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DETERMINANTS OF CORPORATE VENTURING:

EVIDENCE FROM SPAIN

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ABSTRACT

Previous studies have recognized the relevance of certain individual (human capital, perceptions) and organizational (work environment) factors in the creation of new ventures "from" and "for" existing organizations (spin-offs, start-ups, spin-outs). However, interesting research opportunities still emerge to further explore the interaction between individuals and environments in the development of entrepreneurial initiatives as well as business creation (Busenitz et al., 2014). The main objectives of this doctoral dissertation are: (O1) to propose an eclectic theoretical model of corporate venturing; (O2) to analyze the influence of individual determinants (human capital and perceptions) on the creation of ventures "from" and "for" an existing organization; and (O3) to explore the influence of the work environment (job autonomy) on the creation of ventures "from" and "for" an existing organization. Adopting the bases from several approaches (i.e., entrepreneurial cognitions, entrepreneurial action, entrepreneurial orientation and corporate entrepreneurship), two proposed conceptual models were tested using data from the 2012 and 2013 Spanish Adult Population Survey (Global Entrepreneurship Monitor, GEM). Based on the results obtained, this doctoral dissertation modestly contributes to the entrepreneurship field by providing new insights about how individuals' characteristics (human capital and perceptions) can be capitalized on to achieve organizational objectives such as the creation of corporate ventures and how the work environment could moderate the role of employees' human capital in the creation of corporate ventures. Thus, these results could help employees, top managers and policy makers take into account the relevance of these individual and organizational factors when defining their corporate entrepreneurship strategies.

Keywords: entrepreneurship, corporate venturing, independent venturing, human capital, individual perceptions, work environment, Spain

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CHAPTER I: RESEARCH MOTIVATIONS

1.1. Introduction

Previous studies of entrepreneurial action (Locke 2000; McMullen and Shepherd 2006; Shane and Venkataraman 2000; Shane et al. 2003), entrepreneurial orientation (Covin and Slevin 1991; Lumpkin and Dess 1996, 2001; Miller 1983; Moreno and Casillas 2008) and corporate entrepreneurship (Antoncic and Hisrich 2001; Hornsby et al. 1993, 2002, 2009; Ireland et al. 2009; Kuratko et al. 2005a, 2005b; Pinchot 1985; Zahra 1991, 1993; Zahra and Covin 1995; Zahra and Garvis 2000) have provided insights about the determinants of entrepreneurship. According to those studies, entrepreneurship is fundamentally an individual phenomenon to pursue and exploit opportunities. Individuals bear the responsibility for making judgmental decisions that affect the localization, moment, form and use of goods or scarce resources to launch a new business (Herbet and Link 1988; Shane and Venkataraman 2000).

Following this point of view, the entrepreneurial process involves both the opportunity perception and the subsequent action to create an independent or corporate venture. Therefore, the perception, the identification and the assessment of entrepreneurial opportunities represent an opportunity for individuals to offer some new value to society, often by introducing innovative and novel products or services (Lee and Venkataraman 2006). It requires entrepreneurial action in which the behavior in response to a decision to create a new firm includes the possibility for economic gain or financial loss (Hastie 2001). Innovation and new business development can be initiated by independent individuals as an employability choice (e.g., to become a manager-owner of a new venture, self-employed or employed) (Bosma et al. 2010, 2012, 2013) or by individuals involved in existing enterprises as a response to a sustained regeneration, organizational rejuvenation, strategic renewal or domain redefinition

strategy through new business ventures and/or the development of new products, services or processes (Antoncic and Hisrich 2001; Burgelman 1985; Covin and Miles 1999; Hornsby et al. 2002; Ireland et al. 2009; Pinchot 1985).

In general, any entrepreneurial action depends on how individuals combine: (1) their *motivations*, which vary in how they perceive the risk of expending resources before knowing the distribution of outcomes (Arenius and Minnitti 2005; Shane et al. 2003); (2) their *human capital* (e.g., individual education, experiences and skills), which constitutes a firm-unique intangible asset (Bates 1990; Davidsson and Honig 2003); and (3) *the access to other resources,* such as financial and social capital, which may prompt (or hamper) the decision to start a new venture (Bosma et al. 2004). Then, the choice of creating a new venture may be influenced by several factors, such as human, financial and social capital (Agarwal et al. 2004; Autio 2007; Autio and Acs 2010; Baumol 1993; Delmar et al. 2003; McDougall 1989; Moreno and Casillas 2008). Other studies show that the context also matters (Hessels and van Stel 2011; Hessels et al. 2008; Wennekers and Thurik 1999). Therefore, depending on the different types of entrepreneurship, entrepreneurial activity will be promoted by independent individuals (self-employees), high-potential entrepreneurship or existing organizations (corporate venturing). However, the entrepreneurship literature still requires studies that analyze how the link between individuals' characteristics (e.g., human capital, perceptions, etc.) and environment (e.g., organizational, socioeconomic, etc.) determines the creation of new ventures (e.g., independent and corporate venturing) (Busenitz et al. 2014).

1.2. Research objectives

Previous studies on corporate entrepreneurship (CE) have shown the development and implementation of new ideas initiated within the boundaries of an existing organization (Hornsby et al. 2002; Kuratko 2005; Kuratko and Audretsch 2013), particularly, within two streams of activities: internal (innovation, strategic renewal) and external (corporate venturing, joint venture, spin-off). Several scholars have recognized the relevance of this phenomenon in promoting sustainability, competiveness and added value for firms (Covin and Miles 1999; Narayanan et al. 2009). Based on those arguments, this thesis adopts the perspective of venturing activities defined as:

> *"the creation of new ventures "from" and "for" an existing organization (parent firm) based on ideas proposed by employees or top managers (Lindholm 1994; Parhankagas and Arenius 2003; Narayanan et al. 2009; Guerrero and Peña-Legazkue 2013). More concretely, corporate venturing could be understood such as the creation of organizational spin-offs, start-ups and spinouts."*

From *a practitioner point of view*, the recent global financial crisis was a strategic game-changer for most organizations (Alcalde and Guerrero 2014). Severe resource constraints and unpredictable market conditions created significant challenges for organizational survival, let alone for growth through innovation and venturing activities (Guerrero and Peña-Legazkue 2013). These conditions have fostered a greater need for a better understanding of the corporate entrepreneurial process (Hornsby et al. 2013). On the other hand, from *an academic point of view*, corporate venturing can be studied at the individual level, organizational level and macro level. At the *individual level*, the main focus has been on how organizations develop (intra)preneurial behaviours in their employees (Bosma et al. 2004; Hayton 2005; Hayton and Kelly 2006; Guerrero and

Peña-Legazkue, 2013). At the *organizational level*, empirical researchers have analyzed the relationship among capabilities, resources, strategies and organizational impacts/benefits (Covin and Miles 1999, Covin and Slevin 1991; Ireland et al. 2009; Narayanan et al. 2009; Hornsby et al. 2013). So far, most attempts to study entrepreneurial efforts within organizations have focused on the antecedents at the organizational level, ignoring the effects of the broader macro context on intrapreneurship (Bosma et al. 2010, 2012, 2013).

Even though extant studies have provided interesting insights about those determinant factors of corporate venturing strategies (Dess et al. 1999; Hisrich and Peters 1986; Klepper 2001; Guerrero and Peña-Legazkue 2014; Parker 2011; Narayanan et al. 2009; Zahra and Covin 1995; Zahra et al. 1999), there is little known about how individual and organizational determinants emerge in the creation of new corporate ventures. Busenitz et al. (2014) reviewed the entrepreneurship research from 1985 to 2009 on the emergence of opportunities and new business creation. They found three interesting research opportunities to further explore the identification of opportunities and the creation of new ventures. One of these opportunities was the analysis about the interaction between individuals and environments in the emerging of entrepreneurial initiatives. Based on those arguments, the main research objectives of this thesis are:

O1: To propose an eclectic model to provide a better understanding about the determinants of the creation of ventures "from" and "for" an existing organization.

O2: To analyze the influence of individual determinants (human capital and perceptions) on the creation of ventures "from" and "for" an existing organization.

O3: To explore the influence of the work environment (job autonomy) on the creation of ventures "from" and "for" an existing organization.

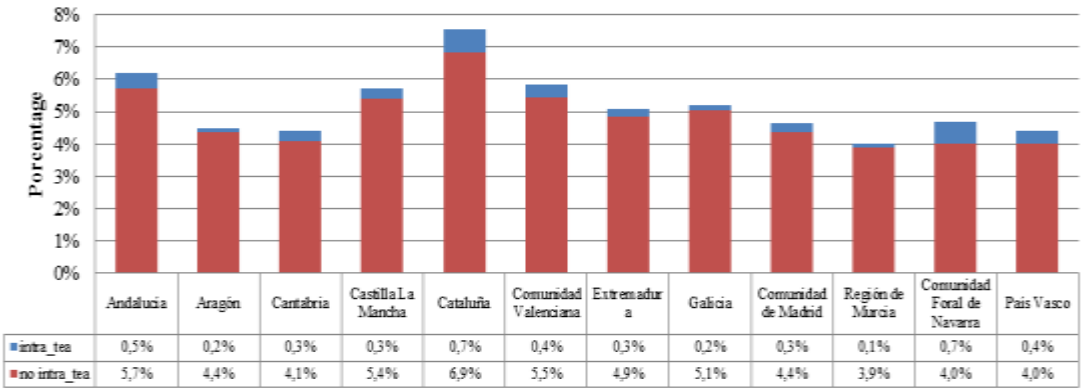
To achieve those objectives, *theoretically,* this thesis adopts different approaches—entrepreneurial action, entrepreneurial orientation, human capital and corporate entrepreneurship—to provide a theoretical understanding about the influence of individual and organizational determinants of corporate venturing. Based on the literature review, two conceptual frameworks and several hypotheses were proposed. *Methodologically*, with a combination of different statistical models (e.g., logistic and rare event), the conceptual models were tested using data from the 2012 and 2013 Spanish Adult Population Survey (Global Entrepreneurship Monitor, GEM[1]). More concretely, we used data at the individual level but explored two subsamples: the total adult population with 18-64 years old (Chapter III) and the employee population with 18-64 years old (Chapter IV).

[1] Usually, APS collects information from the adult population (employees, self-employees, students, etc.) that allows for the exploration of the determinants and influences of independent entrepreneurship (Bosma 2013). In 2011, APS included questions to analyze the phenomenon of entrepreneurial employees that help identify individuals engaged in intrapreneurial activities (e.g., new ventures –corporate venturing-, creation of new products/services and entry to new markets) for their employers (Coduras et al. 2011; Bosma et al. 2013). However, we do not know much about the main determinants (individual, organizational or contextual) that motivate employees to participate in the creation of new venture (corporate venturing) for their main employer (parent firm). This means that a percentage of total entrepreneurial activity and number of established firms could be associated with new ventures created by the employees for their employer. Therefore, we included some additional questions in an effort to capture information about these issues in Spain.

1.3. Contextualizing entrepreneurship in Spain

Since 2003, Spain has been a member of the GEM Consortium, which allows the country to observe the main indicators associated with entrepreneurial activity in the majority of its regions (Peña-Legazkue et al. 2015). According to our methodological design, the APS 2012 administrated in Spain included a set of questions to identify employees who have created a new venture "from" and "for" existing organizations (parent firms) and the main characteristics of these individuals, the venture created and the parent firm. With the purpose to contextualize and understand the corporate venturing phenomenon in Spain, this section provides a global diagnosis of the data obtained in 2012. Exploring the 21,900 observations from Spanish APS 2012, we identify that 5.17% (1,133 observations) of the adult population aged 18-64 were currently either nascent or owner-managers of a new business for less than 42 months (independent entrepreneurship); in particular, 6.4% of those new businesses were new enterprises associated/created "from" and "for" existing organizations (parent firms). In general, the distribution of corporate ventures and independent ventures by the Spanish Autonomic Community is shown in Figure 1.1.

Figure 1.1: New corporate venturing and new independent venturing

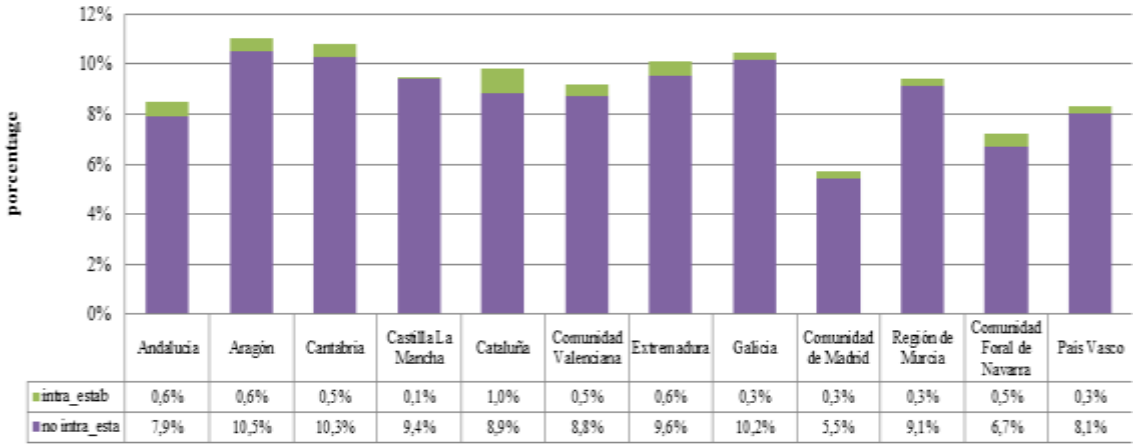


	Andalucia	Aragón	Cantabria	Castilla La Mancha	Cataluña	Comunidad Valenciana	Extremadura	Galicia	Comunidad de Madrid	Región de Murcia	Comunidad Foral de Navarra	Pais Vasco
intra_tea	0,5%	0,2%	0,3%	0,3%	0,7%	0,4%	0,3%	0,2%	0,3%	0,1%	0,7%	0,4%
no intra_tea	5,7%	4,4%	4,1%	5,4%	6,9%	5,5%	4,9%	5,1%	4,4%	3,9%	4,0%	4,0%

Source: Spain APS 2012**.**

Similarly, 8.99% of the adult population aged 18-64 were current owner-managers of established business for less than 42 months. In particular, 5.2% of those established businesses were created "from" and "for" existing organizations (parent firms). In general, the distribution of established corporate ventures and established independent ventures by the Spanish Autonomic Community is shown in Figure 1.2.

Figure 1.2: Established corporate venturing vs. established independent venturing



	Andalucia	Aragón	Cantabria	Castilla La Mancha	Cataluña	Comunidad Valenciana	Extremadura	Galicia	Comunidad de Madrid	Región de Murcia	Comunidad Foral de Navarra	País Vasco
intra_estab	0,6%	0,6%	0,5%	0,1%	1,0%	0,5%	0,6%	0,3%	0,3%	0,3%	0,5%	0,3%
no intra_esta	7,9%	10,5%	10,3%	9,4%	8,9%	8,8%	9,6%	10,2%	5,5%	9,1%	6,7%	8,1%

Source: Spain APS 2012**.**

Table 1.1 presents the profile of individuals involved in the creation of both new business and established business. On average, the percentages regarding socio-demographic characteristics are higher in all cases of intrapreneurs (CV) than entrepreneurs (IV). Specifically, the profile of intrapreneurs reveals that they are individuals with higher personal income, higher educational studies and informal investor experience. In the majority of cases, their main motivations were monetary incentives and the security of the parent firm if the spin-off failed.

Table 1.1. Individuals' profile (intrapreneurs vs. entrepreneurs)

Individual profile (average)	New Business				Established Business	
	Nascent		Baby			
	CV	IV	CV	IV	CV	IV
	40	574	33	486	103	1865
Age (years)	44.6	39.4	38.0	38.6	46.8	47.0
% males	72.5%	60.3%	57.6%	63.6%	62.1%	63.9%
% foreign citizens	12.8%	8.9%	9.1%	7.4%	4.9%	3.5%
Personal income (more than 30,000€)	51.7%	34.7%	50.0%	40.9%	37.9%	36.6%
% with higher education	7.7%	5.8%	3.0%	5.8%	4.0%	2.6%
% with informal investor experience (last 3 years)	5%	5.4%	6.1%	3.7%	4.9%	4.1%
Year when started to work in the parent (average)	2000	n.a	2007	n.a	1993	n.a
% with monetary incentives	40.0%	n.a	51.5%	n.a	54.4%	n.a
% with free time as incentives	7.5%	n.a	12.1%	n.a	13.6%	n.a
% with career incentives	22.5%	n.a	39.4%	n.a	22.3%	n.a
% with other kind of incentives	22.5%	n.a	12.1%	n.a	14.6%	n.a
% with the security to return to parent if the CV fail	38.7%	n.a	37%	n.a	41.9%	n.a

Note: [CV= Corporate Ventures; IV= Independent Ventures; n.a. = not apply]

Source: Spain APS 2012**.**

On the other hand, Table 1.2 shows an average of the main characteristics of the parent firms. In general terms, the new corporate ventures have been promoted/supported by young Spanish firms (less than 15 years) and not SME (more than 300 employees) firms. Interestingly, the main collaboration activities between the parent and new spin-offs are related to commercial and production activities. In the case of established corporate venturing, the parent firms tend to be older (more than 20 years) and not SME (more than 300 employees) firms. The main connection with the established spin-off is thought to be production activities.

Table 1.2. Parent firms' profile

Parent Firm Profile (average)	New Business				Established Business	
	Nascent		Baby			
	CV	IV	CV	IV	CV	IV
	40	574	33	486	103	1865
Foreign capital	7.7%	n.a	21.2%	n.a	8.1%	n.a
Foundation	1996	n.a	1991	n.a	1985	n.a
Size (number of employees)	325.56	n.a	2330.12	n.a	1483.9	n.a
Supports spin-offs' R & D activities	15%	n.a	18%	n.a	9%	n.a
Supports spin-offs' commercial activities	45%	n.a	48%	n.a	26%	n.a
Supports spin-offs' production activities	43%	n.a	42%	n.a	38%	n.a
Supports spin-offs' other activities	28%	n.a	27%	n.a	17%	n.a

Note: [CV= Corporate Ventures; IV= Independent Ventures; n.a. = not apply]

Source: Spain APS 2012**.**

Table 1.3 shows the main characteristics at the firm level. The most relevant insight is that the origin of business ideas is from the intrapreneurs (employees).

Table 1.3. Firms' profile (corporate venturing vs. independent venturing)

Firm Profile (average)	New Business				Established Business	
	Nascent		Baby			
	CV	IV	CV	IV	CV	IV
	40	574	33	486	103	1865
New products/new markets	27.5%	33.3%	33.3%	20.4%	6.8%	7.3%
New product for all their customers	22.5%	19.5%	9.1%	13%	3.9%	4.6%
New markets	17.5%	14.5%	12.1%	8.2%	6.8%	8.4%
Expectative to growth (19 jobs in 5 years)	2.5%	3.7%	15.2%	1.6%	3.9%	3.5%
Without employees	82.5%	55.2%	69.7%	59.3%	62.1%	59%
Created by necessity	20.0%	24.4%	24.2%	29.6%	31.3%	22.6%
More than 25% of foreign customers	5.1%	14.3%	12.9%	9.9%	7%	6.9%
New technology	22.5%	13.2%	9.1%	10.9%	9.7%	7.2%
Origin of the business idea:						
Employees	67.5%	n.a	63.6%	n.a	60.2%	n.a
Top Managers	35.0%	n.a	36.4%	n.a	25.2%	n.a

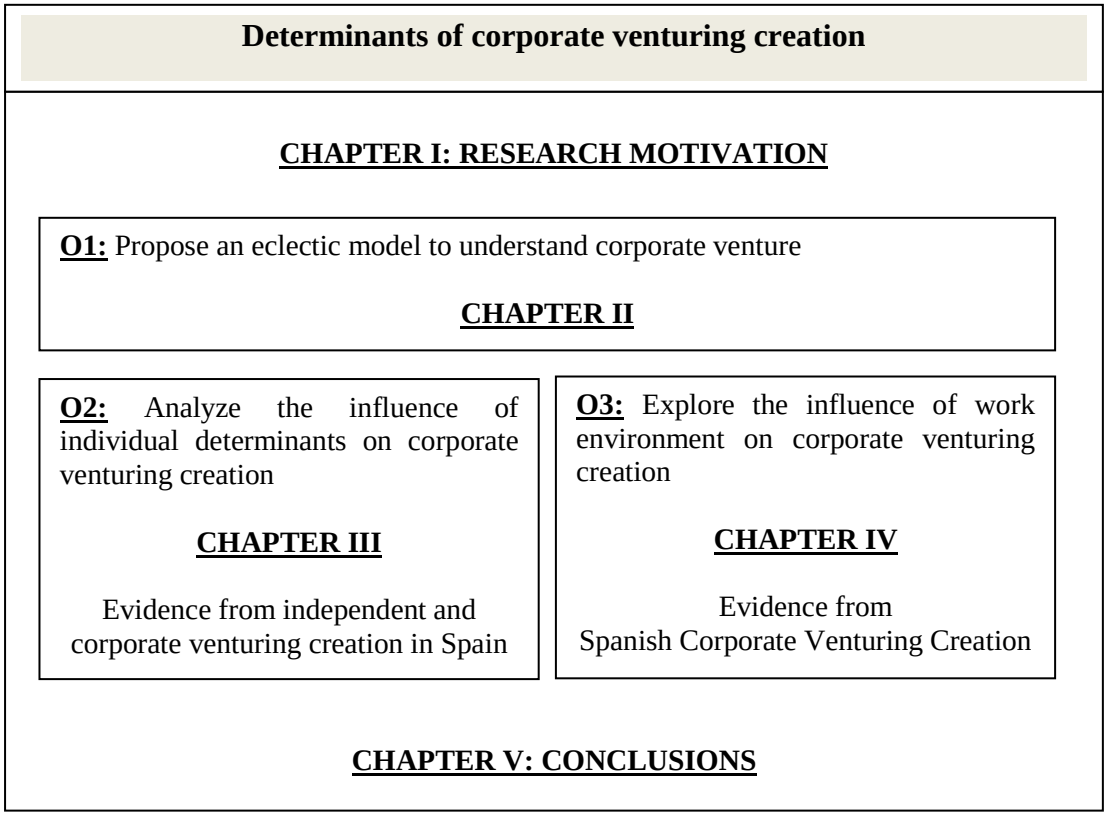
Note: [CV= Corporate Ventures; IV= Independent Ventures; n.a. = not apply]

Source: Spain APS 2012**.**

1.4. Structure of the thesis

Figure 1.3 shows the structure of this doctoral dissertation. Chapter I describes the main arguments behind the research motivations as well as the two research objectives. Aligned to the O1, Chapter II describes the proposed eclectic model to understand corporate venturing. Aligned to the O2, Chapter III analyzes the influence of individual determinants on the creation of ventures "from" and "for" an existing organization. Aligned to the O3, Chapter IV explores the influence of the work environment on the creation of ventures "from" and "for" an existing organization. Finally, Chapter IV summarizes the main conclusions, contributions, limitations and future research venues.

Figure 1.3: Structure of the thesis



Source: Author.

CHAPTER II: AN ECLECTIC MODEL TO UNDERSTAND CORPORATE VENTURE CREATION

2.1. Introduction

Conceptually, the entrepreneurial efforts in which established organizations use internal/external resources to create/invest in new businesses both current and in new markets/industries have been identified as the corporate venturing phenomenon (Sharma and Chrisman 1999; Miles and Covin 2002, 2007; Narayanan et al. 2009). According to Miles and Covin (2002, 2007), corporate venturing could adopt three different modalities: (i) internal venturing such as the creation of a new business unit; (ii) external venturing such as a hybrid form of entity established by an organization; and (iii) joint corporate venturing, which describes a joint investment with another company to create a business.

Interestingly, the entrepreneurship literature has paid attention to the conditions that influence the creation of ventures "from" and "for" an existing organization (Hornsby et al. 2013). Adopting different theoretical perspectives, prior studies have shown several characteristics associated with entrepreneurial employees (Busenitz and Barney 1997), entrepreneurial organizations (Sathe 1985; Covin and Slevin 1991) and the entrepreneurial ecosystem (Zahra 1991 1993; Zahra and Covin 1995; Cuervo 2005) that stimulate exploration/exploitation and value creation through corporate venturing activities (Narayanan et al. 2009). Following these ideas, several authors have proposed theoretical models about the determinants and the consequences of corporate venturing (Guth and Ginsberg 1990; Antoncic and Hisrich 2001; Ireland et al.2009; Morris et al. 2009; Narayanan et al. 2009).

Nevertheless, these authors have also recognized several limitations; particularly, the majority of those theoretical frameworks have been inspired and presented as the

introduction of special issues. In other words, those conceptual models summarize the major results of the papers that integrate each special issue. In addition, those models have not been tested given the complexity of each dimension and the difficulty to access data. As a consequence, the absence and testing of an eclectic conceptual framework (that maps out the determinants, the moderators and the outcomes of corporate venturing activities) accentuate problems that researchers face when they conduct corporate venturing studies (Narayanan et al. 2009). Based on these arguments, the main objective of this chapter is to propose an eclectic conceptual framework that provides a better understanding about the key determinants of the creation of ventures "from" and "for" an existing organization.

Following this introductory section, Section 2.2 explains the dimensions identified in the literature that determine the creation of a venture "from" and "for" an existing organization. Section 2.3 describes the proposed eclectic model and explains the elements that will be analyzed in this thesis. This chapter ends with conclusions and implications in Section 2.4.

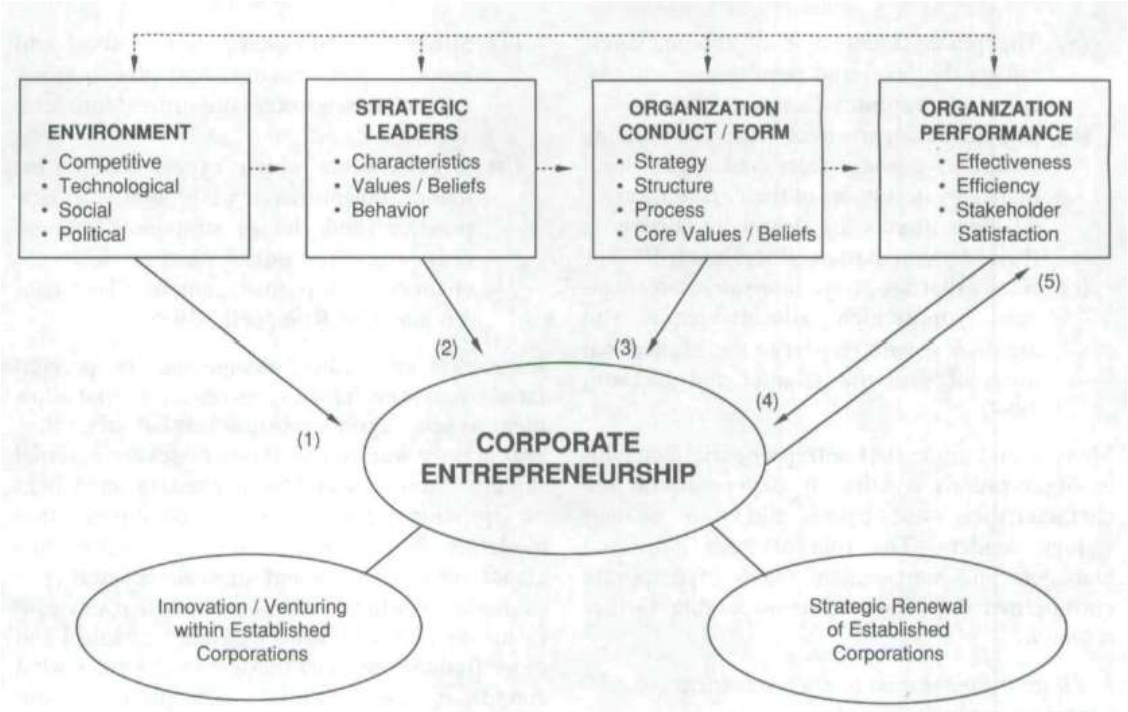
2.2. An eclectic perspective of corporate venture creation

Based on the literature review, we identified several conceptual models that have explored the phenomenon of corporate venture creation "from" and "for" an existing organization (Guth and Ginsberg 1990; Antoncic and Hisrich 2001; Ireland et al. 2009; Morris et al. 2009; Narayanan et al. 2009).

In the 1990s, Guth and Ginsberg (1990) proposed a conceptual model to understand corporate entrepreneurship (one typology was corporate venturing) that included

individual values/behaviors, internal organizational process and core values, and contextual conditions such as competition or technological changes (see Figure 2.1). This model was built on contributions from earlier models of strategic management and tried to portray the theoretical connections that can be drawn from corporate entrepreneurship to the other conceptual elements of the field of strategic management; explaining it as a process. As a result, it inspired the introduction of the special issue about corporate entrepreneurship organized by the *Strategic Management Journal*. Nevertheless, there is no evidence that this model has been empirically tested.

Figure 2.1: Guth and Ginsberg's proposed model

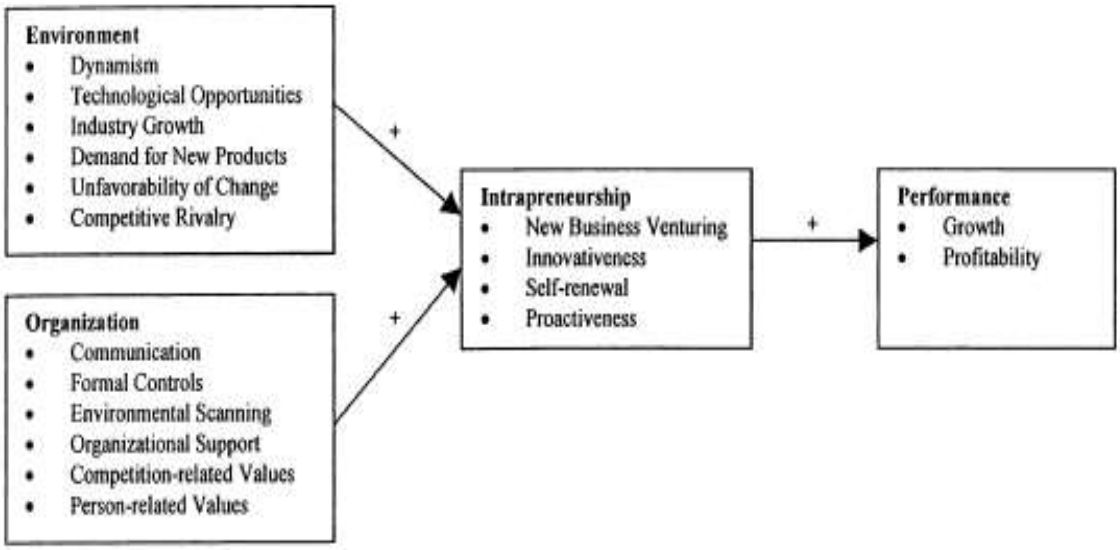


Source: Guth and Ginsberg (1990, p. 7).

Linking the management and entrepreneurship literature, one decade later Antoncic and Hisrich (2001) proposed a construct refinement and cross-cultural validation of intrapreneurship. In particular, these authors focused on the role of certain

organizational characteristics—such as communicational channels, control mechanisms, values and commitment—and paid close attention to cultural characteristics delineated by the technological/industrial/market dynamism (see Figure 2.2). The main contribution of this model was evidence about the strong and direct influence of environmental conditions on intrapreneurship and the impact of intrapreneurship on performance.

Figure 2.2: Antoncic and Hisrich's proposed model

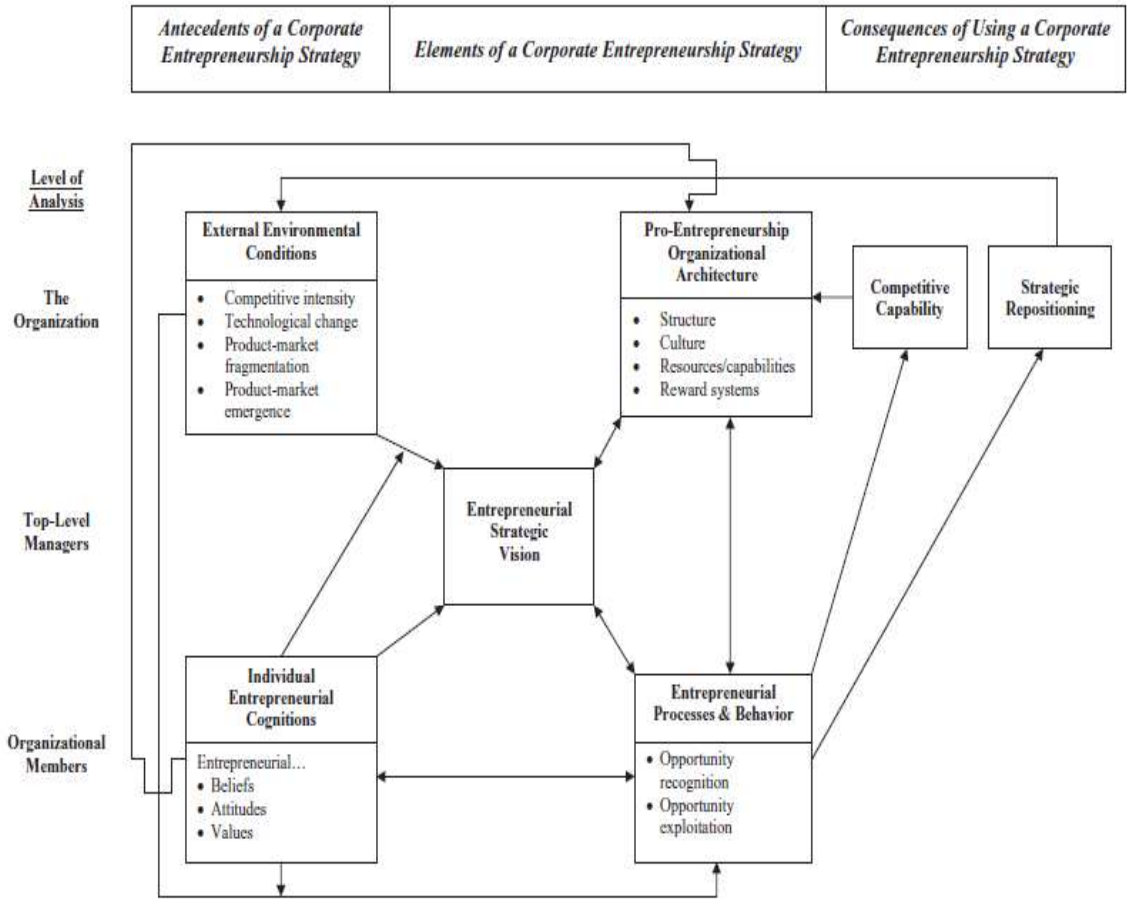


Source: Antoncic and Hisrich (2001, p. 505).

Adopting Mintzberg's ideas and entrepreneurial cognitions approach, a few years later Ireland et al. (2009) proposed specific linkages between the various components of corporate entrepreneurship strategy as well as linkages between those corporate entrepreneurship strategy components and their antecedents and consequences. These authors conceptualized the relationships among the antecedents (contextual, organizational and individual), the corporate venturing strategy and the impacts in the performance. Interestingly, this conceptualization confirmed the complexity of this

phenomenon, justified the relevance of each antecedent and proposed some relationship among these variables. However, this model has not been empirically tested.

Figure 2.3: Ireland et al.'s proposed model

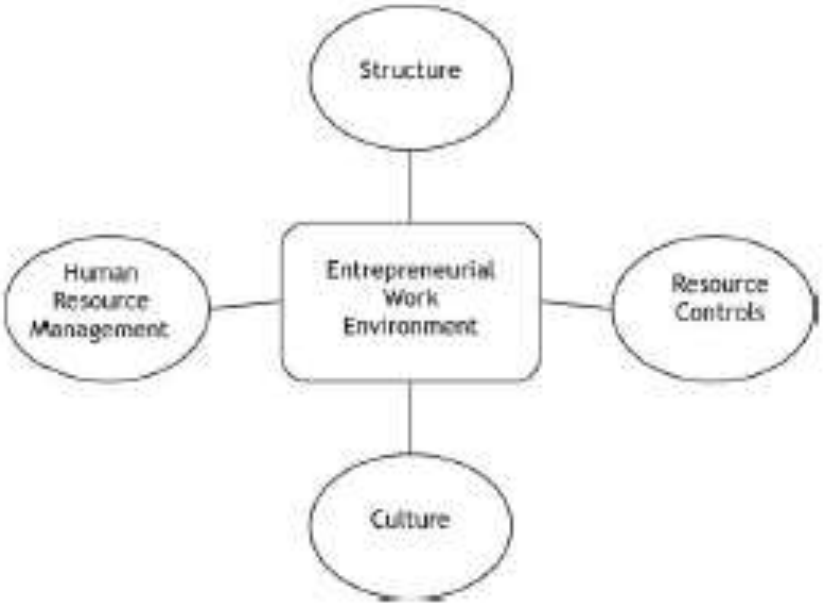


Source: Ireland et al. (2009, p. 24).

Taking into account that organizations tend to evolve in ways that are inherently resistant to entrepreneurship, Morris et al. (2009) focused on the organizational properties of balance and sustainability of any corporate entrepreneurship strategy (Figure 2.4). In particular, they identified five primary elements for facilitating a work climate (structure, human resources, resource control and culture) and a set of seemingly conflicting properties underlying each of those elements. Interestingly, it was

one of the first conceptual models that included a combination of variables to create an entrepreneurial work environment.

Figure 2.4: Morris et al.'s proposed model

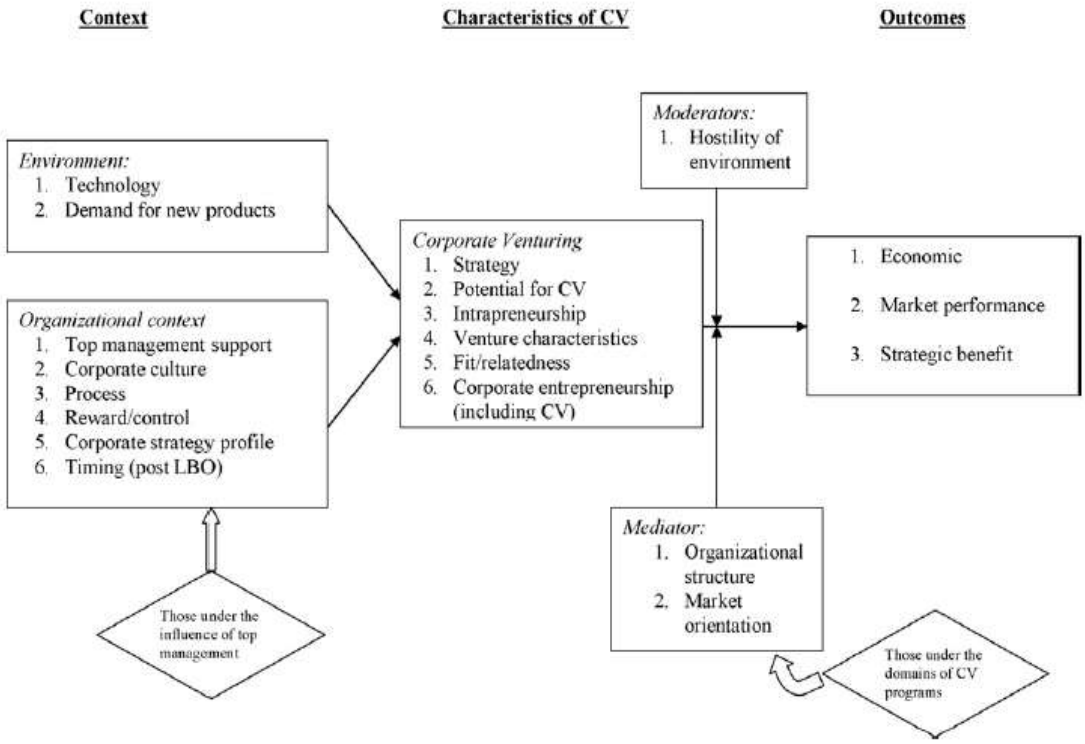


Source: Morris et al. (2009, p. 432).

Based on an exhaustive empirical literature review, Narayanan et al. (2009) identified several contextual forces, both external and internal, that predispose the firm to undertake corporate venturing and drive its characteristics. As a result, these authors proposed a theoretical framework linking corporate venture and value creation (see Figure 2.5). This model explored the determinants and consequences of corporate venturing activities of both public and private organizations. Interestingly, the proposed conceptual model included the argumentation about the relationships (direct, moderate and mediate) among the organizational (e.g., support, culture, rewards systems, etc.) and environmental (e.g., the technology, demand, etc.) determinants of corporate venturing.

Nevertheless, the influence of employees' characteristics on corporate venturing is underrepresented in this model. In addition, this model has not been empirically tested.

Figure 2.5: Narayanan et al.'s proposed model



Source: Narayanan et al. (2009, p. 62).

In summary, Table 2.1 shows that the majority of these conceptual models adopted management/organizational theoretical approaches but only a few of them have used other approaches, such as entrepreneurship literature. Despite these similitudes in the theoretical approaches, the level of analysis (individual, organizational, environment) has varied across the timeline. Despite the insights and advances in the literature of this phenomenon, theoretical/empirical gaps associated with the emergence of (intra)entrepreneurial opportunities and the configuration of interrelationships among individual, organizational and environmental characteristics (Busenitz et al. 2014) still exist. The next sections of this chapter explore in-depth each dimension identified in the

previous studies, followed by our proposed eclectic model to understand corporate venturing.

Table 2.1: Selection of previous models that explain corporate venture creation

Model	Theoretical approach	Dimensions	Variables	
Guth and Ginsberg 1990 (p. 7)	Prior management & Strategic approaches	Individual/ Organizational / Environmental	• Individual values, beliefs, behaviors • Organizational forms, processes and core values	• Environment (competitiveness, technological, social, political)
Antoncic and Hisrich 2001 (p. 505)	Management & Entrepreneurship literature	Organizational / Environmental	• Organizational: communication; controls; organizational support; values	• Environment: dynamism; technological opportunities; industry growth; demand; unaffordability of change; competitive rivalry
Ireland et al. 2009 (p. 24)	Management approach based on Mintzberg's ideas & Entrepreneurial cognitions	Individual/ Organizational / Environmental	• Individual entrepreneurial cognitions • Organizational architecture (culture, resources, rewards systems)	• Environment (competitiveness, technological change, …)
Morris et al. 2009 (p. 432)	Management & Entrepreneurship literature	Organizational	• Work environment • Human resources • Culture	• Structure • Resource control
Narayanan et al. 2009 (p. 62)	Management, strategy, innovation and finance	Organizational / Environmental	• Organizational direct (support, culture, rewards, strategy) • Organizational mediate (structure and orientation)	• Environment direct (technology, demand of new products) • Environment moderate (hostility)

Source: Author.

2.2.1. The individual dimension

The individual dimension was observed in the majority of models summarized in Table 2.1. Based on the entrepreneurship literature review, adopting the main bases of human capital (Becker 1964; Bates 1990) and entrepreneurial cognitions (Azjen 1990) approaches, we identified characteristics that distinguish entrepreneurial employees and that influence the creation of corporate ventures; particularly, we explored human capital and perceptions as part of individual dimension.

Human capital: Existing organizations do not innovate by themselves because they require the talent of their employees (Krueger 2000). In general, any entrepreneurial and innovative processes within organizations require the commitment, the understanding and the complementarity of people's abilities/incentives (owners, managers, employees). For instance, extant studies have recognized that human capital is the most crucial factor in the creation and management of an enterprise and in order to achieve organizational performance goals (Brüderl et al. 1992; Gimeno et al. 1997; Pennings et al. 1998). A plausible explanation is that the fundamental element of human capital is knowledge possession, and knowledge is a resource that does not easily appropriable and leading productivity (Schultz 1959; Becker 1964; Mince 1974). Based on these arguments, talent and entrepreneurial employees could be identified as a competitive advantage for any organization (Barney 1991; Pennings et al. 1998; Wright et al. 1995; Parker 2011; Guerrero and Peña-Legazkue 2013, 2014).

In this regard, Parker (2011) recognized that the main differences between independent entrepreneurs and corporate entrepreneurs are explained by the type of human capital

they possess. In particular, this author argues that there are two dimensions of human capital: *a generic dimension* that includes skills, knowledge, experience and capabilities that have been acquired during the academic/labor trajectory; which are useful for the management of new business (e.g., technical knowledge, managerial experience, etc.); and *a specific dimension* that includes skills, knowledge, experience and capabilities that have been specifically acquired for a special purpose inside an organization or through prior experiences; which are useful for creating new business (e.g., training/courses for new business creation or prior investor/entrepreneurial experiences). Therefore, we believe that employees who possess both generic and specific human capital have a higher propensity to become (intra)entrepreneurs.

Perceptions, beliefs, values: Guth and Ginsberg (1990) argue that entrepreneurial behavior in organizations is critically dependent on the characteristics, values/beliefs and visions of their leaders, managers and employees. These characteristics are relevant to the effectiveness of supporting entrepreneurial ideas and the degree of success in their implementation and are the key ingredient in the development and proposal of innovative/entrepreneurial initiatives by potential entrepreneurial employees according to their areas of expertise (Burgelman 1985; Fini et al. 2012). Hoskisson et al. (2000) argue that entrepreneurial cognition is an extensive use of individual's heuristics[2] and beliefs that influence decision making; whereas entrepreneurial alertness[3] is the ability of an individual to perceive where products or services are unavailable and where they

[2] Heuristics refers to simplifying strategies that individuals use to make strategic decisions, especially in complex situations where less complete or uncertain information is available (Alvarez and Busenitz 2001).

[3] Entrepreneurial alertness refers to "flashes of superior insight" that enable one to recognize an opportunity when it presents itself (Kirzner 1997).

must exist. According to Mitchell et al. (2002, p. 97), entrepreneurial cognitions are the knowledge structures that people use to make assessments, judgments or decisions involving opportunity evaluation, venture creation and growth. In the context of corporate venturing, these cognitions could include individuals' beliefs, attitudes and values regarding entrepreneurship and innovation (Koellinger 2008). Despite their importance, individual cognitions have received less attention due to the scarcity of data versus the adoption of objective variables in econometric models (Arenius and Minniti 2005). However, we believe that employees' cognitions reflect their positive/negative disposition or attitude toward corporate venturing activities. Based on entrepreneurship literature (Bosma 2013) and entrepreneurial cognition approach (Azjen 1990; Fini et al. 2012), we focused on certain perceptual variables identified as risk aversion, opportunity perception and role models.

Risk aversion: Prior entrepreneurship literature suggests that individuals take risky actions because they perceive less risk than others (Nutt 1986; Cooper et al. 1988; March and Shapira 1987; MacCrimmon and Wehrung 1990; Kahneman and Lovallo 1993). Individuals tend to be risk averse provided they have limited resources. It could explain why in every society a small portion of the population takes on the responsibility of developing entrepreneurial activities (Russo and Schoemker 1992). Even with the potential support of an incumbent organization, uncertainty and risk are also associated with employees' involvement in corporate venturing activities. On one hand, employees could fear being fired, being let go due to downsizing or even being prosecuted if the new venture did not work (Klepper 2001). On the other hand, failure is also associated with the perception of the limitations of employees' knowledge (Tversky and Kahneman 1974; Langer, 1975; Duhaime and Schwenk 1985; Shaver and

Scott 1991; Boyd and Vozikis 1994). Therefore, risk taking is a fundamental entrepreneurial employees' perception to engage in the creation of a new venture.

Opportunity perception: Both the recognition of and exploitation of opportunities are the essence of entrepreneurial behavior (Shane and Venkataraman 2000; Alvarez and Busenitz 2001). Opportunities could be motivated by internal and external organizational changes (Shane 2003), including those factors embedded in the individual, such as entrepreneurial cognition and alertness (Busenitz and Barney 1997; Baron 1998; Kirzner, 1997). In the context of corporate venturing, employees encounter endless amounts of information, resources, products and services, which make the organization's environment fertile for new opportunities. This means that employees' entrepreneurial cognitions allow them to identify situations in which new goods, services, raw materials, markets and organizing methods can be introduced through the formation of new means, ends or means-ends relationships (Eckhardt and Shane 2003, p. 336). However, employees require certain traits in order to distinguish them from a counterpart; and these traits provide them with a competitive advantage in predicting an opportunity that could lead to the creation of a venture for the existing organization (Kirzner 1997). Therefore, employees predisposed to recognizing entrepreneurial opportunities are positively related to the probability that those individuals will exploit those opportunities via corporate venturing activities (Ireland et al. 2009).

Role model: The term *role model* refers to the tendency of individuals to identify with other people as well as the psychological matching of cognitive patterns of behavior between a person and an observing individual (Gibson 2004, p. 136). This indicates that individuals are attracted to role models who are perceived as similar to them with

respect to their characteristics, behavior or goals; also they may learn several abilities or skills (Bosma et al. 2010, 2012). Scholars found that a role model may increase the probability of individuals to become entrepreneurs (Krumboltz et al. 1976; Aldrich 1999; Minniti et al. 2005; Van Auken et al. 2006). Based on that argument, inside an organization, employees have different preferences, backgrounds and levels of human capital. Thus, a role model might influence some employees' self-efficacy and confidence, which consequently increases their propensity to engage in creating a venture from and for an existing organization (Bosma et al. 2010, 2012). Therefore, a role model is fundamental to entrepreneurial employees' predisposition to engage in the creation of a new venture.

2.2.2. The organizational dimension

Based on the corporate entrepreneurship literature review, the organizational dimension has been identified as intra-organizational environment contextual factors, organizational conditions or work environment (Zahra and Covin 1995; Hornsby et al. 2002). According to Morris et al. (2009), all employees have innate entrepreneurial potential; nevertheless, the greater challenge is to create a work climate that will enable those employees to discover and act upon that potential. Several empirical studies have found a number of elements that must be considered when designing the appropriate workplace environment, such as incentive and control systems (Sathe 1985; Hornsby et al. 2002), organizational culture (Hisrich and Peters 1986), structure (Naman and Slevin 1993; Dess et al. 1999) and managerial support (Stevenson and Jarillo 1990). In general, these studies support the notion that an adequate organizational "atmosphere" fosters entrepreneurial actions. However, this "atmosphere" requires balance, achievement of a point of equality and co-existence (Morris et al. 2009). Adopting the bases of resource

based view approach and previous conceptual frameworks of corporate venturing, this section focuses on work environment, organizational culture and organizational resources as the main elements of an organizational dimension.

Work environment: Regardless of what kind of human capital they possess, employees need a suitable work environment to act entrepreneurially inside an organization. This notion held corporate entrepreneurship scholars hostage when investigating what organizational factors motivate employees to engage into entrepreneurial activities (Zahra 1991; Zahra and Covin 1995; Zahra et al. 1999). Kuratko et al. (1990), Morris et al. (2009) and Narayanan et al. (2009) proposed several conditions associated with an appropriate workplace environment. In this regard, an adequate entrepreneurial work environment should be integrated by job autonomy and incentives.

Job autonomy: Several authors have stressed the relevance of freedom for fostering creativity, innovation and entrepreneurship (Kuratko et al. 1990, 1993; Zahra 1991). Even though control and evaluation are required in any project, entrepreneurial organizations try to find the most adequate mechanisms that allow monitoring and simultaneously reducing the inhibiting effect of excessive control (Kanter 1985; Pinchot 1985; MacMillan et al. 1986; Zahra 1991). For instance, organizations could evaluate assignments to ensure that employees/teams have the time required to pursue innovation with structured ways to support efforts to achieve short- and long-term organizational goals (Kuratko et al. 1990). Therefore, job autonomy represents the degree of discretion giving to employees to perform their job based on their timing and method and without criticizing employees when they commit mistakes (Kuratko et al. 1990; Hornsby et al. 1999; Hornsby et al. 2002; Hornsby et al. 2009). For instance, prior studies concluded

that employees with job autonomy are more likely to show innovative behaviors and job satisfaction (Axtell et al., 2000). Seemingly, job autonomy increases the probability that employees will be more likely to explore and implement new ideas or ways to solve problems (Bindl and Parker, 2010). In this regard, De Jong et al. (2011) and Alrumaithi et al. (2015) have shown a positive and significant relationship between corporate venturing creation and employees' job autonomy.

Rewards: Entrepreneurial organizations tend to use different rewards (mostly intrinsic) that allow employees to experiment with, and explore the feasibility of, innovative ideas (Hornsby et al. 2002). Rewards strategies make organizational structure less resistant and encourage employees to assume the risks associated with corporate venturing creation. Prior studies stress that an effective rewards system that spurs entrepreneurial activity must consider goals, feedback, emphasis on individual responsibility and results-based incentives (Miles and Covin 2002). Hornsby et al. (1999, 2002, 2009) argue that rewards should be dependent upon the employees' work on the job, highlight significant achievements, encourage pursuit of challenging work and give special recognition about the employees' performance. In this regard, Antoncic and Hisrich (2001) tested the effect of rewards on corporate venturing activities with samples of organizations located in two different countries (the United States and Slovenia). Interestingly, they found a significant role of rewards in the development of corporate venturing in the United States but not in Slovenia.

Based on these arguments, we believe that the work environment is a relevant determinant of corporate venturing creation.

Organizational supports: We understand organizational support as a mix of facilities proportioned by the entrepreneurial organization for fostering corporate venturing actions. These facilities could take diverse forms such as championing innovative ideas, providing necessary resources/capabilities (Antoncic and Hisrich 2001; Morris et al. 2009), providing necessary expertise or training, institutionalizing the entrepreneurial activity within the organization (Hornsby et al 2002) and designing an adequate administrative and organizational structure by which new ideas will be evaluated, selected and implemented (Zahra 1991, 1993; Ireland et al. 2009). Moreover, according to resources-based theory, organizations' resources encompass all assets, capabilities, organizational processes, attributes, information and knowledge that enable them to improve efficiency and effectiveness through implementing strategies (Barney 1991; Shrader and Simon 1997). Thus, creating a corporate venturing from and for an existing organization requires an endorsement from the parent firm. In general, this endorsement means that a parent firm facilitates its resources, capabilities or expertise in the process of creation and consolidation of corporate ventures (Ireland et al. 2009). The first studies in the field recognized that the support provided by parent firms' intangible assets (e.g., brand names, expertise, trademarks, networking,..) represented a competitive advantage for corporate ventures with respect to other companies created without the support of an existent organization (Caves and Porter 1977; Weiss 1981; Burgelman 1985) Currently, Narayanan et al. (2009) found that there are certain organizational supports that could have a direct effect on corporate venturing creation, such as training and organizational resources availability. Nevertheless, there are others that could mediate the effect on corporate venturing creation, such as the organizational structure and orientation. In this regard, Klepper (2001) found a considerable amount of evidence on the importance of high-tech parent firms' support of employee learning and

corporate venturing creation. Based on these arguments, we believe that organizational supports are a relevant determinant of corporate venturing creation.

Organizational culture: According to Dess and Picken (2001), organizational culture represents a system of shared values (what is important) and beliefs (how things work) that shape the organizational arrangements and members' actions to produce behavioral norms (the way to work in the organization). This organizational system of values, standards and appropriate motivational factors could encourage corporate venturing actions (Cerovic et al. 2001; Yeşil and Kaya 2012; Paunovic and Dima 2014). Based on these ideas, we believe that organizational culture affects the organizational members' perceptions, actions and expectations. Therefore, an effective organizational culture is one in which new ideas and creativity are expected, risk taking is encouraged, failure is tolerated, learning is promoted, innovations are championed and continuous change is viewed as a conveyor of opportunities (Ireland et al. 2003, p. 970). A risk tolerance to failure is an important ingredient of any organizational culture for fostering corporate venturing creation (Hornsby et al. 2002). Previous research has shown the influence of organizational culture on employees' innovation and entrepreneurial initiatives (Martins and Martins 2002; Martins and Terblanche 2004). Robbins et al. (2010) and Fayolle et al. (2010) argue that employees involved in organizations in which their culture emphasizes strength, growth and rewards are more likely to create a venture within those organizations. Based on these arguments, we believe that organizational culture is a relevant determinant of corporate venturing creation.

2.2.3. The environmental dimension

Adopting management (Guth and Ginsberg 1990; Antoncic and Hisrich, 2001; Ireland et al. 2009) and institutional economic (North 1990; Peng 2003; Narayanan et al. 2009; Urbano and Turró 2013; Turró et al. 2014) approaches, we identified the two types of conditions associated with the environmental dimension: the market and the regulatory conditions.

Market conditions: Previous empirical studies have shown the strong relationship between corporate venturing and an organization's external environment (Zahra 1991, 1993). This recognition has resulted in the segmentation of an organization's external environment into several dimensions, such as hostility, heterogeneity and munificence (Tsai et al. 1991). A hostile environment refers to unfavorable change and competitive rivalry within an organization's external environment, which forces it to take radical measures in order to make radical changes (Zahra 1991). Heterogeneity refers to the correlation among the activities taking place in one market and how these activities indirectly open different levels of opportunities in another one (Miller and Friesen 1984). Munificence encompasses dynamisms, technological opportunities, industry growth and demand for new products (Tsai et al. 1991). In general, these environmental conditions vary according to the socioeconomic stage of the country (Porter et al. 2002). Based on these arguments, we believe that market conditions are relevant determinants of corporate venturing creation.

Regulatory conditions: There is a common agreement among scholars, practitioners and government officials that entrepreneurship is an economic pillar (Wennekers and Thurik 1999). Based on this premise, governments around the world try to foster entrepreneurship activities via laws and regulations. It could explain entrepreneurship

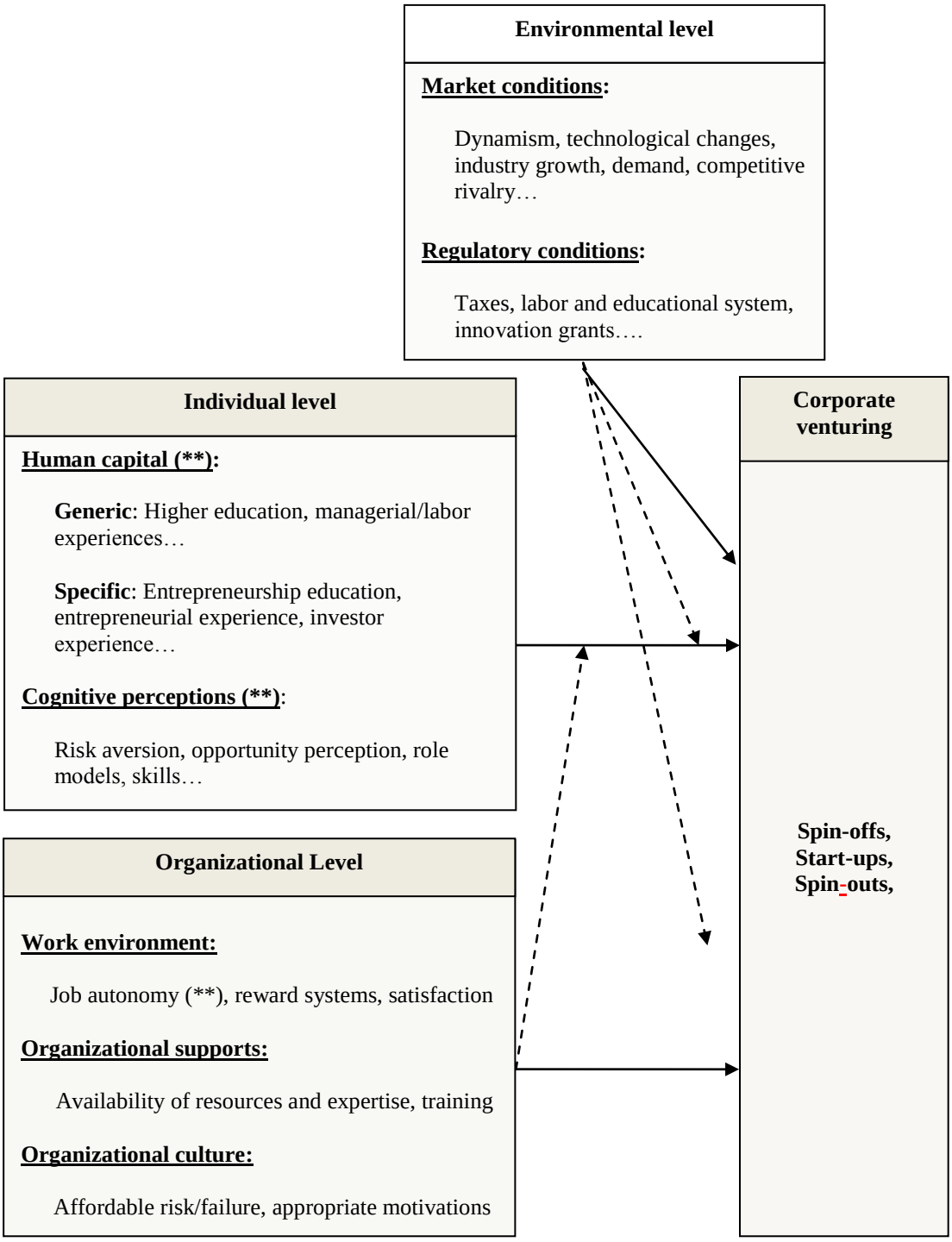
and economic growth variations across contexts (Westhead 1995). For example, the degree of protection of property rights influences the propensity to create new ventures; the same notion applies to the varying levels of government intervention across the globe, which leads to uncertainty (La Porta et al. 1999). According to Cuervo (2005), venture creation is contingent to institutional environment. In this sense, entrepreneurship regulations play a vital role not only in the discovery of entrepreneurial activities but also in the transformation of these activities into new ventures. In corporate venturing, institutional context may also influence organizations' proclivity to undertake corporate venture creation (Peng 2003); for example, how tax cuts, labor conditions, educational systems and innovation grants would perhaps boosts the corporate entrepreneurship. Therefore, researchers need to consider the context in which corporate venturing activities occur (Narayanan et al. 2009). A few studies have explored the effect of environmental conditions on corporate venturing creation. Urbano and Turró (2013) and Turró et al. (2014) demonstrated the significant effect of certain formal environmental conditions (procedures necessary to create a new business or access to finance) on corporate entrepreneurship and the moderation effect of certain informal environmental conditions (entrepreneurial culture and perception of media exposure) in the relationship between formal conditions and corporate entrepreneurship. Based on these arguments, we believe that regulatory conditions are relevant determinants of corporate venturing creation.

2.3. Proposed conceptual model

Based on our literature review and adopting several theoretical approaches, Figure 2.1 shows the proposed eclectic model to understand corporate venture creation. In particular, this model includes three levels of analysis: the individual level, the

organizational level and the environment level. Moreover, we explain the direct and the moderation effects among these levels. In this sense, this eclectic model will contribute to a better understanding of the determinants of corporate venturing activities.

Figure 2.6: Proposed conceptual framework



Source: Author.

** Tested in this thesis

- - ► Indirect effects

In this thesis, given the complexity of the measures and the limitations of the data, only certain variables of the two dimensions of this proposed model (individual and organizational) were tested using data of corporate ventures created in the Spanish context. This means that at the country level, even with the possible existence of differences across regions, we assume that the Spanish market and regulatory conditions are pretty similar. Therefore, this gives us the opportunity to continue testing this environmental level in future research using data from diverse countries.

2.4. Conclusions

Corporate venturing phenomenon has been investigated by several authors (Sharma and Chrisman 1999; Miles and Covin 2002, 2007; Narayanan et al. 2009). Initially, Sharma and Chrisman (1999) described this phenomenon as the entrepreneurial efforts in which established business organizations invest in and /or create new businesses. The main objective of this chapter was to propose an eclectic conceptual framework that provides a better understanding about the key determinants of the creation of ventures "from" and "for" an existing organization. Adopting different conceptual approaches, a proposed conceptual model was developed to reflect the indented analysis. Three dimensions or levels of analysis are included (individual, organizational and environmental).

The relationship between corporate venturing and individual characteristics is conclusive. Generally, individuals carry the burden to discover, evaluate and exploit entrepreneurial opportunities that introduce new products, services, strategies, organizational forms and venture creation (Shane and Venkataraman 2000). Nevertheless, not all individuals engage in entrepreneurial activities. This notion

launched the search for which factors trigger employees' entrepreneurial behavior. Prior research has shown that personality traits, human capital and demographics influence individuals to act entrepreneurially (Hull et al. 1980; Sexton and Bowman-Upton 1991). In that sense, employees' characteristics (such as human capital and cognitive perceptions) increase their propensity to engage in entrepreneurial activities. However, the most relevant challenges to test them are associated with the right measures/proxies, the quality and availability of databases and the adequate method to explore the real effect of employees' characteristics on corporate venture creation (Schultz 1959; Becker 1964; Mincer 1974; Gimeno et al. 1997; Narayanan et al. 2009; Parker 2011; among others).

Similarly, the importance of the organizational level on corporate venturing has been evidenced by previous studies (Zahra 1991; Zahra and Covin 1995; Zahra et al. 1999). Based on these studies, we believe that employees are more likely to be involved in corporate venture creation when they are enrolled in organizations characterized by an entrepreneurial culture (affordable risk/failure, appropriate motivations…), an adequate work environment (autonomy, rewards…) and strong supports (resources, expertise, training…). However, there are certain scenarios in which employees with new innovative ideas are not receiving the proper attention by their employers; and there are employees who fear the expropriation of their new ideas or inventions. Therefore, some employees may decide to retain/exploit them outside their organizations, and other employees may decide to be adopted/exploited by their parent firms upon their consent and willingness. For all these arguments, researchers in the field are interested in the further investigation of which organizational factors reinforce/retard employees' propensity to engage in entrepreneurial activities (Sathe 1985; Brazeal 1993; Covin et

and Slevin 1991; Naman and Slevin 1993; Kuratko et al. 1990; Dess et al. 1999; Narayanan et al. 2009; among others).

Additionally, the relationship between corporate entrepreneurship and contextual influences has been evidenced by extant theoretical studies (Block and Subbanarashimha, 1989; Covin and Slevin 1991; Dean 1993; Zahra 1993). In general, we have identified several contextual factors that play a relevant role in corporate venturing creation, such as market and regulatory conditions with respect to R&D, dynamism/structure of the market, industry life cycle and others (Cuervo, 2005). Similarily, corporate venturing requires feasible external conditions. This feasibility depends on regulations and levels of government intervention. Conversely, creating a corporate venturing from and for an existing organization is stopped, differed or diverted to other places due to deteriorated market conditions. Therefore, market and regulatory conditions promote corporate venturing inception. For this reason, several scholars in the field also recognized the necessity for further exploration of which environmental conditions determine corporate venturing activities (Peng 2003; Narayanan et al. 2009; Urbano and Turró 2013; Turró et al. 2014).

In summary, we argue that corporate venturing is a complex phenomenon that requires the configuration of elements from employees, from the organization and from the context. As was mentioned above, given the complexity of the measures and the limitations of the data, this thesis focused on the analysis of certain variables associated with individual and organizational dimensions in the Spanish context. In particular, we will explore the effect of human capital and individual cognitions on corporate venturing creation in the Chapter III, as well as the effect of human capital and the

perception of the work environment on corporate venturing creation in the Chapter IV. This thesis does not explore the environmental dimension because we assume that the majority of market and regulatory conditions in Spain are pretty similar per region (Callejón and Segarra 1999; Coduras et al. 2011). Therefore, we require data across different countries to explore in-depth all dimensions. It gives an excellent opportunity to continue analyzing this phenomenon in future venues.

CHAPTER III: THE INFLUENCE OF INDIVIDUAL DETERMINANTS ON INDEPENDENT AND CORPORATE VENTURE CREATION IN SPAIN

3.1. Introduction

The link between entrepreneurship and economic growth varies greatly across different types of entrepreneurship, environmental contexts and conditions (Wennekers and Thurik 1999; Westhead 1995). The entrepreneurship literature shows that individuals' characteristics (e.g., human capital, individual perceptions, etc.) are the key determinant of any entrepreneurial action (Bosma 2013; Hornsby et al. 1993; Wiklund and Shepherd 2003; McMullen and Shepherd 2006; Shane et al. 2003).

Regarding human capital, human capital theory distinguishes between general and specific human capital[4] (Becker 1964). According to Parker (2011) and Guerrero and Peña-Legazkue (2013, 2014), while *entrepreneurs* (e.g., individuals who independently create firms) are characterized by a *general* human capital comprised of knowledge, skills and experiences useful for start-up creation, *intrapreneurs* (e.g., individuals who create/founder a new spin-off for a parent firm) acquire a *specific* human capital from training programs, experiences and learning processes within existing organizations that have an entrepreneurial focus (e.g., proactive, innovative and risk-taking oriented firms) and indirectly generate a specific type of managerial human capital in their employees (e.g., intrapreneurial experience) (Guerrero and Peña- Legazkue 2013).

Regarding individual perceptions, cognitive theory distinguishes certain constructs defined by mental representations about how individuals capture their perceptions

[4] The distinction between specific and general human capital helps to elucidate implications of agency problems studies, in which an individual identifies a new opportunity that can be exploited either inside or outside an existing firm (Parker 2011).

(Krueger 2000). In the entrepreneurship field, these perceptions are configured though a combination of individual behaviors and the environmental conditions (Busenitz and Barney 1997) and determine entrepreneurial intentions/actions (Guerrero et al. 2008). According to Liñán et al. (2011a), these perceptions are associated with the existence of role models, skills required to create a venture and risk aversion, among others.

Based on those arguments, the purpose of this chapter is to provide a better understanding about the influence of individual determinants (human capital and perceptions) on corporate venturing creation. Following this introductory section, Section 3.2 explains the arguments linking human capital to venture creation (independent venturing and corporate venturing). Section 3.3 describes the sample, variables and methods used for empirical tests. Then the main results are discussed in Section 3.4. This chapter ends with conclusions and implications in Section 3.5.

3.2. Understanding the individual determinants of independent and corporate venture creation

3.2.1. Individuals' human capital

Based on previous arguments, general human capital (e.g., tertiary education) and specific human capital (e.g., entrepreneurship training, entrepreneurship experience, informal investor experience) can help inspire individuals who are independently creating a new venture (independent venturing) or launching a venture for a parent firm (corporate venturing) (Guerrero and Peña- Legazkue 2013). Individuals with a variety

of experiences, skills and knowledge would be more likely to create an independent or corporate venture, particularly when these individuals face lower opportunity costs of modifying the current position and perceive greater relative returns creating a new firm (Kacperczyk 2012). Therefore, each type of human capital study could explain the different firm creation patterns adopted by entrepreneurs and intrapreneurs (Guerrero and Peña 2013; Klepper 2001; Miles and Covin 2002; Narayanan et al. 2009; Pinchot 1985; Zucker et al. 2002).

Prior studies hold that *education* is an important determinant of firm creation. But the evidence on the effect of education on entrepreneurial choice is not conclusive (Grilo and Thurik 2008). Human capital theory predicts positive returns on education for both wage earners and entrepreneurs (e.g., independent and corporate venturing). The main argument is that tertiary education increases the cognitive abilities of individuals, and these abilities are positively associated with entrepreneurial discovery and firm formation (Davidsson and Honig 2003; Koellinger 2008). However, Gimeno et al. (1997) claim that education leads to the development of skills useful for both an entrepreneur and a wage earner, but there is no a priori effect of education on the choice between entrepreneurship and employment. Similarly, corporate entrepreneurship studies suggest that entrepreneurial employees typically are individuals with the technical knowledge required to manage any intrapreneurial initiative promoted by their employers (Bosma et al. 2010, 2012; Parker 2011). Therefore, we proposed the following hypothesis:

H1a: Individuals with tertiary education are more likely to create a new firm (e.g., independent and corporate venturing).

The entrepreneurship literature has suggested that entrepreneurship education promotes entrepreneurial activities. Particularly, *entrepreneurship education (*e.g., specialized courses and training) provides specific skills and knowledge and reinforces the confidence that individuals need to start their own business (Bosma et al. 2010; Bosma 2013; Bosma et al. 2013; Koellinger 2008; Guerrero and Peña-Legazkue 2013). Prior studies have shown that entrepreneurship education reinforces the feasibility of individuals to become entrepreneurs (Souitaris et al. 2007). For example, in high-income countries, opportunity perception mediates fully the relationship between (postsecondary) entrepreneurship education and training in the country and its rate of (high potential) new business activity (Levie and Autio 2008). Individuals with entrepreneurship education would use this specific knowledge and expertise to engage in entrepreneurial activities. Therefore, we proposed the following hypothesis:

H1b: Individuals with entrepreneurship education/training are more likely to create a new firm (e.g., independent and corporate venturing).

In addition to education, individuals may possess other personal experiences, such as entrepreneurial and informal investor experience. Following the logic of the theory on planned behavior (Ajzen 1991), previous experiences should be positively related to the propensity of individuals to become entrepreneurs (e.g., serial entrepreneurs) or intrapreneurs. According to Maula et al. (2005), previous entrepreneurial experience should improve an individual's perception of his or her own ability to identify new opportunities, select good targets and to control these for optimal outcome. For example, Hyytinen and Ilmakunnas (2007) distinguish that a serial entrepreneur is someone who, having worked in the past as an entrepreneur, increases *both* the

probability that a person presently in paid employment aspires to again become an entrepreneur *and*, holding the aspirations constant, the probability of him or her again becoming an entrepreneur. They also find that an employee with entrepreneurial aspirations is more likely to subsequently become an entrepreneur than an employee without such aspirations. Therefore, we proposed the following hypothesis:

H1c: Individuals with entrepreneurial experience are more likely to create a new firm (e.g., independent and corporate venturing).

Past studies consistently show that informal investors are usually highly educated, have high-income levels and have developed past managerial or entrepreneurial experience (Landström 1998; Mason and Harrison 1999; Maula et al. 2005; Politis and Landström 2002). Usually informal investor experience is a relevant specific human capital that represents individuals' skills and capabilities to identify critical factors/conditions and to evaluate successful start-ups before investing their own money. Therefore, informal investors have access to privileged information, ideas, networks, funding and other resources that are critical for identifying opportunities and creating new firms (Larson and Starr 1993). In general, the role of experience and path dependence is confirmed by the fact that individuals try to replicate positive experiences. Therefore, we proposed the following hypothesis:

H1d: Individuals with informal investor experience are more likely to create a new firm (e.g., independent and corporate venturing).

3.2.2. Individuals' perceptions

The cognitive perspective contributes to the better understanding of the identification-exploitation entrepreneurship process. Specifically, it analyzes the role of several individuals' perceptions on entrepreneurial intentions/actions (Krueger 2000). According to this approach, perceptions are mental representations about the personal and environment characteristics around individuals (Liñán et al. 2011a,b). These mental representations vary among individuals' career profiles (e.g., entrepreneurs, intrapreneus, managers, paid employed, self-employed) based on their different cognitive biases (Busenitz and Barney 1997). For instance, influenced by their work conditions characterized by high uncertainty and time pressure, entrepreneurs/intrapreneurs are more susceptible to several cognitive biases than other individuals. Compared with other professions, entrepreneurs/intrapreneurs are more able to perceive higher confidence in their own capacities/skills to start a business. Therefore, individuals who consider themselves as capable of successfully performing as entrepreneurs will, as a result, have a greater probability of becoming entrepreneurs or intrapreneurs (Krueger and Carsrud 1993; Guerrero et al. 2008; Guerrero and Peña-Legazkue 2013, 2014). Therefore, we proposed the following hypothesis:

> *H2a: Individuals that perceive that have the skills required to become entrepreneur are more likely to create a new firm (e.g., independent and corporate venturing).*

Another perception related to entrepreneurial cognitions is the existence of role models. The demonstration of some people and the examples they project may influence others' decisions or behavior (Ajzen 1991; Akerlof and Kranton 200). In fact, this premise

holds also for individual's occupational choice (Krumboltz et al. 1976). Bosma et al. (2010) assert that a role model is a common locus to individuals who set examples to be emulated by others and who may stimulate or inspire other individuals to make certain (career) decisions and achieve certain goals (Basow and Howe 1980). Therefore, role models may also enhance the desire to become an entrepreneur and the entrepreneurial self-efficacy of individuals (Van Auken et al. 2006). This may, in turn, positively influence entrepreneurial intentions and, ultimately, entrepreneurial activity (Krueger et al., 2000). In particular, entrepreneurial role models explain the process of learning by replicating the action of other entrepreneurs/intrapreneurs through observing them doing it (Liñán et al. 2011b). Previous studies found that individuals whose parents are entrepreneurs also become entrepreneurs (Liñán et al. 2011a). In this sense, role modeling is different to imitation because observational learning and perceptions change the behavior of individuals through a cognitive process of four stages: attention, retention, reproduction and, finally, motivation (Bandura 1977). Therefore, we proposed the following hypothesis:

H2b: Individuals that perceive role models are more likely to create a new firm (e.g., independent and corporate venturing).

Previous studies argued that risk plays an important role in any entrepreneurial activity (Shane et al. 2003). It influences individuals' decisions either in engaging in such activity or refraining from it, provided they are generally risk averse. However, individuals perceive the risk associated with starting a venture differently. Some (entrepreneurs) unintentionally simplify their information processing to diminish the stress and ambiguity associated with the decision to start a venture (Duhaime and

Schwenk, 1985; Hansen and Allen, 1992), in that sense they are prone to biasness (Busentiz and Barney, 1997). Without making it a causal relationship, 95% of entrepreneurs believe that their ventures will succeed despite the fact that half of all ventures fail (Cooper et al., 1988). Objectively, situations faced by entrepreneurs are riskier than situations faced by managers (Busenitz and Barney 1997). However, the former perceived less risk than the latter because of cognitive biases such as overconfidence (Simon et al. 2000). Following these ideas, entrepreneurs/intrapreneurs are expected to perceive risks and show lower fear of failure. Therefore, we proposed the following hypothesis:

H2c: Individuals that perceive fear of failure are less likely to create a new firm (e.g., independent and corporate venturing).

Kirzner (1978, 1979) asserts that business opportunities are objectively available in the environment and need to be perceived and captured. On the other had Sarasvathy (2001) and Schumpeter (1934) conclude that business opportunities are created by decision makers (entrepreneurs). In other words, an entrepreneur may require access to existing information in the environment and through his or her creativity (Koellinger 2008). The integration of an individual's creativity, the characteristics of markets and the availability of financing increase the existence of opportunities. In this scenario, individuals who perceive these opportunities reinforce the feasibility and desirability to create a venture (Krueger 2000; Guerrero et al. 2008). Therefore, the cognitive process makes some individuals more sensitive than others to the perceived opportunities in the market as well as the availability of resources (Shane and Venkataraman 2000). In this sense, the perception of entrepreneurial opportunities acts as a precipitating factor and

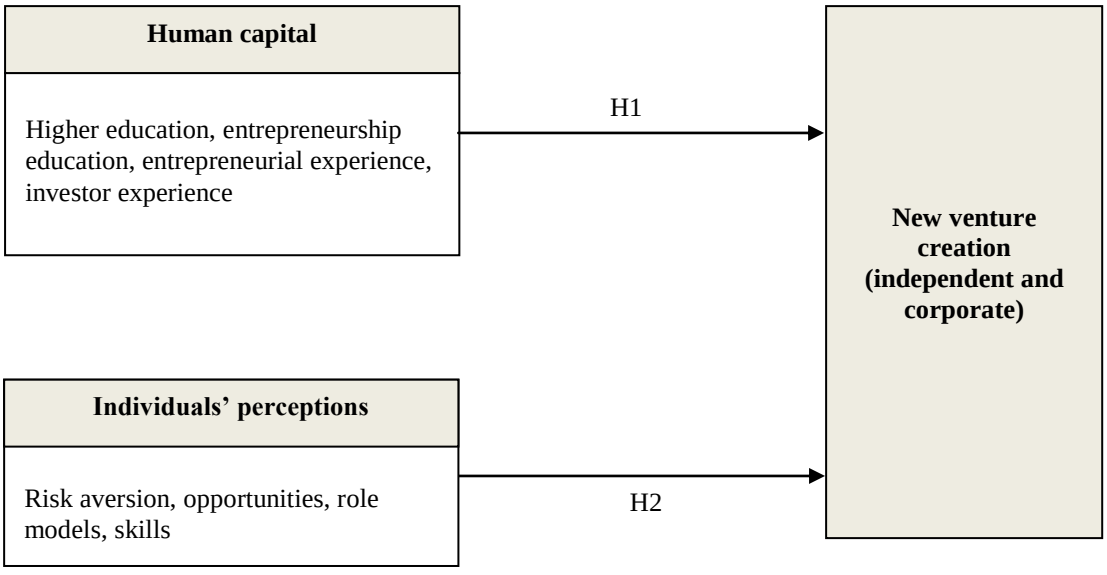
also reinforces other individual perceptions associated with the entrepreneurial process (Krueger and Carsrud 1993). Therefore, we proposed the following hypothesis:

H2d: Individuals that perceive opportunities are more likely to create a new firm (e.g., independent and corporate venturing).

3.2.3. Proposed conceptual model

Based on the previous literature review, Figure 3.1 shows the conceptual model proposed in this paper. In summary, it is possible to identify the influence of individuals' human capital (H1) and individuals' perceptions on the creation of corporate ventures (H2) on the creation of new ventures (independent and corporate).

Figure 3.1: Proposed conceptual framework



Source: Author.

3.3. Methodology

3.3.1. Data collection

Data was collected from the 2012 and 2013 Global Entrepreneurship Monitor (GEM) Adult Population Survey. The GEM project is an international research program focused on the analysis of entrepreneurial activity around the world. In each country, representative samples of randomly selected adults (at least 2,000 per country) are surveyed every year to estimate the percentage of the adult population involved in firm start-ups. The same data-collecting and -sampling methods are applied by all research members of the project in order to achieve comparable results (Reynolds et al. 1994 and 2005). In the case of GEM Spain, those criterions are adopted by each autonomous community (e.g., Spain comprises 17 autonomous communities).

Annually, the GEM project allows some additional questions in the APS Survey to explore in-depth a relevant issue at the international level. In 2012 and 2013, the Basque Country Team included some questions that allow for the identification of corporate venturing creation. For this reason, this study only used these databases because it includes some questions that help to understand the effect of human capital on both types of entrepreneurial activities (e.g., independent and corporate venturing). In summary, the database was integrated by 46,500 responses from individuals between 18-64 years old.

3.3.2. Description of variables

Following prior research (Autio 2007; Autio and Acs 2007, 2010; Autio et al. 2007; Bosma et al. 2004, 2010; De Jong et al. 2011; Parker 2011), the first dependent variable, *independent_ventures,* is a dummy variable that takes the value 1 when an individual has recently created a new business (i.e., a venture younger than 42 months old) and 0 otherwise. The second dependent variable, *corporate_ventures*, is a dummy that takes the value 1 when an individual-entrepreneur is has recently created a new venture for an employer.

Regarding human capital (Bosma and Levie 2010; Bosma et al. 2010; De Jong et al. 2011; Guerrero and Peña-Legazkue 2013, 2014; Parker 2011), our main set independent variables are: (1) *Entre_experience*, as a dichotomous variable indicating whether the individual has shut down a business in the past 12 months; (2) *Investor_experience*, as a dichotomous variable indicating whether the individual invested his or her own funds into private-held entrepreneurial ventures started by others during the past three years; (3) *Entre_training*, as a dichotomous variable indicating whether the individual has received some education related to the start-up of an enterprise or business throughout his or her life; and (4) *Educ_higher*, as a dichotomous variable indicating whether the individual holds at least a university degree (e.g., it also includes some individuals who mentioned that they hold master and doctoral degrees).

Concerning individuals' perception, we explored some individual perceptions based on Liñán et al. (2011) and Yousafzai et al. (2015): (1) *Perceived_fearfailure,* as a dichotomous variable indicating whether the individual considers that fear of failure would prevent him or her from setting up a business and 0 otherwise; (2) *Perceived_opportunities*, as a dichotomous variable indicating whether the individual

has perceived entrepreneurial opportunities to start a firm in the area where they live in the 6 months and 0 otherwise*; (3) Perceived_rolemodels*, as a dichotomous variable indicating whether the individual has perceived the existence of someone who had started a business in the 2 years preceding the survey and 0 otherwise; and *(4) Perceived_skills,* as a dichotomous variable indicating whether the individual has perceived that they have skills and knowledge to start a business and 0 otherwise.

We added other individual-related control factors because GEM surveys capture very basic information on the social and financial capital of the respondent (Bosma 2013). Our study considered other variables that seem to explain the choice of firm creation by individuals, including: (1) *PIncome_higher*, as a dichotomous variable indicating whether the individual's annual income is higher than 30,000 euros per year; (2) *Gender*, as a dichotomous variable indicating whether the individual is male; (3) *Age*, as a continuous variable indicating the age of the individual; and (4) *Region* as a dummy variable indicating the autonomous community the individual was interviewed.

3.3.3. Data analysis

Given the nature of the dependent variable (e.g., dichotomous), the method of analysis used was a binominal logistic regression to estimate the probability of an event happening; in this case, the effect of generic (e.g., tertiary education) and specific (e.g., entrepreneurial experience, informal investor experience, entrepreneurship education) human capital as well as individual perceptions (e.g., opportunities, fear of failure, know entrepreneurs, skills) on the number of new ventures created from/for parent firms (corporate ventures) or by individuals' own ventures (independent ventures).

The predicted proportion follows the logistic model of $Ln\ P/(1 - Pi) = \beta Xi$, where *Pi* is the probability of being an individual with one type of human capital involved in the creation of a new business (Hosmer and Lemeshow 1989). The logarithmic odds of these events are held to be linearly affected by a vector of covariates *Xi* with coefficient vector β. Maximum likelihood estimations were used to calculate the logit coefficients, which denote changes in the log odds of the dependent variable (Greene 2003). We assessed the goodness of fit of the models using the Pearson Chi-square test, the rate of correct classification and the pseudo R-square. The significance of each independent variable was tested using Wald statistics. Model I tested the model for all ventures, Model II tested the impact of individuals' human capital and perceptions on corporate venturing and Model III tested the effect of individuals' human capital and perceptions on independent venturing. The correlation matrix shows that the variables are not highly correlated (see Table 3.1).

Table 3.1: Descriptive statistics and correlation matrix

No	Variables	N	Mean	SD	Min	Max	1	2	3	4
1	All ventures	46500	0.05	0.22	0	1	1			
2	Corporate ventures	44268	0.01	0.08	0	1		1		
3	Independent ventures	46247	0.05	0.21	0	1			1	
4	Higher_education	46500	0.23	0.42	0	1	0.0473*	0.0528*	0.0333*	1
5	Entre_education	45871	0.29	0.46	0	1	0.1008*	0.0290*	0.0978*	0.0794*
6	Entrepreneurial_experience	46477	0.02	0.14	0	1	0.0561*	0.0243*	0.0525*	0.0095
7	Investor_experience	46451	0.03	0.18	0	1	0.0298*	0.0198*	0.0255*	0.0333*
8	Perceived_rolemodels	46029	0.30	0.46	0	1	0.1775*	0.0681*	0.1675*	0.0491*
9	Perceived_opportunities	41691	0.15	0.35	0	1	0.0773*	0.0221*	0.0750*	0.0175*
10	Perceived_skills	45041	0.49	0.50	0	1	0.1837*	0.0592*	0.1759*	0.0736*
11	Perceived_fearfailure	45003	0.52	0.50	0	1	-0.0627*	-0.0117	-0.0627*	0.0110
12	Gender	46500	0.50	0.50	0	1	0.0473*	0.0208*	0.0435*	-0.0004
13	Age	46500	41.09	12.72	18	64	-0.0305*	0.0161*	-0.0375*	-0.0471*
14	Income_higher	46500	0.24	0.43	0	1	0.0329*	0.0243*	0.0271*	0.2507*
15	Sample	46500	0.50	0.50	0	1	-0.0105	-0.0359*	0.0005	-0.5744*
16	Region	46500	9.45	4.78	1	19	-0.0095	-0.0038	-0.0088	0.0569*

Continues Table 3.1.

No	5	6	7	8	9	10	11	12	13	14	15
5	1										
6	0.0383*	1									
7	0.0538*	0.0720*	1								
8	0.1226*	0.0626*	0.1213*	1							
9	0.0598*	0.0096	0.0354*	0.0873*	1						
10	0.2228*	0.0882*	0.0717*	0.1745*	0.0930*	1					
11	-0.0339*	-0.0044	-0.0148*	0.0074	-0.0098	-0.0264*	1				
12	0.0542*	0.0285*	0.0244*	0.0474*	0.0438*	0.0894*	-0.0720*	1			
13	-0.1140*	0.0341*	0.0467*	-0.0749*	-0.0433*	0.0130*	-0.0391*	-0.0263*	1		
14	0.0413*	-0.0058	0.0632*	0.0756*	0.0357*	0.0655*	-0.0257*	0.1214*	0.0684*	1	
15	-0.0114	-0.0045	-0.0153*	0.0067	-0.0033	-0.0024	-0.0385*	0.0018	-0.0117	-0.1754*	1
16	-0.0201*	-0.0107	-0.0004	-0.0146*	-0.0096	-0.0184*	0.0016	-0.0035	0.0110	0.0357*	-0.0668*

Note: *p≤0.001.

Source: Author.

3.4. Results and discussion

Table 3.2 shows the effect of each dimension of human capital and perceptions on the creation of corporate ventures (Model II) and independent ventures (Model III) in Spain.

Table 3.2: Logit estimations

	Variables	Model I All Ventures			Model II Corporate Ventures			Model III Independent Ventures		
		Coef.	S.D.	Sig.	Coef.	S.D.	Sig.	Coef.	S.D.	Sig.
Human Capital	Higher_education	0.27	0.07	***	0.80	0.27	**	0.20	0.07	**
	Entre_education	0.30	0.05	***	0.19	0.04	*	0.31	0.05	***
	Entrepreneurial_experience	0.53	0.11	***	0.55	0.23	*	0.53	0.11	***
	Investor_experience	- 0.11	0.10		0.15	0.26		-0.16	0.10	
Human Perceptions	Perceived_rolemodels	1.16	0.05	***	1.43	0.20	***	1.14	0.05	***
	Perceived_opportunities	0.37	0.05	***	0.31	0.13	**	0.38	0.05	***
	Perceived_skills	1.69	0.07	***	1.42	0.20	***	1.73	0.07	***
	Perceived_fearfailure	- 0.47	0.04	***	- 0.22	0.12	*	- 0.50	0.04	***
Control Variables	Gender	0.18	0.04	***	0.33	0.13	**	0.16	0.05	***
	Age	-0.01	0.00	***	0.02	0.01	***	-0.01	0.00	***
	Income_higher	0.02	0.05		- 0.00	0.14		0.02	0.05	
	Sample	0.04	0.06		- 0.53	0.27	*	0.10	0.06	*
	Region	controlled			controlled			Controlled		
	_cons	- 7.62	1.24		1.06	0.55	*	- 2.13	1.26	*
	N	45871			43660			45621		
	Wald chi2	2212.08			655.36			2000.17		
	Prob>chi2	***			***			***		
	Pseudo R2	0.17			0.16			0.16		

Note: ***p≤0.001, **p≤0.05,*p≤0.10.

Source: Author.

3.4.1. Evidence of individuals' human capital on Spanish new venture creation

College provides knowledge that is helpful to manage and develop an entrepreneurial activity. In the case of Spain, our results evidenced positive and significant coefficients in the variable *Higher_education* for both Model I (0.80; $p \leq .05$) and Model II (0.20; $p \leq .05$). In our sample, Spanish people with tertiary education are more likely to create a new venture (supporting H1a); specially, odds ratio shows that corporate entrepreneurs are more likely to create a venture when they have higher education (2.2 times) than independent entrepreneurs (1.2 times). Even though there is not consensus about the effect of education on entrepreneurship (Grilo and Thurik 2008), our results are aligned with the Parker (2011) and De Jong et al. (2011) studies, which demonstrated that general human capital, such as higher education, has a strong effect on venture creation. In addition, our results showed a higher effect on individuals involved in corporate than independent venturing. Interestingly, these results are not similar to Guerrero and Peña-Legazkue (2014). A plausible explanation for this could be associated with the measures of corporate venturing used in both studies. Concerning entrepreneurship education, results show positive and significant impact of having received some training related to entrepreneurship on independent venturing (0.31; $p \leq .001$) and on corporate venturing (0.19; $p \leq .10$). This means that, in our sample, people with some entrepreneurship education/training are more likely to create a new venture (supporting H2a); in particular, odds ratio shows that independent entrepreneurs are slightly more likely to create a venture when they had received some entrepreneurship training (1.3 times) than corporate entrepreneurs (1.2 times). These results confirm the importance of

entrepreneurship education in reinforcing individuals' feasibility (Bosma 2013; Bosma et al. 2010; Guerrero and Peña-Legazkue 2013, 2014).

Regarding individuals' experiences, our results show a positive effect of entrepreneurial experience on both independent venturing (0.53; $p \leq .001$) and corporate venturing (0.55; $p \leq .10$); supporting our H1c. According to the odds ratio, both corporate and independent entrepreneurs (1.7 times, respectively) are equally likely to create a venture when they had previous start-up experience. Our results are aligned to previous empirical studies that have shown the advantages of experienced start-up funders in the creation and development of entrepreneurial initiatives (Hyytinen and Ilmakunnas 2007; Maula et al. 2005). Based on the proxy used to measure this experience (individuals who have disclosure a venture in the previous year), intuitively these results also showed the phenomenon of serial entrepreneurship in those individuals who have created an independent or corporate venture (Blanchflower 2004; Levesque and Minniti 2006; Podoynitsyna et al. 2012; Zhang 2011). On the other hand, contrary to our expectations, in this sample, we did not find evidence about the influence of investor experience and the propensity to participate in the development of entrepreneurial activities (independent or within existing organizations). Thus, we did not find support for H1d, which states that individuals with investor experience are more likely to create a new firm (e.g., independent and corporate venturing). A potential explanation could be linked to the culture or understanding about inversion in Spain that is reflected in the lower number of individuals who annually GEM recognizes have invested in a new venture (Peña-Legazkue et al. 2015).

3.4.2. Evidence of individuals' perceptions on Spanish new venture creation

The analysis about individuals' perceptions about the capacities/skills to start a business showed positive and significant coefficients for both corporate (1.42; $p \leq .001$) and independent entrepreneurs (1.73; $p \leq .001$); supporting H2a. Our results are also aligned with the empirical findings of previous studies (Busenitz and Barney 1997), which recognized how those mental representations differ among the individuals' profiles. For instance, in comparison with the rest of individuals' human capital and perceptions, the effects of mental representations about capacities/skills to start a business are the strongest of all variables included (odds-ratios are 4.1 for corporate entrepreneurs and 5.6 for independent entrepreneurs). An explanation could be associated with our previous results about the influence of entrepreneurship training on both groups as well as the support provided by the parent ventures in the case of corporate entrepreneurs.

Concerning the perception of role models, our results confirm the positive effect of knowing a role model on corporate ventures (1.43; $p \leq .001$) and independent ventures (1.14; $p \leq .001$). According to the odds ratio, corporate entrepreneurs (4.2 times) are more likely to create a venture when they had role models than independent entrepreneurs (3.1 times). Given the nature of intrapreneurial activities, it is interesting to note that Spanish intrapreneurs are more influenced by role models. Maybe it could be explained by the necessity that they have to learn or replicate actions observed from other entrepreneurs it (Liñán et al. 2011a). It requires a mechanism to reinforce the lack or effect evidenced on entrepreneurship training. Based on our results, H2b is supported

as well as aligned with previous empirical studies (Liñán et al. 2011b; Guerrero and Peña-Legazkue 2014).

According to the entrepreneurship literature, risk of failure decreases entrepreneurial actions (Shane et al. 2003). In this regard, our results show a negative effect linked to the perception of fear of failure on the creation of corporate ventures (-0.22; $p \leq .10$) and independent venture (-0.50; $p \leq .001$); supporting H2c. The effect of fear of failure for corporate entrepreneurs is slightly lower than for independent entrepreneurs. The main argument behind this evidence is that corporate entrepreneurs are under the umbrella of a parent venture that could reduce this effect by supporting them with the required resources, capabilities, networks and knowledge about the market (Parker 2011). In this scenario, the perception of failure could be lower for corporate entrepreneurs than independent entrepreneurs who faced more risks alone. However, the situations could become similar when the permanence in the parent company of corporate entrepreneurs is associated with the success of the new organizational venture. Therefore, the overconfidence associated with less risk by corporate entrepreneurs could be similar to independent entrepreneurs (Busenitz and Barney 1997; Simon et al. 2000).

On the other hand, the results also show the positive effect of perception of opportunities on the creation of corporate ventures (0.31; $p \leq .05$) and independent ventures (0.38; $p \leq .001$). In terms of odds ratio, both corporate and independent entrepreneurs with role models have almost the same propensity to create ventures (1.4 times and 1.5 times, respectively). Therefore, this evidence supports our H2b and it is aligned with previous empirical studies (Liñán et al. 2011a; Krueger 2000; Guerrero et

al. 2008). According to Krueger and Carsrud (1993), the identification and exploration of opportunities could acts as a triggering determinant of any entrepreneurial process.

3.5. Conclusions

The entrepreneurial process is fundamentally an individual phenomenon. Following this perspective, this chapter explored the role of human capital and perceptions on firm creation using data from the 2012 and 2013 GEM Spanish adult population from 18 to 64 years old. Modestly, this study contributes to the broad field of entrepreneurship by adopting ideas from several approaches (i.e., entrepreneurial cognitions, entrepreneurial action, entrepreneurial orientation and corporate entrepreneurship) to provide new insights on the determinants of new venture creation at the individual level. More precisely, we explored how *human capital and perceptions* can be capitalized on by an individual not only for achieving organizational objectives (create a corporate venture) but also for personal occupational choices (create an independent venture).

This study is not exempt from limitations. Our sample reflects the specific economic context, but it is an opportunity to replicate the methodology or to perform comparative studies using data from other countries (e.g., using data from other participants in the GEM project) and to include other theoretical perspectives or variables to explain the differences of both types of entrepreneurship (e.g., at organizational, institutional or economical levels). Other shortcomings are the proxies of the main independent variables. Therefore, future studies should take into account the effect of other experiences, such as prior labor experience and managerial experience. Finally, this analysis highlighted the importance of individual determinants of corporate venturing.

But there are also other relevant elements behind corporate and independent entrepreneurship, such as the organizational environment (e.g., promote training activities or facilities to innovate) and the entrepreneurial ecosystem (e.g., provides the conditions for informal investor networks, the attraction of foreign talent human capital, educational and labor systems). In this sense, a natural extension of this thesis should be the analysis about the influence of the corporate work environment that also predisposes individuals to favor intrapreneurship over entrepreneurship (see Chapter IV).

Based on these results, in the Spanish context, one of the most important practical implications would be linked to the efficient distribution of funding oriented to foster entrepreneurship training to both unemployed and employed people, in particular during recessionary periods, when entrepreneurship is considered by policy makers as an alternative to reduce higher levels of unemployment and to help existing firms be more competitive via diversification or rejuvenation of firms in the regions. Therefore, our results show the externalities or indirect effect of human capital on both intrapreneurs and entrepreneurs.

CHAPTER IV: THE INFLUENCE OF THE WORK ENVIRONMENT ON CORPORATE VENTURING CREATION IN SPAIN[5]

[5] Alrumaithi, E., Guerrero, M., & Peña, I. (2015). The Role of Employee's Human Capital and the Work Environment on the Creation of Organizational Spin-Offs: Evidence from Spain. In *Entrepreneurship, Human Capital, and Regional Development* (pp. 59-74). Springer International Publishing.

4.1. Introduction

Chapter III showed the relevance of human capital in any entrepreneurial activity. Focusing on corporate venturing, in the past decade several individual (education, fear of failure, risk taking) and organizational factors (autonomy, organizational structure, etc.) have been examined (Sathe 1985; Covin and Slevin 1991; Rutherford and Holt 2007). Parker (2011) demonstrated that human capital (generic and specific) is a relevant individual factor during the creation of new ventures and also helps to distinguish the main characteristics of independent new ventures from corporate ventures.

Corporate entrepreneurship studies have shown certain work environment characteristics that increase/retard the propensity of corporate venturing activities within existing organizations (Zahra et al. 1999; Hornsby et al. 2002; de Jong et al. 2011). However, insights and research concerning determinant factors (work environment/human capital) of organizational spin-offs at the individual level are limited. Therefore, the main objective of this chapter is to understand the roles of employee human capital and the work environment on the creation of ventures "from" and "for" an existing organization (corporate venturing).

This introduction is followed by Section 4.2, which provides an explanation of the conceptual framework; in particular, the roles of human capital, the work environment and the interaction effect of the work environment on the creation of corporate ventures. Section 4.3 describes the methodological section presents the main characteristics of the sample, variables and the model used in the statistical analysis. Section 4.4 outlines the main results. Section 4.5 includes the main conclusion and implications of this analysis.

4.2. Understanding the role of human capital and the work environment on corporate venturing capital

4.2.1 Human capital

Scholars have studied in-depth the importance of human capital in entrepreneurial ventures. They have proposed that human capital comprised of education, experience and skills plays a vital role in the entrepreneurial process (Oosterbeek et al. 2010). Human capital refers to skills and knowledge that individuals acquire through investments in schooling, on-the-job training and other types of experience (Becker 1964). In other words, individuals with appropriate knowledge (education, skills, experience) are more able to identify and perceive economic opportunities for exploitation. According to Polanyi (1967), knowledge could either be explicit (know what) or tacit (know how). Explicit knowledge refers to information carried out in procedures, processes, formal written documents and educational institutions (Davidsson and Honig 2003). For example, a postsecondary degree is considered explicit knowledge carried out in an educational institution, whereas tacit knowledge includes "non-codified" activities such as experience obtained on the job (Davidsson and Honig 2003). Consequently, the integration of explicit and tacit knowledge is believed to facilitate individuals' decisions to act entrepreneurially.

Early human capital literature proposed two streams of human capital schemes: generic and specific (Becker 1964). Generic human capital encompasses skills, knowledge, experience and capabilities that are useful for management in existing organizations.

Specific human capital encompasses skills, knowledge, experience, and capabilities obtained for special purposes, such as the development of a new venture. According to Parker (2011), these two types of human capital could explain the differences among entrepreneurs and intrapreneurs. In this paper, the generic human capital factor is analyzed via *higher education* and the specific human capital factor is analyzed via *entrepreneurship education*.

Generic human capital includes formal education. Prior studies have focused on the influence of education level on individuals' entrepreneurial activities (Sexton and Kent 1981; Brockhaus 1982; Gasse 1982). Those studies have shown a strong impact on individuals' capabilities that are necessary to identify and to exploit opportunities (Unger et al, 2011). Thus, educational attainment is connected to the decision and success of becoming self-employed, as well as the potential success (Delmar and Davidsson 2000). Following this perspective, previous studies have found positive relationships between education and proactive behaviors (LePine and Van Dyne 1998) and also with continuous improvement (Fuller et al. 2006).

Educated people are more likely to be proactive and take risks to advance their careers. Entrepreneurial behaviors are generally associated with better job performances and appraisals, and the pursuit of opportunities makes the most out of individuals' human capital investments. Also, different levels of education (high school, college degree, master degree and doctorate) could affect entrepreneurial activities distinctively. The effect of each educational level on entrepreneurship has been studied; however, there is no consensus in the findings (Evans and Leighton 1989; Bellu et al. 1990; Davidsson 1995; Honig 1996; Gimeno et al. 1997; Reynolds 1997; Reynolds et al. 2005).

As a result, there is contrasting evidence about how generic human capital impacts on an individual's entrepreneurship choice (Davidsson and Honig 2003; Grilo and Thurik 2008; Parker 2009). For the purpose of this exploratory study, the emphasis is on higher education (college degree). Blanchflower (2004) found that higher education has a positive impact on entrepreneurial activities. Indeed, Koellinger (2008) showed that higher education increases individuals' abstract thinking, curiosity and strong interest to find general solutions to problems.

For instance, Bosma et al. (2010) found that employees with this kind of knowledge are expected to participate or to be involved in the identification and development of entrepreneurial activities (new products/services, new business units, spin-offs) within the organization, particularly when they have perceived the support of their employers. Therefore, employees with higher education are more likely to create an corporate venture (spin-offs) because the knowledge they accumulated makes them believe they have the capacity to do it. Consequently, we proposed the following hypothesis:

H1a: Employees with a higher level of education are more likely to engage in the creation of corporate ventures than employees with a lower level of education.

Specific human capital includes non-formal education, such as training courses to reinforce specific capabilities such as entrepreneurship (Gorman et al. 1997). Prior studies have shown that *entrepreneurship education* promotes entrepreneurial activities (Levie and Autio 2008). Also, policy makers have endorsed entrepreneurship through

specific entrepreneurship educational platforms (European Commission 2006). Entrepreneurship education has been incorporated into the educational programs of many countries (Kuratko 2005; European Commission 2006). A key assumption is that entrepreneurship skills can be taught, and it has been shown in several investigations' findings that: (i) a positive effect has been measured in years of schooling on entrepreneur performance (Van der Sluis et al. 2006; Van der Sluis and Van Praag 2007) and (ii) a positive/effective effect of business training has been measured in the performance of people who start their own business (Karlan and Valdivia 2011). The main debate has been focused on which type of educational level (middle school, high school and college) needs to incorporate entrepreneurship education programs in order to be more effective.

Entrepreneurship education, therefore, would not have the same effects on all type of students. However, entrepreneurship training primes individuals to engage in entrepreneurial activities; the theory of planned behavior (Ajzen 1991) states that planned behaviors are intentional and thus are predicted by intention toward that behavior (Souitaris et al. 2007). Dyer and Dickinson (1994) suggested that specialized courses in entrepreneurship, or training programs about how to start a business, might give people the confidence to start their own business (Gorman et al. 1997). Under this point of view, employees enrolled in organizations with an entrepreneurial orientation and those who possess entrepreneurship education and training could apply this specific knowledge and expertise to engage into entrepreneurial activities within the organization (i.e., creation of organizational spin-offs). Therefore, we proposed the following hypothesis:

H1b: Employees with prior entrepreneurship education training are more likely to engage in the creation of corporate ventures than employees without entrepreneurship education training.

4.2.2. Work environment

An adequate work environment is important to encourage, adopt, and create value through new business ideas or innovations inside existing organizations. In general, within organizations there are employees with innovative ideas, but only a few concepts are retained and exploited with the support of the employers. Previous studies have determined several factors that kill the spirit of innovation as well as several factors that provoke employees' willingness to bring forth their innovative ideas within and for parent firms (Zahra 1991; Zahra and Covin 1995; Zahra et al. 1999).

In particular, these studies have shown the relevance of internal organizational factors such as incentive and control systems (Sathe 1985), organizational culture (Kanter 1985; Hisrich and Peters 1986), organizational structure (Covin and Slevin 1991; Naman and Slevin 1993; Dess et al. 1999) and managerial support (Stevenson and Jarillo 1990; Kuratko et al. 1990). Thus, this study examines the impact of *job autonomy* on fostering corporate venture creations, in particular how these factors may help encourage employees to participate actively in the creation of organizational spin-offs for their employers.

Job autonomy is defined as the ability to determine independently how to perform a job or a task (Axtell et al. 2000), a personal initiative, an idea implementation or to problem

solve (Bindl and Parker 2010). Therefore, job autonomy represents the degree of discretion given to employees to perform their jobs based on their timing and method and without criticizing employees when they commit mistakes (Kuratko et al. 1990; Hornsby et al. 1999; Hornsby et al. 2002). This scheme provides employees with the environment in which their personal initiatives, idea implementation and problem solving are manifested (Bindl and Parker 2010). Interestingly, job autonomy is one of the core constructs in the assessment of an adequate climate that promotes corporate entrepreneurship (Hornsby et al. 1993; 2002).

Previous studies have demonstrated that job autonomy is correlated with the number of ideas developed and implemented by higher-level managers within existing organizations (Ling et al. 2008). Moreover, at the individual level, previous studies have connected job autonomy with various elements of entrepreneurship activities (i.e., degrees of discretion might distract employees from focusing on exploring new innovative ideas). In general, the evidence suggests that employees with job autonomy participate actively in the development or implementation of entrepreneurial activities within organizations with an entrepreneurial orientation (Hornsby et al. 2002).

Other studies have also concluded that employees with job autonomy demonstrate more innovative behavior and satisfaction (Axtell et al. 2000). Employees who perceive autonomy are more likely to generate, transfer and exploit innovative ideas. As a consequence, these types of employees are considered a relevant intangible within existing organizations that could be responsible for the performance and the competitive advantage of their firms. Therefore, employees with job autonomy are expected to

engage in corporate venture creation. Consequently, we proposed the following hypothesis:

H2a: Employees who perceive job autonomy in the work context are more likely to engage in the creation of corporate ventures than employees who do not perceive autonomy at work.

4.2.3. The moderation effect of the work environment

The creation of a new venture may be influenced by several organizational and individual factors. Undoubtedly, those factors could have both a direct and an indirect effect on the propensity to create a new venture. Based on previous studies, this paper also explores the moderation effect of the work environment (job autonomy) on the relationship between human capital (generic: higher education; specific: entrepreneurship education) and the creation of corporate ventures (spin-offs, start-ups, spin-outs).

The moderation effect of the work environment on generic human capital: Previous sections presented several arguments regarding how generic human capital (higher education) and the work environment (job autonomy) would influence employees' decision to act entrepreneurially and on the active participation in the creation of corporate ventures for the parent firm. During their daily activities, employees with a higher level of education are individuals who possess the technical knowledge required to identify opportunities, linked or not with the core business of their employers, that

later would be transformed into economic and social value for the organization (Hornsby et al. 2002; Arnold et al. 2007).

In general, those employees might exploit these opportunities either on behalf of their organization (participating in the creation of new product/services, business unit or new organizations) or for themselves (becoming independent entrepreneurs). This decision would be mediated by the work environment. Undoubtedly, an adequate work environment that encourages and supports innovations and new business ideas persuades employees to participate actively within and for their organization (Parker 2011). Otherwise, employees would keep their innovative ideas for themselves and exploit them outside the organization, possibly even becoming rivals. Employees who have a higher level of education and perceive job autonomy during their daily work are more likely to promote potential economic opportunities than others. Therefore, the moderation effect of job autonomy on employees with a higher level of education provides to them the elements (satisfaction, authenticity and self-efficacy) required to develop, implement and lead the creation of corporate ventures with the support of parent firms (Rosso et al. 2010). As a consequence, we proposed the following hypothesis:

H3a: Employees with a higher level of education, moderated by the perception of job autonomy, are more likely to engage in creating corporate ventures than employees with a lower level of education.

The moderation effect of the work environment on specific human capital: As mentioned, entrepreneurship education provides individuals with the specific skills and

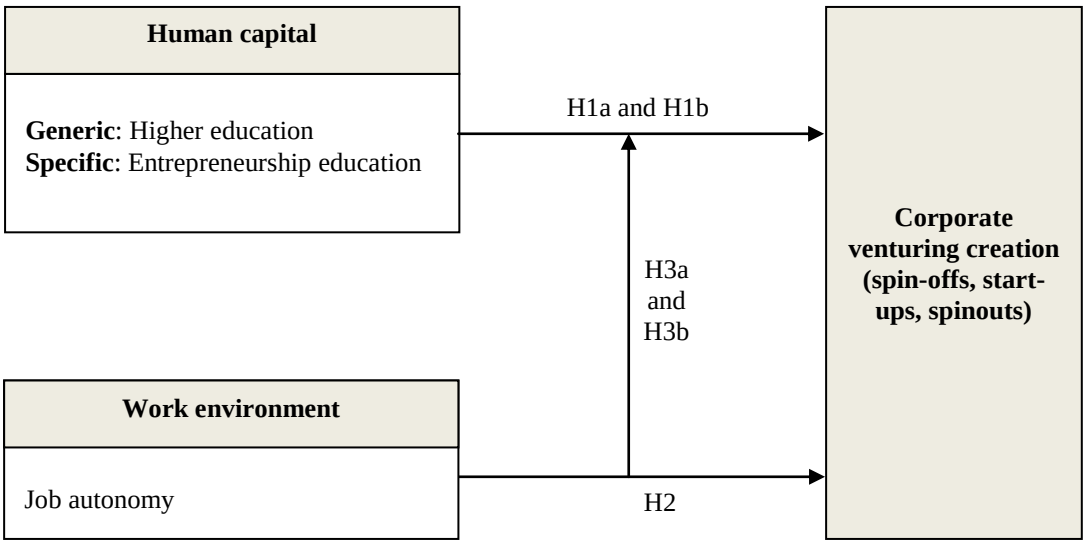
knowledge that reinforce their confidence to start their own business (Dyer and Dickinson 1994). Parker (2009) argues that employees' specific human capital influences the development path of a new idea or the culmination of an innovation. Following this perspective, the perception of job autonomy could mediate that employees with this specific entrepreneurship training would be more creative, innovative and proactive in the implementation and development of entrepreneurial activities within existing organizations (Axtell et al. 2000) and generate a higher added value for their organization (Nord et al. 1990; Harpaz and Fu 2002). In this context, the moderation effect of the work environment on entrepreneurship education enhances specific individuals' skills and personal incentives to participate in the creation of start-ups with the support of a parent firm. Therefore, we proposed the following hypothesis:

H3b: Employees with entrepreneurship education, moderated by the perception of job autonomy, are more likely to engage in creating a corporate venture than employees without entrepreneurship education training.

4.2.4. Proposed conceptual framework

Based on the previous literature review, Figure 4.1 shows the conceptual model proposed in this paper. In summary, it is possible to identify the direct effect of both human capital (H1a and H1b) and organizational environment on the creation of corporate ventures (H2a), as well as the moderation effect that the work environment will produce on employees' human capital when they decide to participate or not in the creation and development of new start-ups "from" and "for" their employer (H3a and H3b).

Figure 4.1: Proposed conceptual framework



Source: Author.

4.3. Methodology

4.3.1. Data collection

Data was collected from the 2012 Global Entrepreneurship Monitor (GEM) Adult Population Survey applied in Spain.[6] The GEM project is an international research program focused on the analysis of entrepreneurial activity around the world. In each country, representative samples of randomly selected adults (at least 2,000 per country) are surveyed every year to estimate the percentage of the adult population involved in firm start-ups. All research members of the project apply the same data-collecting methods in order to achieve comparable results (Reynolds et al. 2005). In total, the

[6] In 2012, in the Spanish questionnaire, the Basque Country Team added some questions that allow for the identification of employees involved in the creation of spin-offs for their employer.

Spanish sample integrates 21,900 individuals aged 19–64 years. In this study, only 5,274 observations associated with full-time employees aged 30–60 years[7] were used.

4.3.2. Description of variables

The dependent variable *corporate venture* is a dummy variable that takes the value of 1 when a respondent is a full-time employee involved in the creation of an organizational spin-off (a new business created for and inside an existent organization); it takes the value 0 otherwise. Spin-off is a business creation grounded on a business idea developed within a parent firm being taken into a self-standing firm (Lindholm 1994; Parhankangas and Arenius 2003).

The independent variables are divided into two sections: human capital and work environment. Based on Becker's ideas (1964), human capital is divided into generic and specific human capital. In this exploratory study, generic human capital is measured by *higher education*, a dichotomous variable that takes the value 1 if the employee holds a bachelor's degree and 0 otherwise (Blanchflower 2004). Specific human capital is measured by the variable *entrepreneurship education*, a dummy variable that takes the value 1 if the respondent is taking a course or training on *entrepreneurship education* and 0 otherwise (Levie and Autio 2008). Work environment is measured by *job autonomy*, a binary variable that takes the value of 1 when the employee perceives that

[7] On average, the age of an entrepreneur in Spain is 37 years old. Therefore, we consider this age range to take into account the individuals with a higher propensity to becoming entrepreneurs.

he/she has a higher level of decision making in the way of doing his/her work, and 0 otherwise (de Jong et al. 2011).

The control variables included in the analysis are *age* and *gender*. In this respect, Bosma et al. (2010) indicated that most of the individuals who are involved in early stage entrepreneurial activity are *middle-aged* individuals. Therefore, individuals of middle age are in a better position to manifest their competence into introducing new means to enhance productivity, profitability and firm creation. For the purpose of this exploratory study, individuals aged 30–60 years are selected to overcome self-selection biasness. Age is supposed to incorporate the positive effects of growing experience and the negative effects of declining uncertainty tolerance and desire to start a business (Bosma and Levie 2010). *Gender* is a dichotomous variable indicating whether the employee is male. It takes the value 1 if he is male and 0 otherwise. Some studies suggest that males tend to engage in entrepreneurial activities more than females (Reynolds et al. 2005). Table 4.1 shows the descriptive statistics and correlation matrix.

Table 4.1: Descriptive statistics and correlation matrix

No	Variable	Mean	S.D.	1	2	3	4	5	6
1	Corporate venturing	0.004	0.070	1					
2	Higher education	0.464	0.498	-0.021	1				
3	Entrepreneurship education	0.263	0.440	0.054*	0.053*	1			
4	Job autonomy	0.267	0.442	0.067*	0.015	0.079*	1		
5	Age	44.809	8.335	0.005	-0.068*	-0.081*	0.051*	1	
6	Gender	0.524	0.499	0.022	-0.138*	0.010	0.037*	0.010	1

Note: *p≤0.001

Source: Author.

4.3.3. Data analysis

Due to the nature of the data and dependent variable, a rare event relogit model was used to test our hypotheses. King and Zeng (2001a; 2001b) developed a version of the relogit model to compute unbiased estimates. Relogit is an unbiased estimator that gives the user the choice between two bias correction techniques: prior correction and weight correction (Trapido 2004). Also, there is no value in relogit that corresponds to the maximum of the likelihood but always calculates robust standard errors. Robust standard errors, unlike the usual ones, are calculated without the assumption of independence across observations and result in more conservative estimates of coefficients' statistical significance.

In general, three models were developed to test the hypotheses proposed. In model 1, the effect of human capital (higher education and entrepreneurship education) on corporate venturing creation was tested. Model 2 also includes the effect of the work environment (job autonomy) on the creation of corporate ventures. Model 3 tested the moderation effect of the work environment on the relationship between human capital and corporate venturing creation.

4.4. Results and discussion

The data-descriptive statistics show that only 0.4% of the sample size (5,274) reflects employees who created organizational ventures (spin-offs, start-ups, spin-outs) for their parent firms. And 26.7% of the employees hold college degrees, whereas employees who received entrepreneurship education comprised 62.7% of the entire sample size,

which is the highest among all variables. The statistics also reveal that 46.4% of the employees exercise job autonomy at their work, and 26.3% perceive that their jobs are meaningful. Table 4.2 summarizes the main results.

Table 4.2: Rare events estimations

Corporate venturing		Model 1	Model 2	Model 3
Human capital	Higher education	-0.613 (0.388)	-0.511 (0.432)	0.368 (0.720)
	Entrepreneurship education	1.467 *** (0.360)	1.172 ** (0.381)	-0.445 (1.094)
Work environment	Job autonomy		1.734 *** (0.421)	1.084 (0.707)
Moderation effect	Job autonomy * Higher education			-1.242 (0.895)
	Job autonomy * Entrepreneurship education			2.373 (1.228) [t]
Control variables	Age	0.218 (0.231)	0.060 (0.244)	0.053 (0.245)
	Age^2	-0.002 (0.002)	-0.002 (0.002)	-0.002 (0.002)
	Gender	0.499 (0.393)	0.751 (0.450) [t]	0.772 (0.425) [t]
	Constant	-10.964 (5.190)	-8.002 (5.550)	-7.582 (5.504)
	Pseudo R2	0.055	0.108	0.139

Note: ***p≤0.001, **p≤0.01,*p≤0.05, t p≤0.1.

Source: Author.

4.4.1. Role of human capital and the work environment on corporate venturing creation

The results show that the effect of higher education is negative but not statistically significant (Model 1). A possible explanation behind this result could be the opportunity costs for these employees represented by higher levels of human capital (*higher education*), which can impact whether they become an intrapreneur or pursue higher

potential professional opportunities within existing organizations. In this case, the decision to act entrepreneurially would take a long time because individuals expect to accumulate knowledge and experience (Shane and Venkataraman 2000). Other explanations could be associated with the organizations' employee reward and compensation system (Klepper 2001; Freeman and Engel 2007). Therefore, there is not enough evidence to support the H1a, which states that employees with a higher level of education are more likely to engage in the creation of corporate venturing than employees with a lower level of education.

Regarding specific human capital, the variable *entrepreneurship education training* shows a positive and statistically significant effect (1.467; $p < 0.001$). This implies that prior employees' entrepreneurship education contributes to their engagement in the creation of a corporate venture (organizational spin-off) for an existing organization. For existing organizations with entrepreneurial orientations, that their employees possess these specific skills and knowledge represents important intangible resources for their rejuvenation, diversification and sustainability. Therefore, prior entrepreneurship training impacts on the propensity of those individuals to participate in the creation of new ventures (Levie and Autio 2008), in particular the creation of corporate ventures for their employers. Based on that, we found evidence to support H1b.

Regarding the work environment, *job autonomy* evidenced a positive and statistically significant effect (1.734; $p < 0.001$) on the creation of corporate venturing (Model 2). This means that the Spanish employees who perceive they have job autonomy are more likely to actively lead the creation of spin-offs from and for their main employers than

employees who do not perceive that they have job autonomy (providing support to H2a). Also, this result confirms that a certain degree of work discretion given to employees helps them to explore innovative projects that later could be transformed into new products/services or new ventures (Axtell et al. 2000). These results confirm evidence from previous studies in which job autonomy usually increases individuals' motivation, which consequently enhances employee probability to engage in entrepreneurial activities within existing organizations (Shane et al. 2003; Marvel et al. 2007; de Jong et al. 2011).

4.4.2. The moderation effect of the work environment

The moderation effect of the work environment (*job autonomy*) on the relationship between generic human capital (*higher education*) and the creation of a corporate venture is shown in Model 3 (Table 4.2). Similar to the results presented in Model 1, the effect of a higher level of education on the creation of corporate ventures, in this case mediated by job autonomy, is negative and statistically not significant. In other words, even though employees perceive a positive work environment, it does not reinforce their entrepreneurial behavior to participate actively in the creation of a spin-off for their employer. Based on these results, Spanish employees with a higher level of education may show a higher opportunity cost of becoming an intrapreneur than continue as an employee for the organization, which could be explained by the perception of opportunity cost (higher individual risk) influenced by the economical uncertainly (higher levels of unemployment). Based on that, there is not enough evidence to support the H3a stating that Spanish employees with a higher level of education, mediated by

the perception of their work environment, are more likely to engage in the creation of corporate ventures than employees with a lower level of education.

On the other hand, the moderation effect of the work environment (*job autonomy*) on the relationship between specific human capital (*entrepreneurship education training*) and the creation of a corporate venture is shown in Model 3 (Table 4.2). Interestingly, the moderation effect of job autonomy on the relationship between entrepreneurship education and the creation of a corporate venture is a positive effect and statistically significant (2.373; $p < 0.100$). This implies that employees who have received entrepreneurship education training (i.e., have specific skills, abilities and knowledge that reinforce their self-efficacy) and simultaneously perceive job autonomy (i.e., independence to take decisions in their daily activities) are more likely to become intrapreneurs and lead the development/creation of new venture from and for an existing organization (i.e., their employer or parent firm). This result confirms and complements the previous findings about the roles of entrepreneurship education (Davidsson and Honig 2003; Kuratko 2005; Van der Sluis et al. 2006; Van der Sluis and Van Praag 2007) and job autonomy (Axtell et al. 2000; Hornsby et al. 2002; Arnold et al. 2007; Rosso et al., 2010) on entrepreneurial activities. Therefore, this evidence supports H3b, which states that employees with entrepreneurship education, mediated by the perception of job autonomy, are more likely to engage in creating corporate venture than employees without entrepreneurship education training.

4.5. Conclusions

On one hand, previous studies showed that human capital (generic and specific) was a relevant individual factor during the creation of independent new ventures and corporate ventures (Parker 2011). On the other hand, prior studies also found that certain work environment characteristics could increases/retard the propensity to engage in entrepreneurial activities (Zahra et al. 1999; Hornsby et al. 2002; de Jong et al. 2011). The main objective of this chapter was to understand the roles of employee human capital and the work environment on the creation of ventures "from" and "for" an existing organization.

Modestly, this chapter contributes to the corporate entrepreneurship literature by exploring not only the direct but also the moderation effect of the work environment on the relationship between human capital and the creation of corporate ventures. Our results show that under uncertainty economic conditions (i.e., the economic recession experienced in Spain), the opportunity cost of employees to participate actively in the development of entrepreneurial activities promoted by the employer (the support of an existing organization with an entrepreneurial orientation) would be influenced by their specific human capital (the skills, abilities, experience and knowledge required to be entrepreneur) and their perception of job autonomy (the motivation and independence of making their own decision). In other words, employees believe that they who do not feel confident about their skills, experiences and knowledge would prefer to explore new professional opportunities to be promoted within the organization.

This analysis presents several limitations that allow for the further exploration of this phenomenon in future research. For instance, it is important to include other variables related to the work environment (i.e., individual rewards, salary, antiquity, etc.),

organizational level (i.e., size, type, sector, etc.) and country level (i.e., economic conditions). A natural extension is to analyze the effect of several external environmental factors on the creation of corporate ventures (Miller 1983; Covin and Slevin 1991; Zahra 1991; Antoncic and Hisrich 2001; Sørensen and Phillips 2011). Moreover, it is relevant to explore the performance of these corporate ventures with respect to similar independent ventures (Klepper 2001). Finally, the main managerial implications for Spanish organizations with an entrepreneurial orientation will be to adopt training policies that reinforce the entrepreneurial skills of their employees as well as ensuring that the work environment provides more independence to those talented and entrepreneurial employees who are involved in the development of innovative/entrepreneurial projects. The implications for policy makers will be to provide evidence about the relevance of entrepreneurship education training; therefore, it is important to provide not only entrepreneurship education at different levels of education but also incentives to those existing organizations with entrepreneurial orientation.

CHAPTER V: CONCLUSIONS

5.1. Conclusions

Adopting different conceptual approaches (e.g., entrepreneurial cognitions, entrepreneurial action, entrepreneurial orientation and corporate entrepreneurship) and methodological designs (e.g., combination of logistic and rare event statistical models using data from the 2012 and 2013 GEM Spanish Adult Population Survey), Table 5.1 summarizes the main findings and conclusions to achieve the research objectives. Specifically,

(i) Chapter II proposed a conceptual eclectic model of corporate venturing at different levels of analysis and based on several theoretical approaches (human capital, entrepreneurial cognitions, strategic management, resource based view, institutional economics). This paper contributes to the debate about the determinants of corporate venture creation (O1).

(ii) Chapter III analyzed the influence of individual determinants on the creation of ventures "from" and "for" an existing organization (O2). In this regard, testing the proposed hypotheses using data from individuals who responded the 2012 and 2013 GEM APS survey, the main conclusions were: *Firstly*, our results confirmed the influence of certain human capital (higher education, entrepreneurship training, entrepreneurial experience and investor experience) and perceptions (role models, opportunities, skills and fear of failure) such as determinants on new venture creation. *Secondly*, the evidence obtained shows a higher effect of individuals' perceptions indicators on new venture creation than human capital indicators; particularly, the perceptions of skills/capabilities to create a business and the existence of role models evidenced the strongest

coefficients. *Thirdly*, our results evidenced how individuals' human capital and perceptions influence the creation of corporate ventures as well as independent ventures. In particular, we observed almost similar effects on determinants such as entrepreneurial experience, perceptions of opportunities and fear of failure.

However, we also found diverse effects on determinants such as higher education, entrepreneurial training, perception of role models and perception of skills/capacities to create a business. In light of the literature, regarding human capital, our results were aligned with previous empirical studies showing that each type of human capital study explained the different firm creation patterns adopted by entrepreneurs and intrapreneurs (Guerrero and Peña 2013; Klepper 2001; Miles and Covin 2002; Narayanan et al. 2009; Pinchot 1985; Zucker et al. 2002). Concerning cognitive perceptions, our results were also aligned with previous empirical studies showing that mental representations vary among individuals' profiles and contribute to the better understanding of the entrepreneurship process (Busenitz and Barney 1997; Krueger 2000; Krueger and Carsrud 1993; Guerrero et al. 2008; Guerrero and Peña-Legazkue 2013, 2014; Liñán et al. 2011a,b).

(iii) Chapter IV explored the influence of the work environment on the creation of ventures "from" and "for" an existing organization (O2). In this regard, testing the proposed hypotheses using data from employees who responded the 2012 and 2013 GEM APS survey, the main conclusions were: *Firstly*, our results confirmed the influence of certain employees' human capital (higher education, entrepreneurship training) and the influence of the work environment (job

autonomy) as determinants of the creation of corporate ventures (organizational spin-offs).

Table 5. 1: Main conclusions

Chapter	Determinant factors	Conceptual arguments (hypotheses)	Evidence (Spain)
Chapter III	Individuals' human capital	H1a: Individuals with tertiary education are more likely to create a new firm (e.g., independent and corporate venturing).	Supported
		H1b: Individuals with entrepreneurship education/training are more likely to create a new firm (e.g., independent and corporate venturing).	Supported
		H1c: Individuals with entrepreneurial experience are more likely to create a new firm (e.g., independent and corporate venturing).	Supported
		H1d: Individuals with informal investor experience are more likely to create a new firm (e.g., independent and corporate venturing).	Not found strong evidence
	Individuals' perceptions	H2a: Individuals that perceive that have the skills required to become entrepreneur are more likely to create a new firm (e.g., independent and corporate venturing).	Supported
		H2b: Individuals that perceive role models are more likely to create a new firm (e.g., independent and corporate venturing).	Supported
		H2c: Individuals that perceive fear of failure are less likely to create a new firm (e.g., independent and corporate venturing).	Supported
		H2d: Individuals that perceive opportunities are more likely to create a new firm (e.g., independent and corporate venturing).	Supported
Chapter IV	Individuals' human capital	H1a: Employees with a higher level of education are more likely to engage in the creation of corporate ventures than employees with a lower level of education.	Not found strong evidence
		H1b: Employees with prior entrepreneurship education training are more likely to engage in the creation of corporate ventures than employees without entrepreneurship education training.	Supported
	Work environment	H2a: Employees who perceive job autonomy in the work context are more likely to engage in the creation of corporate ventures than employees who do not perceive autonomy at work.	Supported
		H3a: Employees with a higher level of education, moderated by the perception of job autonomy, are more likely to engage in creating corporate ventures than employees with a lower level of education.	Not found strong evidence
		H3b: Employees with entrepreneurship education, moderated by the perception of job autonomy, are more likely to engage in creating a corporate venture than employees without entrepreneurship education training.	Supported

Source: Author.

Secondly, the evidence obtained shows the highest effect of the work environment indicator over human capital indicators. Interestingly, our results do not provided evidence about the effect of higher education on the creation of corporate ventures. *Thirdly,* work environment could act as a moderator of the human capital of entrepreneurial employees. In light of previous empirical studies, our results are aligned with those that found that human capital (generic and specific) was a relevant individual factor during the creation of independent new ventures and corporate ventures (Parker 2011). Our results are also aligned with those empirical studies that found that certain work environment characteristics could increases/retard the propensity to engage in entrepreneurial activities (Zahra et al. 1999; Hornsby et al. 2002; de Jong et al. 2011).

5.2. Limitations and future research venues

This thesis presents several limitations that allow for the further exploration of this phenomenon in future research. In particular,

(i) Our empirical analysis reflects the analysis of *one specific economic context* (Spain). Even though it is a limitation, it is also an opportunity to replicate the methodology or to perform comparative studies using data from other countries (e.g., using data from other participants in the GEM project) and to include other theoretical perspectives or variables to explain the differences of both types of entrepreneurship (e.g., at organizational, institutional or economical levels). This also allows an understanding of the influence of external environment on corporate entrepreneurship activities (Zahra 1991; 1993). For instance, describe the influence of the hostility or unfavorable change and competitive rivalry, the

heterogeneity of the activities and opportunities in the market based on the demand for new products or the technological dynamism (Tsai et al. 1991).

(ii) The *GEM datasets* used include cross-section data collected during the last economic crisis and recession (2012 and 2013). Therefore, a longitudinal data is recommended for future analysis to capture the dynamic dimension of entrepreneurship phenomenon. This also provides the possibility to test for the pro-cyclical or counter-cyclical effects on corporate entrepreneurial behavior and its influence on venture creation. Moreover, it is relevant to explore the performance of these corporate ventures with respect to similar independent ventures (Klepper 2001). For instance, some potential variables could be: (i) spin-off and parent firm performance in terms of sells, employees, innovation (Zahra 1991; Klepper 2001); (ii) the perception about the relationship between the parent and the corporate venture (Zahra 1993; Zahra and Covin 1995); and (iii) the perception about the impacts associated to the creation of the corporate ventures in the region (Agarwal et al. 2004).

(iii) Regarding *the measures of the main variables*, Chapter II has some limitations in the proxies used to measure human capital (e.g., higher education because we did not identified the type of the individual's bachelor degree, entrepreneurial experience and informal investor experience) and perceptions (e.g., role models or fear of failure). Therefore, future studies should take into account the effect of other experiences, such as prior labor experience and managerial experience, as well as other proxies to capture the existence of role models or risk aversion. In Chapter III, it is also important to include other variables related to the work

environment (i.e., individual rewards, salary, antiquity, etc.), organizational level (i.e., size, type, sector, etc.) and country level (i.e., economic conditions). For instance, regarding environmental contexts, many scholars hold that regional context matters for both the volume and quality of entrepreneurial activity. Reynolds et al. (1994, p. 346) argue that "regional characteristics seem to be a major factor affecting variation in firm births." In addition, they assert that "new firm births are a necessary but not a sufficient condition for creating regional economic growth." Therefore, a natural extension could be to analyze the effect of several external environmental factors on the creation of corporate ventures (Miller 1983; Covin and Slevin 1991; Zahra 1991; Antoncic and Hisrich 2001).

5.3. Contributions and implications

Extant empirical studies have provided interesting insights about the determinant factors of corporate venturing strategies (Dess et al. 1999; Hisrich and Peters 1986; Klepper 2001; Guerrero and Peña-Legazkue 2014; Parker 2011; Narayanan et al. 2009; Zahra and Covin 1995; Zahra et al. 1999). However, there is little known about how individual and organizational determinants emerge in the creation of new corporate ventures. It is aligned with the entrepreneurial research agenda proposed by Busenitz et al. (2014), who recognized the relevance of further exploration of the interaction between the environment and the individual on business creation. Based on those arguments, by adopting ideas from several approaches (i.e., entrepreneurial cognitions, entrepreneurial action, entrepreneurial orientation and corporate entrepreneurship), this doctoral dissertation modestly contributes to the entrepreneurship field with the following issues:

(i) Chapter II proposes an eclectic conceptual model to explore corporate venturing phenomenon based on an in-depth literature review on corporate venture and adopting several approaches.

Implications: This model could be replicated/improved in other contexts.

(ii) Chapter III provides new insights on the determinants of new venture creation at the individual level (Klepper 2001; Guerrero and Peña-Legazkue 2014; Parker 2011; Narayanan et al. 2009; Zahra and Covin 1995; Zahra et al. 1999). More precisely, we explored how individuals' *human capital and perceptions* can be capitalized on by an individual not only for achieving organizational objectives (create a corporate venture) but also for personal occupational choices (create an independent venture).

Implications: The most important practical implication would be linked to the efficient distribution of funding oriented to foster entrepreneurship training to both unemployed and employed people, in particular during recessionary periods, when entrepreneurship is considered by policy makers as an alternative to reduce higher levels of unemployment and to help existing firms be more competitive via diversification or rejuvenation of firms in the regions. Therefore, our results show the externalities or indirect effect of human capital on both intrapreneurs and entrepreneurs. For example, corporate venturing organizational mindsets and behavior are important for members involved in the rejuvenation process of an organization. Individuals benefit from a corporate venturing culture that permeates through all members of an organization.

(iii) Chapter IV contributes to the corporate entrepreneurship literature by exploring not only the direct but also the moderation effect of the work environment on the relationship between human capital and the creation of corporate ventures (Busenitz et al. 2014; Bosma et al. 2010).

Implications: The results show that under uncertainty economic conditions (i.e., the economic recession experienced in Spain), the opportunity cost of employees to participate actively in the development of entrepreneurial activities promoted by the employer (the support of an existing organization with an entrepreneurial orientation) would be influenced by their specific human capital (the skills, abilities, experience and knowledge required to be entrepreneur) and their perception of job autonomy (the motivation and independence of making their own decision). In other words, employees believe that they who do not feel confident about their skills, experiences and knowledge would prefer to explore new professional opportunities to be promoted within the organization.

(iv) Based on the results obtained on Chapter II and III, Figure 4.1 shows the proposed eclectic conceptual model to explore corporate venturing phenomenon. Both the theoretical and methodological issues could be replicated/improved in other contexts.

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APPENDICES

QUESTIONNAIRE

Questions added to the APS questionnaire:

Spin-off information

- Have you created your company "from" or "to" other organization?
    - Yes No
- Which has been approximately the initial investment? _____ €
- What is the property percentage holding the company that gave rise to your business? _____ %
- What is the percentage of the property that holds the entrepreneur? _____ %
- Did you receive any subsidy or public support for the new company?
    - Yes
    - No
- With how many employees your business started? _____ employees
- How many employees do you have currently? _____ employees
- What were approximately the sales of the first year? _____ €
- What are approximately your sales currently? _____ €
- What percentage of your invoicing is obtained from the company that gave rise to your business?
    - At the beginning? _____ %
    - Currently? _____ %
- What has been the purpose?
    - To launch a new product/service

- To permeate through a new geographical area?
- Other, specify _____
- Don’t know
- Reject

Parent firm information

- What is the year of creation of the company that gave rise to yours? _____ year
- Is foreign.
  - Yes
  - No
- Approximately number of employees. _____ employees
- Is a public company?
  - Yes
  - No
- What is the detail activity sector? _____
- At what geographical distance are you located approximately? _____ km^2
- Approximately sales _____ €
- Year when you started working for the current company _____ year
- From whom did the business idea arise originally?
  - Was the idea proposed by you?
  - Was the idea proposed by the organization?
  - Don’t know

- Reject

- For how long you were planning the creation of your new business from and for the company? _____ months
- Function and position played in the company at the time of creating your company _____
- What kind of incentive has received from the company?
  - Monetary compensation.
  - Time released
  - Professional promotion
  - Other. Specify _____
  - Don't know
  - Reject
- Which functions were provided by the parent firm?
  - R&D
  - Commercial
  - Production
  - Financial
  - Others _____
  - Don't know
  - Reject
- If you had to close your company at this time, are you assured that the company that gave origin would incorporate it into your template?