **why does not everyone who pursue their entrepreneurial aspirations actually succeed?** and **what are the most effective strategies that entrepreneurs can lean on to manage their ventures?**

The specific theoretical contributions are outlined in the discussion section of each study, thus the purpose of this chapter is to highlight the practical implications of our findings and propose avenues for future research.

The **first key contribution** is introducing the notion of appraisal as an important operant on the effect of constraints in entrepreneurial behavior. The results of study 1 support the notion that individuals appraise constraints differently. This conceptualization advances our knowledge on why some individuals, but not others, give up/persist in the face of obstacles. These results seem to fill an existing gap in literature by providing evidence for the importance of appraisals in entrepreneurial behavior, as different appraisals entail distinct behavior reactions (Gonzalez-Morales & Neves, 2014). A number of practical recommendations arise, especially for entrepreneurial education and training. Educators and mentors should be aware that entrepreneurs hold different appraisals about constraints, and that these differences

are likely to explain different patterns of behavior. Therefore, educators and mentors should help potential entrepreneurs to see the inevitable constraints as challenging, by enhancing the potential benefits the entrepreneur will achieve. This should motivate entrepreneurs to invest more effort in their entrepreneurial endeavors.

Future research on obstacles in entrepreneurship should explore other variables (e.g., personality, social capital, human capital) that explain these different reactions to constraints, thus adding to our discussion about different patterns in behavior. For instance, because entrepreneurial-related constraints are characterized by high insecurity and pressure (Rauch & Frese, 2007), they are significant sources of stress (Van Gelderen et al., 2011). Therefore, the entrepreneur's ability to not get strained in these situations, i.e., to tolerate stress, should affect his/her capacity to keep up the enthusiasm and effort required to settle his/her own venture.

Likewise, entrepreneurial tasks are defined by their ambiguity and uncertainty because these tasks lack the rules, procedures and structure that guide entrepreneurs' response (Jelinek & Litterer, 1995), which challenges entrepreneurs' ability to interpret and respond to uncertainty. This ability is what determines the degree of success or failure achieved by the venture (McKelvie, Haynie & Gustavsson, 2011). Thus, the individual's ambiguity tolerance, i.e., the ability to deal effectively with situations or information that are vague, incomplete, unstructured, uncertain or unclear (Norton, 1975), might also help explaining different reactions in the face of constraints. Intolerance for ambiguity is associated with the experience of psychological discomfort (Norton, 1975), and with the tendency to perceived situations as sources of threat (Budner, 1962), thus hampering individuals' willingness to engage in entrepreneurial action (McKelvie et al., 2011).

Future research could also incorporate social capital theory (Aldrich & Zimmer, 1986; Lin, 1999) in their models. As stated in the literature review, entrepreneurs lean on their weak social ties to get access to specific venture-related resources (Grichnik et al., 2014), and on their strong social ties to seek emotional support (Brüderl & Preisendörfer, 1998). We can argue that the availability of these social networks is likely to affect the way entrepreneurs appraise obstacles and shape their decision-making. On the one hand, holding strong ties should enhance the entrepreneur's perception of controllability about the constraint because he/she sees more resources to cope with it (Davidsson & Honig, 2003), leading to the interpretation of that constraints are less damaging. On the other hand, emotional social support is likely to diminish the distress that results from the constraint, which positively influences decision-making (e.g., Baron, 2008; Patzel & Shepherd, 2011; Uy et al., 2013).

The human capital theory (Schultz, 1959; Becker, 1964; Mincer, 1974) also provides useful arguments for future research. Whereas the positive relationship between human capital (e.g., educational level) and entrepreneurial activity remains unclear (Davidsson & Honig, 2003), the quality of human capital (e.g., prior entrepreneurial experience) might add to our knowledge about the role of constraints. The experience of business success should make entrepreneurs evaluate constraints in a positive light, because past success is related to increased optimism (Ucbasaran, Westhead, Waight & Flores, 2010). Although over optimism can lead to flawed decisions and suboptimal performance (Hmieleski & Baron 2008), researchers agree that it is useful for business entering because it increases entrepreneurs' motivation to initiate action and to persist in the face of setbacks (Simon & Shrader 2012).

The **second key contribution** concerns the mechanism through which constraints impact entrepreneurial behavior. We contribute to the literature by addressing the gap between individuals' characteristics and action, a link that remains largely unexplored (e.g., Schlaegel & Koenig, 2014). Accordingly, our results demonstrated that entrepreneurial passion, especially the passion experienced by the entrepreneur (Cardon & Kirk, 2015), mediates the relationship between challenge-appraisal and entrepreneurial behavior. This suggests that appraising constraints as a challenge, thus with higher chances for benefits and personal growth, positively affects individuals' efforts towards implementing their business ideas because it enhances individual's identification with the entrepreneurial-related tasks and the experience of positive emotions. This mechanism adds to our understanding about the effects of constraints in entrepreneurial behavior. Future research should replicate our model using other measures such as venture opening or first sale (Wiklund & Shepherd, 2005).

Our model might also provoke scholars to look for additional mechanisms that link constraint-appraisal to action, such as entrepreneurial intentions (Bird, 1988; Schlaegel & Koenig, 2014), entrepreneurial self-efficacy (Barbosa, Gerhardt, & Kickul, 2007), and grit (Duckworth, Peterson, Matthews & Kelly, 2007; Mueller, Wolf & Syed, 2017).

A consistent body of research (Hulsink & Rauch, 2010; Kautonen et al., 2013; Kolvereid & Isaksen, 2006) acknowledges that entrepreneurial intentions are a fundamental predecessor of entrepreneurial behavior (Gollwitzer & Sheeran, 2006), because they capture the individuals' desirability for an entrepreneurial career (Schlaegel & Koenig, 2014), which is associated with amount of effort they will invest (Bird, 1988). Therefore, the primary appraisal (challenge vs threat) about the

potential benefits and harm that a constraint posits for the individuals' personal aspirations (Lazarus & Folkman, 1984) should affect behavior, because it affects the individuals' desirability for an entrepreneurial career.

Entrepreneurial self-efficacy refers to the strength of a person's belief that he/she is capable of successfully performing the various roles and tasks of entrepreneurship (Chen, Greene & Crick, 1998). Prior research has found entrepreneurial self-efficacy as a characteristic distinguishing entrepreneurs from managers (e.g., Boyd & Vozikis, 1994) - over and beyond the effect of other variables such as locus of control (Chen et al., 1998) -, and as an important antecedent to new venture intentions (Barbosa et al., 2007; Zhao, Seibert, & Hills, 2005). Recent research found that individuals' with high entrepreneurial self-efficacy are more willing to expend effort, and show more persistence (Cardon & Kirk, 2015).

According to the reciprocal causation model (Bandura, 1986), the environment may affect self-efficacy because individuals assess their entrepreneurial capacities in reference to perceived resources, opportunities, and obstacles existing in the environment (Bullough, Renko, & Myatt, 2014; Chen et al., 1998). Thus, depending on the way individuals appraise constraints as a chance and/or as a menace for personal achievements and self-growth it should increase and/or inhibit their entrepreneurial self-efficacy, respectively. As a consequence, the amount of effort in their entrepreneurial aspirations should vary.

Another variable that is getting scholars' attention is entrepreneurial grit (Mueller et al., 2017). Grit represents an individual's perseverance toward long-term goals (Duckworth et al., 2007). According to Mueller et al (2007), the importance of studying grit in entrepreneurship, over other related measures such as perseverance and resilience, has to do with grit's focus on the preservation of one's long-term

goals. That is, while grit similarly entails preserving thorough obstacles (Duckworth & Gross, 2014) it is also focused on the achievement of individuals' aspirations. This is important because goal pursuit is what drives individuals' behavior like creating a new venture (Reynolds & Curtin, 2008), thus making grit relevant for entrepreneurship (Nambisan & Baron, 2013). One can argue that grit might mediate the relationship between constraint appraisal and entrepreneurial behavior. Constraint appraisal entails evaluating the constraint with regards to its importance for personal aspirations (Lazarus & Folkman, 1984), thus affecting individuals' perseverance thorough constraints and their attention towards the accomplishment of those aspirations (Drach-Zahavy & Erez, 2002). Consequently, individuals should be more likely to put effort in implementing their business idea.

The **third key contribution** regards to the entrepreneurs' management practices. As mentioned earlier, the role of written documentation describing the current state and presupposed future of the venture (Honig, 2004) in venture's performance is controversial (Frese & Gielnik, 2014). We addressed this query by studying the formalization of human resource practices in high-growth ventures, because growth is a fundamental condition for the effects of formalization to manifest (Quinn & Cameron, 1983). The results of study 3 are aligned with prior research that formalization is not very helpful for new ventures (e.g., Bhide, 2000; Bird, 1988; Carter et al., 1996).

From a managerial perspective, entrepreneurs would probably benefit more from investing in other aspects like encouraging creativity (Robey, 1991), individual contribution (Harrison, 1987) simple rules (Sull & Eisenhardt, 2015), and controllable business aspects (e.g., building alliances, partnerships, etc.) rather than on prediction



and planning (Sarasvathy, 2001; Wiltbank et al., 2006). Our findings also provide insight for entrepreneurship education. Management practices recommended for smaller and newer companies are usually based on textbook prescriptions that require the adoption of formal management procedures that are best suited to large firms (Kotey & Slade, 2005). As the strategic management and contingency theory literatures explicitly assume, some firms perform better than others because they adopt more appropriate strategies within a given environmental context (Hölzl, 2009). Therefore, educators might be aware that the effect of well known strategies are contingent to the organizations' life stage, thus they should help entrepreneurs to think critically about the adequacy of these practices for their venture goals.

We highlight two further research questions. First, if formalization is not a helpful strategy to sustain new ventures' performance, what management practices are so? Second, at some point in their development, new ventures need formalization to manage the inevitable challenges that growth entails (Delmar & Shane, 2003). Considering an important question arises: when should new ventures invest in formalization?

Regarding the first question, scholars have suggested several alternative strategies – effectuation (Sarasvathy, 2001), improvisation (Baker et al., 2003) and bricolage (Baker & Nelson, 2005). Whereas effectuation represents a paradigmatic shift in the way we understand entrepreneurship (Smolka et al., 2016), the majority of empirical research is theoretical (Perry et al., 2012). This lack of research is surprising because effectuation suggests how individuals might act in situations in which the assumptions of causal strategy, like planning, are not met. A possible research stream could explore the implications of each of the effectuation determinants - given means; decision making based on affordable loss; emphasizing strategic alliances and

precommitments; exploiting environmental contingencies through flexibility and experimentation; and seeking to control an unpredictable future – for new ventures’ performance, thus providing empirical evidence about these proposed theoretical effects. For instance, as suggested by Perry et al., (2012), researchers could examine whether entrepreneurs relying on effectuation use alliances and pre-commitments and/or make decisions based on affordable loss, or, even if they would be more likely to outsource production and/or hire contingent employees rather than building a hierarchical organization with full-time employees.

Improvisation and bricolage have been frequently associated with venture creation (Baker et al., 2003; Baker & Nelson, 2005). However, their effects on venture management and success is still unclear. Improvisation is not inherently good or bad (Miner et al., 2001), and prior research did not find a direct relationship between improvisation and venture performance, such as sales growth (Hmieleski & Corbett, 2008) and innovation (Vera & Crossan, 2005). This suggests that the effect of improvisation might be moderated by dispositional and contextual variables (Hmieleski & Corbett, 2008; Vera & Crossan, 2005). Hmieleski and Corbett (2008) found that a positive relationship between improvisation and venture performance when exhibited by founders who were high in entrepreneurial self-efficacy, because founders with sufficient beliefs in their abilities are more likely to persist with improvisational solutions until reaching a successful outcome. Another potential moderator might be founder’s proactive personality. Proactive personalities “scan for opportunities, show initiative, take action, and persevere until they reach closure by bringing about change” (Bateman & Crant 1993, p.105) and, moreover they are relatively unconstrained by situational forces from the environment. Therefore, the improvisation strategies might have a positive impact in venture performance, but

specifically for founders who have a *natural* disposition to persevere over uncertainty and dynamic environmental conditions such as the one new ventures face.

In a similar vein, research on bricolage lacks the explanation about the boundary conditions around the presumed positive effects of bricolage. According to Baker and Nelson (2005), the positive effects of bricolage should decline when bricolage is chased intensively by new ventures, because it might result in wasted efforts and produce insufficient solutions in the long term (Senyard et al., 2014). Furthermore, because these types of unplanned actions – improvisation and bricolage - are not based on experiential knowledge about what works and does not work, they are more likely to produce significant problems or even surprises with respect to realizing intended outcomes (Evers & Gorman, 2011). Future research should explore the contextual variables that enhance and/or inhibit the positive effect of these strategies in venture performance.

The meta-analysis from Brinckmann and colleagues (2010) provides insight for the question of when new ventures should invest in formalization? Their findings suggested that planning had a greater effect on firm performance in cultures with low uncertainty avoidance, because in these cultures managers may feel more comfortable deviating from their plans. Thus managers may be more responsive to information contradicting established plans, more likely to adopt necessary changes to the strategic plans, and more inclined to improvisational decision-making in light of ambiguity (Brinckmann et al., 2010). This is especially relevant for new ventures because the environments where they operate are highly uncertain and ambiguous (Anderson & Tushman, 1990; Venkataraman et al., 1990). Thus, the ability of the entrepreneur and his/her entrepreneurial team to manage ambiguity might be useful for new ventures to *feel* the benefits of planning. That would mean, for instance, that

entrepreneurs should be able to follow the prescriptions of planning, but also display readiness in the face of unpredictable events that might occur through improvising and experimenting new solutions (e.g., Smolka et al., 2016).

## **CONCLUSION**

The entrepreneurship research field is new, which might challenge scholars to contribute to its development. We hope our research stimulates scholars to create more knowledge on what drives entrepreneurs to pick the *lemons* and make *lemonade*.

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