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# Considering business start-up in recession time

## The role of risk perception and economic context in shaping the entrepreneurial intent

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### Abstract

**Purpose** – The purpose of this study is to examine under-researched psychological and environmental factors related to entrepreneurial motivation and intention. This helps us to explore the links between risk perception (risk as opportunity and risk as threat), economic context (in a recession), entrepreneurial motivation (personal attitudes and perceived behavioral control) and intention for new venture creation.

**Design/methodology/approach** – A sample of 619 individuals from two European countries, Spain and Great Britain, is studied. A range of control variables have been considered, including demographics, human /social capital, and country effects. Structural Equation Modeling is used to analyze the relationships among the model constructs.

**Findings** – The structural model broadly holds and adequately fits the data. Entrepreneurial risk perception is strongly linked with entrepreneurial motivation. Entrepreneurial motivation, in turn, is strongly linked with entrepreneurial intention. It suggests, therefore, an indirect effect of risk perception on intentions. Further, economic context is directly linked with entrepreneurial intention.

**Implications** – Results from this exploratory study suggest a role of risk perception in establishing the entrepreneurial intention of individuals. Therefore, greater attention should be paid to this element in

entrepreneurship education programs. Similarly, perceptions about the economic (recessionary) environment also have to be taken into account, with the purpose of letting students understand the possibilities that are present in a recessionary situation.

**Originality/value** – This is the first time that perceptions about risk and the economic context are tested within the theory of planned behavior, and they have been shown to significantly contribute to explaining intention.

**Keywords:** theory of planned behavior, entrepreneurial risk perception, recession, economic context, entrepreneurial motivation, entrepreneurial intention

## **Introduction**

In Europe and the rest of the World, there has been an increasing drive to enhance the number and sustainability of graduate entrepreneurs in order to assist with economic growth, innovation and prosperity (Henry, Hill, & Leitch 2003; ISBA Consortium 2004; Liñán, Battistelli, & Moriano 2008). This agenda, at least in Europe, has been supported by the European Commission to create a more “entrepreneurial mindset” in terms of awakening and stimulating entrepreneurial cognition (e.g., motivation, intention) that underpin new venture creation (Liñán et al. 2008). Despite years of research on the entrepreneurial process, our knowledge is still very limited, especially regarding the role of psychological factors and external environment. In the past, there have been debates regarding whether the focus should be on internal psychological variables (e.g., risk-taking, ambition) or external environment ones (e.g., macro-environmental conditions like favorable economic environment and financial support) (Taormina & Lao 2007). Relatively few empirical studies have jointly examined *both* psychological factors and

environmental context for their relative influence on new venture creation. Recently, researchers have highlighted the value in examining both of these types of factors to take into account the person and the context (Mitchell et al. 2007; Taormina & Lao 2007).

The main aim of this exploratory research is to focus on specific psychological and environmental context factors that have been under-researched, but are related to entrepreneurial motivation and intention in order to more deeply understand the process of new venture creation. The main variables in this research include the psychological variable of entrepreneurial risk perception (considering the upside and the downside), and the external environment (incorporating a recessionary economic climate). The relative importance of these variables for entrepreneurial intention is examined, in the context of theory and literature, especially the theory of planned behavior (TPB).

This paper hopes to make two main theoretical contributions to the literature. First, a model of entrepreneurial intention is proposed, which includes important psychological and environmental predictors (e.g., risk and recessionary economic environment) of entrepreneurial intention. This helps examine the relative importance of predictors as well as direct and *indirect* effects. As far as the authors are aware there is no such model of entrepreneurial intention, hence it contributes to existing knowledge.

Second, the focus of this research is not just the entrepreneurial intention, but also entrepreneurial motivation. In other words, it seeks to understand how some of the variables of interest (entrepreneurial risk perception) not only act as predictors of entrepreneurial intention, but also predictors of underlying motivational constructs. In particular, it focuses on the TPB's most important motivational constructs of personal attitude and perceived behavioral control. This allows a better understanding of the factors that are related to these important motivational

variables.

This paper has implications for educators, decision-makers and researchers as it will shed light on important psychological and environmental predictors of entrepreneurial motivation and intention. In other words, it will contribute to a better understanding of the relative importance of these factors and the “seed beds” or motivation to pursue an entrepreneurial career (Veciana, Aponte, & Urbano 2005), and to understand what helps some individuals to start up their own business, but not others. It will also allow for a test of a model that helps to explain entrepreneurial intention. This has implications for helping entrepreneurship education and training.

The paper is structured around the following four main sections: a literature review presenting a theoretical framework drawing on previous research to underpin the model and hypotheses; a methodology section to summarize the sample and measures employed; a results section reporting the findings from the structural equation model; and a final discussion section to reflect on and conclude the paper.

## **Theory and Background**

### **Entrepreneurial Intention and the Theory of Planned Behavior**

Entrepreneurial intention is a key element to understanding the process of new-firm creation (Bird 1988). It has been defined as a conscious awareness and conviction by an individual that they intend to set up a new business venture and plan to do so in the future (Bird 1988; Thompson 2009). The two key strands in entrepreneurial research have been based around the individual (e.g., personality, demographics, cognition), and the role of the external environment in business start-up. Within the former approach, it has generally been concurred that personality

traits and demographics have not been very successful in explaining entrepreneurial intention or behavior (Krueger, Reilly, & Carsrud 2000). It has been advocated that cognitive models, in particular, the theory of planned behavior approach, provides greater predictive capacity in explaining entrepreneurial intention and behavior (Autio, Keeley, Klofsten, Parker, & Hay 2001; Henry et al. 2003; Krueger et al. 2000; Moriano, Gorgievski, & Lukes 2008). It has increasingly been considered a useful theoretical framework in new venture creation for two main reasons. First, it explains the intricate and complex cognitive processes leading to firm creation (Autio et al. 2001; Krueger et al. 2000; Liñán 2008). The model is based on a person's behavior (in this case, new venture creation), which is considered to be directly affected by his/ her intention. This in turn is based upon three motivational antecedents, that is: *personal attitude (PA)* as the extent of positive valuation about the start-up of a new venture; *subjective norm (SN)* as the social pressure and approval from significant others of becoming an entrepreneur; and *perceived behavioral control (PBC)*, which is the perceived ease or difficulty of becoming an entrepreneur. PBC includes not only feelings of self-competence, but also perception of the controllability of the entrepreneurial behavior (Ajzen 2002). A large body of entrepreneurship research provides empirical support for the theory of planned behavior in the context of entrepreneurial intentions (Autio et al. 2001; Kolvereid 1996; Krueger et al. 2000; Liñán & Chen 2009; Tkachev & Kolvereid 1999).

Second, and more importantly for this study, “since we are interested in *understanding* human behavior, not merely predicting it, we must try to identify determinants of behavioral intentions” (Ajzen 1988, p.166). In other words, for a better understanding of intentions it is important to explore people's entrepreneurial motivations (e.g., PA, SN, and PBC). In this research, we focus on PA and PBC, as they have been identified as the strongest motivational

determinants of entrepreneurial intention (Ajzen 1991; Fitzsimmons & Douglas 2011; Liñán & Chen 2009).

Ajzen (1988) posits that generally speaking only if people are positively attracted to the intended behavior and believe they have the resources and opportunities to perform a behavior (in this case, new venture creation) are they likely to form strong intentions to engage in that behavior. If they do not, then strong entrepreneurial intentions are very unlikely, even if they perceive favorable social approval. Thus, it is important to understand why people hold positive PA and PBC. The variables examined in this study are argued to act as important psychological and/or environmental predictors of PA, PBC and entrepreneurial intention. In Ajzen's (1988, 1991) work, they can be respectively implicated as behavioral and control beliefs facilitating (or obstructing) entrepreneurial intention and action.

### **Entrepreneurial Risk Perception**

Entrepreneurial risk perception can be conceptualized as a decision-maker's assessment of the risk inherent in pursuing entrepreneurial behavior. This includes an individual's assessment of the expectancy and probabilistic estimates of the extent and controllability of risks, e.g., in starting up a business, and confidence in those estimates (Barbosa, Fayolle, & Lassas-Clerc 2007a; Barbosa, Kickul, & Liao-Troth 2007b; Monsen & Urbig 2009; Mullins & Forlani 2005; Sitkin & Pablo 1992). Scholars have recently suggested that entrepreneurs do not necessarily have a higher risk propensity (Brockhaus 1980; Monsen & Urbig 2009; Simon, Houghton, & Aquino 2000). Rather, empirical research suggests a *difference in risk perception* hypothesis in that entrepreneurs seem to perceive lower levels of risk associated with new venture creation (Barbosa et al. 2007a; Monsen & Urbig 2009). This occurs by wearing rose-colored lenses; that

is, overestimating their chances of success and framing venture creation positively (Douglas 2009; Monsen & Urbig 2009; Palich & Bagby 1995). Thus, these potential entrepreneurs focus on and perceive strengths and opportunities rather than weaknesses and threats. It is this psychology of risk or risk perception that predicts the individuals' entrepreneurial intention (Barbosa et al. 2007b) and new venture creation (Palich & Bagby 1995; Simon et al. 2000), and is thus considered an important factor in understanding entrepreneurial cognition and behavior.

Moreover, entrepreneurial risk has been conceptualized as a multidimensional psychological construct comprising two elements: risk as opportunity (focusing on the upside of risk) and risk as threat (focusing on the downside of risk) (Barbosa et al. 2007b; Dickson & Giglierano 1986; Mullins & Forlani 2005). Risk as opportunity relates to the notion that the individual does not wish to miss an opportunity and associated potential gains, and thus may experience regret before making decisions to engage in entrepreneurial behavior. Conversely, risk as threat, relates to the notion of risk as a potential loss and focuses on the extent and uncertainty of these losses (Dickson & Giglierano 1986; Mullins & Forlani 2005; Venkataraman 2002). The two elements of risk: risk as opportunity and risk as threat also correspond to the nautical analogy of "missing-the-boat-risk" (missing an opportunity) and "sinking-the-boat-risk" (failing in a business venture) respectively (Dickson & Giglierano 1986). This dual conceptualization of risk is considered equally important in the psychology of the risk taker because risk as opportunity (i.e., missing the boat and potential gains) can be just as much of a mistake as risk as threat (i.e., sinking the boat and potential losses), though the former has received less research attention. Both are relevant in understanding entrepreneurial cognition, and importantly potential entrepreneurs can be primed and learn to be either missing-the-boat risk-averse or sinking-the-boat risk-averse depending on their experiences (Dickson &

Gigliano 1986). Relatively few studies have examined both of these constructs in the context of the theory of planned behavior's (entrepreneurial motivation) and intention.

Based on a synthesis of theory, research and limited available empirical analysis (Barbosa et al. 2007b; Luthje & Franke 2003), the model proposes a direct relationship between risk perception (risk as opportunity and risk as threat) and entrepreneurial intention as well as an indirect one. The direct link suggests that risk as opportunity tends to increase, while risk as threat tends to decrease, entrepreneurial intentions. This is because risk as opportunity (fear of missing-the-boat) can create a bias to act and thus enhance entrepreneurial intentions, whereas risk as threat (fear of sinking-the-boat) tends to create a bias to analysis and planning, generating uncertainty rather than action, and lowering entrepreneurial intentions (Barbosa et al. 2007b; Dickson & Gigliano 1986; Venkataraman 2002).

Importantly, the model also suggests the risk-intention link is mediated by entrepreneurial motivation (e.g., the attitude about entrepreneurship and perceived behavioral control) through two suggested theoretical mechanisms. First, risk perception (risk as an opportunity or risk as a threat) can be linked to attitudes towards entrepreneurship. Kolvereid (1996) found that "security" and "avoiding responsibility" are motivational beliefs indicative of a lower entrepreneurial intention. These beliefs could reasonably be associated with risk as threat. Conversely, beliefs about "economic opportunities" and "challenge" are linked to higher intention and also to risk as opportunity. Similarly, a positive attitude to "independence" implies a preference for decision-making control and choosing one's own path to achieve personal objectives (Douglas & Shepherd 2000), and therefore may clearly be affected by risk perceptions. The subjective perception that entrepreneurial behavior will lead to potential gains (i.e., risk as an opportunity) or losses (i.e., risk as a threat) reflects salient beliefs about possible



outcomes of entrepreneurial behavior. Thus, entrepreneurial risk perception should influence the attitude toward entrepreneurial behavior<sup>1</sup>. In other words, the greater risk is seen as an opportunity, the higher the level of PA (positive valuation of entrepreneurship), whereas the greater risk is seen as a threat, the lower the level of PA (negative valuation of entrepreneurship). In turn, PA is expected to be positively linked to entrepreneurial intentions (Ajzen 1988, 1991; Kolvereid 1996; Krueger et al. 2000, among others).

Secondly, risk perceptions would be directly linked to perceived self-efficacy and control (Macko & Tyszka 2009). A more positive view of risk (risk as opportunity) may anticipate experiencing less debilitating anxiety about an entrepreneurial career, perceive a greater sense of control over outcomes, judge the likelihood of receiving positive rewards more highly, and thus possess higher self-efficacy (Zhao, Siebert, & Hills 2005). The opposite would be true with respect to risk as threat, since a negative perception of risk would lead to more anxiety, lower sense of control and lower sense of self-efficacy (Barbosa et al. 2007b).

Thus, there are theoretical grounds to suggest that entrepreneurial risk perception is both directly linked with entrepreneurial intention and indirectly linked via entrepreneurial motivation (i.e., PA and PBC). In contrast, to the authors' knowledge, there has been a paucity of theory-driven empirical research that has jointly examined the links between risk perception, both PA and PBC, and intention. Thus, findings from this study would make an important contribution in this field. Based on the above discussion, the following direct (H1) and indirect (H2, H3 and H4) hypotheses are formulated:

- H1.** (a) The greater risk is considered as an opportunity, the stronger the level of entrepreneurial intention; (b) The greater risk is considered as a threat, the weaker the

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<sup>1</sup> The authors would like to thank Professor Ajzen for providing useful insights in the risk-attitude link through personal correspondence.

entrepreneurial intention.

- H2.** The greater risk is considered as an opportunity, the stronger the (a) personal attitude (PA) and (b) perceived behavioral control (PBC).
- H3.** The greater risk is considered as a threat (i.e., fear of failure), the weaker the (a) personal attitude (PA) and (b) perceived behavioral control (PBC).
- H4.** The more positive the: (a) personal attitude (PA) and (b) perceived behavioral control (PBC), the stronger the level of entrepreneurial intention.

### **Environmental Economic Context**

Whilst the previous sections has focused on the psychological factors of risk perception and motivation, environmental factors can also clearly facilitate or hinder entrepreneurial activities because the individual makes an economic assessment of the expected costs and benefits of pursuing the entrepreneurial career path (Franke & Luthje 2004; Luthje & Franke 2003). One key determinant in this analysis is the environmental circumstances and in particular the economic context. There is a body of literature on a range of environmental factors in relation to entrepreneurship development, for example, contextual barriers and support factors in the environment, capital availability, aggregate economic indicators like socio-economic conditions and unemployment (Franke & Luthje 2004; Gnyawali & Fogel 1994; Luthje & Franke 2003; Mazzarol, Volery, Doss, & Thein 1999). Yet, there is a paucity of research looking specifically at a recessionary economic context in relation to entrepreneurial intention. The current economic crisis will clearly have an important impact on entrepreneurial intention and behavior because it can influence the psychology (e.g., perceived fear and opportunities) of starting up a business (Bosma, Acs, Autio, Coduras, & Levie 2008).

A potential entrepreneur's valuation of environmental conditions could profoundly, positively or negatively, shape his or her intention to create a new venture and pursue the entrepreneurial career path (Choo & Wong 2006; Gnyawali & Fogel 1994; Taormina & Lao 2007). Rather than look at objective macro-level data (political, financial, economic) that often takes years to acquire (Taormina & Lao 2007), environmental effects can be assessed in the form of an individual's perceptions, rather than objective reality per se. Moreover, it is the former that has been suggested as more powerful in explaining the decision to start a venture (Krueger & Brazeal 1994; Simon et al. 2000). According to classical economic theory, these perceptions of the business environment can be based on negative considerations that economic recession is unfavorable for becoming an entrepreneur because of a range of barriers compared to times of economic prosperity. For example, less availability of finance or financial difficulties, lower customer demand and lower expected returns (Bosma et al. 2008; Stangler 2009). On the other hand, the literature also suggests a recession situation may be framed as a fertile ground for new opportunities (a positive-pull effect) and/or considered as the best option in the absence of jobs and high graduate unemployment (a recession-push or so-called 'refugee' effect) (Bosma et al. 2008; Nabi, Walmsley, & Holden 2013; Stangler 2009; Thurik, Carree, Van Stel, & Audretsch 2008).

In the former case, individuals may not start a business because the economic context is considered unfavorable, regardless of holding a positive attitude about entrepreneurship and considering risk as opportunity. Conversely, individuals might be willing to start a business, despite holding a negative attitude about entrepreneurship and considering risk as threat, because the economic conditions are considered favorable. Thus, a recessionary economic context can be considered to incorporate affect towards this context (positive or negative feelings) and whether

or not it is considered as favorable (acting as a trigger and increasing entrepreneurial intention) or unfavorable (acting as a barrier and decreasing entrepreneurial intention). This is consistent with the view that environmental context, in this case a recessionary one, is directly related to entrepreneurial intention (Liñán, Nabi, & Krueger 2013; Luthje & Franke 2003; Nabi et al. 2013) and activity (Bosma et al. 2008; Stangler 2009). On this basis, it is hypothesized:

**H5.** The more a recessionary economic environment is considered favorable to starting up a business, the higher the entrepreneurial intention.

Entrepreneurial risk perception can also be linked to the way in which a recessionary economic context is appraised. The individual's mental model of reality will depend on their cognitive schemata (cognitive mechanisms that categorize incoming information) and if they 'frame' the context as an opportunity/ gain or threat/ loss (Krueger 2000, 2003; Roszkowski & Davey 2010; Sitkin & Pablo 1992). Moreover, individuals holding a risk-as-opportunity schemata (focusing on the upside of entrepreneurial risk and potential gains) are also likely to feel positive about a recessionary economic context and view it in a favorable light (e.g., as a favorable opportunity to start-up). Perceiving risk as an opportunity relates to emphasizing the potential gains that may derive from acting in an uncertain environment, such as creating a firm (Barbosa et al. 2007b; Dickson & Giglierano 1986; Mullins & Forlani 2005; Venkataraman 2002). Further, research suggests that a recessionary context can afford new opportunities, with some companies folding or becoming weaker and a larger pool of potential employees available (Stangler 2009). Therefore, it is expected that people with a risk-as-opportunity schemata will also tend to frame a recessionary context more favorably as a start-up opportunity. In other words, the focus is on opportunity/ gain. In contrast, holding a risk-as-a-threat schemata (the downside of risk and potential losses) would also lead individual's to see recession in a negative

way (a threatening context). This is also consistent with Kahneman and Tversky's prospect theory which suggests that there are cognitive biases that influence people's choices (and hence perceptions) under risky conditions (see Boholm 1998; Ricciardi 2004; Roszkowski & Davey 2010).

Nonetheless, the relationship between risk perception and the recessionary economic climate may change. In other words, risk perceptions may change as recessionary economic circumstances change. New information about the chances of successful venture creation (e.g., the severity of the recession) may cause individuals who viewed recession positively to view it in a negative sense and also change their risk perception schemata from risk as an opportunity to risk as a threat. That is, it is too risky to start-up and recession is a negative context to start-up. Inversely, if there is new positive information during a recession (e.g., economic recovery or upturn), this new information may cause individuals who viewed recession negatively to view it in a positive sense and also change their risk perception schemata from risk as a threat to risk as an opportunity. Recent research evidence on entrepreneurial cognition supports this notion that changes of information about a new venture influences individuals' risk perception and their view of the recessionary context (Barbosa & Fayolle 2007; Roszkowski & Davey 2010). Moreover, Roszkowski and Davey (2010) highlight there is a mutual interdependence. That is, positive risk perception is related to a positive view of the economic recession (and vice versa), whilst negative risk perception is related to a negative view of the economic recession (and vice versa). A co-variance relationship is therefore hypothesized<sup>2</sup>:

**H6.** There will be: (a) a positive relationship between risk as an opportunity and considering the recessionary economic environment as favorable to starting up a business; (b) a

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<sup>2</sup> We are grateful to one anonymous reviewer for helping us develop this hypothesis

negative relationship between risk as a threat and considering the recessionary economic environment as favorable to starting up a business.

The model to be tested in the empirical analysis is summarized in Figure 1. This incorporates all the hypotheses of our entrepreneurial intention model.

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## **Method**

### **Sample**

Data were collected from a sample of Business university students. This was considered appropriate for this research. Previous research has noted that business students “often see the founding of a company as an attractive alternative to wage or salary employment” (Luthje & Franke 2003). This is seen to stem from the decline in jobs in large organizations and job security, and the increasing desirability of self-employment and related values like autonomy, wanting to be one’s own boss and challenge (Kolvereid 1996; Luthje & Franke 2003; Nabi, Holden, & Walmsley 2006).

The original sample comprised 780 European (i.e., British and Spanish) respondents. However, this was reduced to 619 respondents with complete data sets due to missing data. Questionnaires were administered to all attending students in several business-related classes,

with previous authorization from the lecturer, and they were invited to complete them. A high response rate was obtained (99%), comprising respondents engaging in Business-related courses (e.g., Business Studies, Business Management). The two universities are both located in medium to large urban areas, have a comparable size (number of students) and are representative of HEIs in each country in aspects such as average student age, percentage of students in undergraduate courses and so forth.<sup>3</sup>

The British sample consisted on 407 responses collected from business school undergraduates at one large university in the North of England. Of these respondents, 56% were male and 44% were female, with an average age of 21.2 years. The Spanish sample included 373 responses, coming from one large university in the South of the country. Of these respondents, 37% were male and 63% were female, with an average age of 20.7 years. Both British and Spanish samples correspond with the general characteristics of students at the respective universities.

The two European countries were selected because they have many similarities. Both countries were still officially in recession at the time of this research (2009-2010), and they have been particularly affected in terms of GDP growth (both countries with figures still below -3.0% in the fourth quarter of 2009), according to Eurostat (2010). Apart from this, both countries have several similarities. According to the latest Eurostat data, both are considered high income countries (total GDP for the UK and Spain at €1818.9 billion and €1088.5 billion respectively in 2008, with PPP-adjusted GDP per capita at €29100 and €25700 respectively). Both countries also have similar levels of nascent entrepreneurial activity<sup>4</sup> of around 3%, and early-stage

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<sup>3</sup> Data from Education yearbooks in UK (HESA 2010; MMU 2010; Universities UK 2012) and Spain (MECD 2012).

<sup>4</sup> New businesses of less than 3 months according to GEM

entrepreneurial activity<sup>5</sup> of around 5.9 to 7%, as well as similar levels of knowledge and skills (Bosma et al. 2008). Previous trends in both countries have also been similar in terms of a positive economic situation and declining unemployment generally since the mid-nineties. Since the two countries have many similarities, we considered them as one European sample. However, to take into account the possibility of country effects and the role of other background factors in this research (discussed in next section), a country-dummy is included as a control variable in the empirical analysis.

## Measures

The relevant items in the research instrument used in this study are included as the Appendix. Seven-point Likert-type scales were used to measure the key-constructs in the model.

**Theory of planned behavior constructs.** This research uses the same measures employed in Liñán and Chen (2009) to assess three central constructs of the theory of planned behavior in the context of entrepreneurship: personal attitude towards entrepreneurship, perceived behavioral control and entrepreneurial intention. Personal attitude (PA) was measured using items concerning the valuation about the start-up of a new venture. Perceived behavioral control (PBC) focused on items pertaining to the capacity of becoming an entrepreneur (perceived ease or difficulty, how much control they have over its successful performance). Entrepreneurial intention was assessed using items measuring intentionality (that is a serious conviction and determination) towards new venture creation (Thompson 2009).

**Entrepreneurial risk perception.** This construct was assessed using a multidimensional scale measuring the evaluation of risk as opportunity and risk as threat (Barbosa et al. 2007b).

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<sup>5</sup> New businesses of 3-42 months according to GEM



Risk as opportunity focused on business start-up as an opportunity and a positive action, whereas risk as threat focused on start-up as a threat and a negative action (with a high level of riskiness and uncertainty).

**Recessionary economic context.** After reviewing the literature, this construct was assessed using items measuring the extent to which the recessionary economic context was viewed in general with positive affect and valued as a favorable contextual opportunity for starting up a business rather than as an unfavorable and negative context (Bosma et al. 2008; Luthje & Franke 2003; Stangler 2009; Thompson 2009).

**Background/ Control variables.** Based on a synthesis of the literature (Autio et al. 2001; Kolvereid 1996; Liñán & Chen 2009), a range of control variables (demographic, human and social capital) were also measured as background factors in this research. The coding of these background/control variables is as follows. Demographics include age and gender (0=*female*, 1=*male*). Human capital includes labor market experience (0=*no*, 1=*yes*), and self-employment experience (0=*no*, 1=*yes*). Social capital includes personally knowing an entrepreneur (0=*no*, 1=*yes*). Country effects were captured by coding each country (0=*UK*, 1=*Spain*). This was included as a control variable because research suggests that entrepreneurial start-up behavior (and thus intention) is embedded in specific national environments reflecting level of economic development, and socio-cultural and institutional conditions (Arenius & Minniti 2005). The use of country as a control variable will thus allow identification of any potential aggregate effects.

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Table 1 summarizes the characteristics of the sample and compares country differences. As may be seen, some of these differences are significant, justifying their inclusion as control variables in the analysis.

### **Data analysis**

The empirical analysis has been performed using the SPSS (version 17) statistical package for descriptive statistics. In particular, since the *recessionary economic context* scale had not been validated before, an exploratory factor analysis has been performed to assess its psychometric properties.

The Structural Equation Model (SEM) has been tested with AMOS 17.0. To assess overall model adequacy, possibly the first and simplest way is considering the  $\chi^2/df$  ratio which should be less than 3.0 (Kline 1998), although this measure is controversial (Byrne 2009). More generally accepted goodness-of-fit indexes include RMSEA, CFI and GFI. In terms of acceptance level, Browne & Cudeck (1993) suggest a value of about 0.08 or less for the RMSEA would indicate a reasonable error, while a value of up to 0.05 would indicate a close fit. Other widely used fit indexes are the GFI (Goodness of Fit Index) and the CFI (Comparative Fit Index), for which the threshold value of 0.90 is usually taken (Byrne 2009). Akaike Information Criterion (AIC) may be used to assess competing models, since it takes into account model complexity (Byrne 2009). Thus, a lower AIC value indicates a better fit compared with the competing models.

The data set was checked for the existence of common-method variance bias. Harman's

one factor test was used for this purpose. To minimize this bias, data collection was performed guaranteeing respondent's: (a) anonymity and confidentiality from third parties; (b) assured them that there were no right or wrong answers; and (c) the dependent constructs (i.e., entrepreneurial intention, PA and PBC) were measured (with some distracter items in between) prior to independent constructs (e.g., risk perception, environmental context), as suggested by the literature (Chang, van Witteloostuijn, & Eden 2010).

## Results

As a validation test for the newly developed scale, the 9 items in the recessionary economic context dimension were factor-analyzed and two factors emerged. The majority of items (I1, I2, I5, I7 and I8) had the highest loading on the first factor. Therefore, these 5 items were selected to be used in the structural model. To check for the presence of common method variance, Harman's one factor test was performed including all indicators in an exploratory factor analysis. Only 27.9% of the variance on the 30 indicators included was explained by the first factor. This is, therefore, taken as evidence that common-method bias is not a serious problem in this dataset.

The model presented in Figure 1 was tested on the full 619-individual sample using structural equation modeling, and including the deputed recessionary economic context scale. An analysis of fit statistics for this Model 1, offered mixed results (RMSEA = 0.06; CFI = 0.87; GFI = 0.86;  $\chi^2 = 1380.46$ ;  $df = 393$ ;  $\chi^2/df = 3.51$ ; AIC = 1524.46). Although RMSEA statistic indicates a good fit, other statistics suggest there is room for improvement.

A careful look at the results pointed to the existence of highly correlated error terms in some of the observed variables. In this respect, and to ensure the unidimensionality of measurement (Anderson & Gerbing 1988; Bordia, Hobman, Jones, Gallois, & Callan 2004) the

following items were removed from each of the scales: risk as threat (D2), recessionary economic context (I7R); personal attitude (A12R), perceived behavioral control (A5R and A16R) and entrepreneurial intention scale (A9R and A17). This second specification was tested (Model 2) with satisfactory results (RMSEA = 0.04; CFI = 0.95; GFI = 0.94;  $\chi^2 = 478.26$ ;  $df = 218$ ;  $\chi^2/df = 2.19$ ; AIC = 594.26). Figure 2 reports results from this Model 2, with indication of standardized regression weights and variance explained (squared multiple correlations). Table 2 presents descriptive statistics for the indicators used in each construct.

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Based on this Model 2, initial reliability statistics are satisfactory, since Cronbach's Alpha and Composite Reliability values range from 0.73 to 0.86, as shown in Table 2 (Nunnally 1978). Following recent practice (Wincent & Ortqvist 2009), discriminant validity is supported (Anderson & Gerbing 1988) when the average variance extracted (AVE) from indicators in the same construct (Table 2) is greater than the shared variance between each pair of indicators (see Table 3). This condition is met in this case. Additionally, since all the correlations in Table 3 are low or moderate, we find no evidence of multicollinearity.

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The specification in Model 2 was tested on each national sub-sample independently (see Figure 3), with good fit indexes (RMSEA = 0.03; CFI = 0.95; GFI = 0.91;  $\chi^2 = 706.27$ ;  $df = 436$ ;  $\chi^2/df = 1.62$ ; AIC = 938.27). As may be seen, the results are similar regarding path values and significant levels. The most notable difference relates to the negative relationship between Risk as threat and PA, which is not significant in the Spanish sub-sample.

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**Insert Figure 3 around here**  
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Based on these results, hypothesis H1 is not supported, since both the relationship between risk as opportunity and risk as threat with entrepreneurial intention are non-significant. Conversely, all other hypotheses are supported. In particular, the relationship between risk perception and intention is clearly an indirect one, through its motivational antecedents (personal attitude and perceived behavioral control, as hypotheses H2 and H3 stated). Seeing risk as an opportunity has a very sizeable positive effect on perceived attitude and behavioral control (0.90 and 0.75, respectively). On the other hand, when risk is perceived as a threat, the opposite relationships hold, although the effects are smaller (-0.12 on personal attitude, and -0.27 on behavioral control), and not significant in the case of the Spanish sub-sample.

Hypothesis H4 related to well established effects (PA and PBC on intention), which have been confirmed here, as expected (0.64 and 0.28 path coefficients, respectively, for the joint

sample). With respect to Hypothesis H5, the relationship between perceptions about the recessionary environment and intention is positive and significant (0.07). That is, the more recession is seen favorably, the higher the entrepreneurial intention, although is not significant for each sub-sample separately. Overall, the model explains 88.3% of the variance in entrepreneurial intention based on PA, PBC and recessionary environment. Besides, it also explains 78.8% and 58.0% of the variance in motivational constructs (PA and PBC respectively), based on risk perceptions, which is notably high.

Hypothesis H6 also holds. Significant relationships were found between risk perception and recessionary environment. Seeing risk more as an opportunity (a covariance of 0.20) was positively related to, and seeing risk as a threat (-0.33) was negatively related to seeing the recession situation as favorable.

One further model was estimated including background variables<sup>6</sup>. A step-by-step procedure was used, eliminating one non-significant path every time, until all remaining path coefficients were significant. This has been labeled Model 3, which offers a good fit (RMSEA = 0.05; CFI = 0.94; GFI = 0.93;  $\chi^2 = 664.89$ ;  $df = 297$ ;  $\chi^2/df = 2.24$ ; AIC = 826.89). Nevertheless, using AIC values, Model 2 offers a better fit, which may be explained by the additional complexity of Model 3 with control variables having only few significant effects.

Including background variables in the model had a very limited effect on the other path coefficients. Most differences concentrate on the risk-as-opportunity construct and its covariances with risk-as-threat (from 0.13 in Model 2, to 0.19 in Model 3) and recessionary-economic-context (from 0.20 to 0.11). Nevertheless, significance levels remain unchanged, while explained variances register only small (un-noteworthy) increases.

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<sup>6</sup> Full graphical representation of research model with background variables available on request.

Age and gender were initially included, but removed during the re-specification process, since no significant relationships were found. Table 4 presents the path coefficients in Model 3 from control variables to model constructs. As may clearly be seen, the great majority of relationships are established with risk perceptions and recessionary environment, whereas very few are established with motivational constructs or entrepreneurial intention. This serves as additional support for the theory, since background variables would only exert an indirect effect on planned behavior constructs (PA, PBC and intention).

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**Insert Table 4 around here**  
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Labor experience as an employee is associated with less positive personal attitude towards entrepreneurship (-0.08 path coefficient) and also with stronger perception that entrepreneurial action involves threatening risks (0.21). Conversely, self-employment experience or personally knowing an entrepreneur tend to diminish this risk-as-threat perception (-0.14 and -0.11, respectively), while increasing risk-as-opportunity perceptions (0.22 and 0.17, respectively). Similarly, they also lead to a more positive valuation of the recessionary environment (0.20 and 0.14, respectively). This helps clarify the way through which these background factors are related to entrepreneurial intention.

Further, the inclusion of a control variable to account for the country effect helps explain different perceptions by country. In particular, Spanish respondents consider risk as a threat to a greater extent (0.14), while they see risk less as an opportunity (-0.10), and the recessionary

environment less favorably (-0.23). Regarding motivations, Spaniards perceived themselves as having a more positive personal attitude (0.11), and a lower behavioral control (-0.14).

### **Discussion**

The main aim of this research was to develop and test a model to examine the psychological (risk as opportunity, risk as threat) and environmental (recessionary economic context) factors related to entrepreneurial motivation (personal attitude and behavioral control) and intention. Consequently, an exploratory structural model was developed to incorporate these factors. The model allowed us to examine the relative importance of antecedents of intention as well as theoretically-driven direct and indirect paths. The model explained a highly satisfactory percentage of the variance in entrepreneurial intention, and even in their motivational antecedents. With the exception of one hypothesis (H1), all other hypothesized paths were significant (H2, 3, 4, 5 and 6). Overall, the model seems fairly robust because it held even with the presence of a range of control variables, and also for each country. In fact, the model without control variables outperformed the model including them. The psychological factor of risk perception (risk as opportunity and risk as threat) emerged as the strongest predictor of entrepreneurial intention, compared to the environmental factor of recessionary economic context, though both were significant.

Findings suggest the risk-intention link is fully mediated by entrepreneurial motivation. These findings are consistent with the two theoretical mechanisms advocated by previous research (Barbosa et al. 2007b; Douglas & Shepherd 2000; Kolvereid 1996; Macko & Tyszka 2009; Zhao et al. 2005). Regarding the first, risk perception (risk as opportunity or risk as threat) is linked to attitudes towards entrepreneurship. The more risk is seen as an opportunity, the



stronger the salient beliefs conforming a higher level of PA (positive valuation of entrepreneurship), whereas the more risk is seen as a threat, the stronger the salient beliefs conforming a lower level of PA (negative valuation of entrepreneurship).

Secondly, as expected, the findings suggest behavioral control also acts as a mediating mechanism, in the risk-intention link. Fear of missing an opportunity (missing-the-boat risk) can enhance behavioral control (greater sense of ease about pursuing entrepreneurship in terms of feeling able and in control), which in turn enhances entrepreneurial intentions and facilitates the new venture creation process. Conversely, the findings suggest a fear of failure (sinking-the-boat risk) acts in the opposite way. It lowers PBC (feelings of self-efficacy and controllability), which in turn lowers intention. These findings lend support to the theory and literature on which they were based (Barbosa et al. 2007b; Dickson & Giglierano 1986; Macko & Tyszka 2009; Venkataraman 2002; Zhao et al. 2005).

An unexpected finding, however, was that entrepreneurial risk perception is not directly linked with intention, as other researchers had suggested (Barbosa et al. 2007b; Dickson & Giglierano 1986; Venkataraman 2002), since risk as opportunity is considered to generate a bias for action, or risk as threat a bias for constraining action. Nevertheless, it is worth noting that Barbosa et al. (2007b) did not include personal attitude in their analysis. Therefore, the direct effect they found of risk on intention may be the result of model misspecification. This would be broadly consistent with the line of thinking by Luthje and Franke (2003) that motivational attitudes mediate the link between risk-taking variables and intention. In any event, further research is surely required on this issue, specifically examining the notion of risk, generating a bias for action or constraint. A second explanation may be related with the specific characteristics of the sample used in this study. Further research with samples from different

countries is important before discounting a direct effect.

Furthermore, as predicted, economic context was directly linked with entrepreneurial intentions (H5). If individuals consider a recessionary economic context as a favorable opportunity to starting up a business, they are more likely to have stronger intentions (eg conviction and determination for business start-up). Conversely, if they consider it pessimistically (e.g., hostile environment), then they are less likely to have strong entrepreneurial intentions. These results suggest a direct contextual link with intentions (Luthje & Franke 2003). Nevertheless, this link is relatively small (the relationship did not hold for each sub-sample separately). Further research is required to examine these country effects and/ or whether the operationalization of this variable needs improvement (discussed later).

Statistically significant covariances were found between risk perception and recessionary economic context (hypothesis H6). This supports the literature that there is relationship between these constructs (Roszkowski & Davey 2010). Respondents appraising risk as an opportunity (positive risk perception) also viewed the recessionary economic context favorably. Conversely, respondents appraising risk as a threat (negative risk perception) also viewed the recessionary economic context unfavorably. Further research and more specific studies will be needed to investigate the existence and the direction of this relationship in more depth, though our research does suggest this is a worthwhile avenue of research, especially given the prolonged and deep nature of the current recession.

Despite the support for the proposed model in this research, however, the findings should be treated tentatively because of the exploratory nature of this research. A possible related limitation would be the operationalization of the recessionary economic context scale. Although the initial exploratory factor and reliability analysis suggest sound psychometric properties,

further development and testing may be interesting. For example, to investigate the extent to which our generic recessionary economic context scale can be developed into sub-scales assessing different dimensions e.g., financial availability, expected market demand, affect towards the context, and so forth. A second limitation was that the data was not drawn randomly from the UK or Spain, and limited to a university in each country. Although the data is relatively representative of HEIs in the two countries examined and the analysis can be considered explanatory, the results should be interpreted with caution and they cannot be generalised to European countries in general<sup>7</sup>. Additionally, since cultural context can also play a role in entrepreneurial intentions (Liñán & Chen 2009), the model may need to be tested further to ensure its cross-cultural stability in non-European countries. Nonetheless, the findings appear promising and quite robust.

Bearing in mind the above strengths and limitations of this study, implications that can be drawn from this paper are twofold. First, in order to enhance entrepreneurial intention (and thus behavior) amongst university students, it is important to note the finding that entrepreneurial risk perception emerged as the strongest explanation of intention, albeit via entrepreneurial motivation. New research suggests that entrepreneurial risk perception (and risk-taking) can be taught and learned (Kyrö & Tapani 2007). This suggests that, for example, universities and entrepreneurial development bodies should consider this in entrepreneurship education and how this education can impact on students risk perception and entrepreneurial motivation. We concur with Barbosa et al. (2007a) that this is an important move forward in evaluating the impact of entrepreneurship education and to take account of these key dimensions in pedagogical design. For example, educators could experiment, pre- and post- educational interventions to examine

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<sup>7</sup> We are grateful to an anonymous reviewer for pointing this issue.

more deeply students psychology of risk as well as the theory of planned behavior constructs of entrepreneurial motivation and intention. This would encompass examining how students evaluate risk and explore the possibility of students not only seeing risk as a negative threat (i.e., fear of failure and the downside of risk), but also risk as a positive opportunity (i.e., missing a good opportunity and the upside of risk). This would include an understanding of the potential for personal gains (e.g., professional development), financial gains (e.g., chances of financial benefits) and social gains (e.g., enhanced regard from significant others) (Barbosa et al. 2007a; 2007b).

The second implication concerns the finding that risk perception and economic context are related. This has implications because it suggests that students' views on risk perception and economic context, even during a recession, may be changed. That is, students could be made aware that, despite a recessionary economic context, the environment could provide good conditions for starting a new business as, for example, new opportunities are emerging as other companies are folding, and companies are looking for alternative suppliers. This could help them make a more informed appraisal of risk as an opportunity, rather than believing the "doom and gloom" media headlines regarding lower customer demand and expected returns and thus assuming the context is too restrictive. Indeed, Stangler (2009) asserts that many of the world's top companies started during a time of recession. This approach may help to inspire and encourage students to at least consider their career options more carefully and not automatically dismiss entrepreneurship during times of recession.

Both of these implications highlight the biases of individual reasoning and judgment. To minimize these biases, the literature in various ways identifies two themes: attitudinal and technical (Ajzen 1988; Barbosa et al. 2007a; Hogarth 1987; Luthje & Franke 2003). The

attitudinal theme broadly suggests that the key to understanding the entrepreneurial behavior of individuals lies in understanding the attitudes behind it. The technical theme suggests that educational tools and decision aids can help entrepreneurial decision making by reducing human perceptual errors. For example, that entrepreneurship is all about losses. In other words, decision-making can be enhanced, or at least more informed, by helping individuals to understand their own attitudes and perceptions.

### **Conclusions**

Overall, this research has contributed towards the literature on entrepreneurial intention by developing and testing an entrepreneurial intentions model incorporating risk perception, entrepreneurial motivation, and intention, along with the role of a recessionary economic context. Such a configuration of constructs brings together three streams of research (psychology of risk, the theory of planned behavior, and economic context). Yet, this has received little attention in previous research. The results support the value of such an approach. It provides evidence of a number of effects, but the main one being indirect. This emphasizes the important mediating role of entrepreneurial motivation (both personal attitudes towards entrepreneurial behavior and perceived behavioral control), between risk perception and entrepreneurial intention. It also sheds some light on the relationship between risk perception and economic context. These explanations offer, we hope, some implications to entrepreneurship educators and pedagogy regarding the importance of some under-researched psychological and economic constructs in entrepreneurial intention. Further research based on this framework should also be carried out to examine these constructs in relation to entrepreneurial behavior, based upon and extending from, the theory of planned behavior, which the present authors plan to pursue.

Further research is also worthwhile to consolidate and extend these findings to examine a number of constructs and questions not considered in this research. For example, since risk perception is a multidimensional construct, how are domain-specific elements like personal, social or financial risk perception, linked with the entrepreneurial motivation constructs, namely, attitudes towards entrepreneurial behavior, perceived behavioral control, and entrepreneurial intentions? More research on these avenues, we believe, would usefully enhance our understanding of entrepreneurial intention and contribute towards developing strategies and initiatives for entrepreneurship education and teaching.

### References

- Ajzen, I. (1988). *Attitudes, Personality and Behavior*. Milton Keynes, UK: Open University.
- Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.
- Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *Journal of Applied Social Psychology*, 32(4), 665-683.
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103(3), 411-423.
- Arenius, P., & Minniti, M. (2005). Perceptual variables and nascent entrepreneurship. *Small Business Economics*, 24(3), 233-247.
- Autio, E., Keeley, R. H., Klofsten, M., Parker, G. G. C., & Hay, M. (2001). Entrepreneurial intent among

- students in Scandinavia and in the USA. *Enterprise and Innovation Management Studies*, 2(2), 145-160.
- Barbosa, S. D., & Fayolle, A. (2007). Where is the Risk? Availability, anchoring, and framing effects on entrepreneurial risk taking, *Babson College Entrepreneurship Research Conference (BCERC) 2007* Madrid (Spain).
- Barbosa, S. D., Fayolle, A., & Lassas-Clerc, N. (2007a). *Assessing risk perception, self-efficacy and entrepreneurial attitudes and intention (WP 023/2007)*. Retrieved 15 April 2010, from <http://www.ncge.com/communities/research/>
- Barbosa, S. D., Kickul, J., & Liao-Troth, M. (2007b). Development and validation of a multidimensional scale of entrepreneurial risk perception, *Annual Meeting of the Academy of Management*. Philadelphia, USA: Academy of Management.
- Bird, B. (1988). Implementing entrepreneurial ideas: the case for intention. *Academy of Management Review*, 13(3), 442-453.
- Boholm, A. (1998). Comparative studies of risk perception: A review of twenty years of research. *Journal of Risk Research*, 1(2), 135-163.
- Bordia, P., Hobman, E., Jones, E., Gallois, C., & Callan, V. J. (2004). Uncertainty During Organizational Change: Types, Consequences, and Management Strategies. *Journal of Business and Psychology*, 18(4), 507-532.
- Bosma, N., Acs, Z. J., Autio, E., Coduras, A., & Levie, J. (2008). *Global Entrepreneurship Monitor. 2008 executive report*. Wellesley, Massachusetts and London: Global Entrepreneurship Research Consortium (GERA).
- Brockhaus, R. (1980). Risk-taking propensity of entrepreneurs. *Academy of Management Review*, 23(3), 509-520.
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136-162). Newbury Park, CA: Sage.
- Byrne, B. M. (2009). *Structural equation modeling with AMOS: Basic concepts, applications and*

- programming* (2nd Edition ed.). New York: Routledge Academic.
- Chang, S.-J., van Witteloostuijn, A., & Eden, L. (2010). From the editors: common method variance in international business research. *Journal of International Business Studies*, 41(2), 178-184.
- Choo, S., & Wong, M. (2006). Entrepreneurial intention: Triggers and barriers to new venture creations in Singapore. *Singapore Management Review*, 28(2), 41-64.
- Dickson, P. R., & Giglierano, J. J. (1986). Missing the boat and sinking the boat: A conceptual model of entrepreneurial risk. *Journal of Marketing*, 50(3), 58-70.
- Douglas, E. J. (2009). Perceptions – Looking at the world through entrepreneurial lenses. In A. L. Carsrud & M. Brannback (Eds.), *Understanding the entrepreneurial mind: Opening the black box* (pp. 3-22). New York: Springer.
- Douglas, E. J., & Shepherd, D. A. (2000). Entrepreneurship as a utility maximizing response. *Journal of Business Venturing*, 15(3), 231-251.
- Eurostat. (2010). *Euroindicators. News release 34/2010*. Retrieved 11 March 2010, from [http://epp.eurostat.ec.europa.eu/cache/ITY\\_PUBLIC/2-04032010-AP/EN/2-04032010-AP-EN.PDF](http://epp.eurostat.ec.europa.eu/cache/ITY_PUBLIC/2-04032010-AP/EN/2-04032010-AP-EN.PDF)
- Fitzsimmons, J. R., & Douglas, E. J. (2011). Interaction between feasibility and desirability in the formation of entrepreneurial intentions. *Journal of Business Venturing*, 26(4), 431-440.
- Franke, N., & Luthje, C. (2004). Entrepreneurial intentions of business students: A benchmarking study. *International Journal of Innovation and Technology Management*, 1(3), 269-288.
- Gnyawali, D. R., & Fogel, D. S. (1994). Environments for entrepreneurship development: key dimensions and research implications. *Entrepreneurship Theory and Practice*, 18(4), 43-62.
- Henry, C., Hill, F., & Leitch, C. (2003). *Entrepreneurship education and training*. Aldershot, Hants, England ; Burlington, Vt.: Ashgate.
- HESA. (2010). *Students in Higher Education Institutions (2009/10)*: Higher Education Statistics Agency.
- Hogarth, R. M. (1987). *Judgement and choice* (2nd ed.). Chichester: John Wiley & Sons.
- ISBA Consortium. (2004). *Making the journey from student to entrepreneur: A review of the existing research into graduate entrepreneurship*. Birmingham, UK: The National Council of Graduate



Entrepreneurship.

- Kline, R. B. (1998). *Principles and practice of structural equation modeling*. New York: Guildford.
- Kolvereid, L. (1996). Prediction of employment status choice intentions. *Entrepreneurship Theory and Practice*, 21(1), 47-57.
- Krueger, N. F. (2000). The cognitive infrastructure of opportunity emergence. *Entrepreneurship Theory and Practice*, 24(3), 5-23.
- Krueger, N. F. (2003). The cognitive psychology of entrepreneurship. In Z. J. Acs & D. B. Audretsch (Eds.), *Handbook of entrepreneurship research: An interdisciplinary survey and introduction* (pp. 105-140). London: Kluwer.
- Krueger, N. F., & Brazeal, D. V. (1994). Entrepreneurial potential and potential entrepreneurs. *Entrepreneurship Theory and Practice*, 19(3), 91-104.
- Krueger, N. F., Reilly, M. D., & Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing*, 15(5-6), 411-432.
- Kyrö, P., & Tapani, A. (2007). Learning risk-taking competences. In A. Fayolle (Ed.), *Handbook of Research in Entrepreneurship Education* (Vol. 1, pp. 285-310). Cheltenham: Edward Elgar.
- Liñán, F. (2008). Skill and value perceptions: how do they affect entrepreneurial intentions? *International Entrepreneurship and Management Journal*, 4(3), 257-272.
- Liñán, F., Battistelli, A., & Moriano, J. A. (2008). Entrepreneurial Intentions in Europe. In J. A. Moriano, M. Gorgievski & M. Lukes (Eds.), *Teaching psychology of entrepreneurship: Perspectives from six European countries* (pp. 21-44). Madrid: UNED.
- Liñán, F., & Chen, Y. W. (2009). Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions. *Entrepreneurship Theory and Practice*, 33(3), 593-617.
- Liñán, F., Nabi, G., & Krueger, N. F. (2013). British and Spanish entrepreneurial intentions: A comparative study. *Revista de Economía Mundial*, 33, 73-103.
- Luthje, C., & Franke, N. (2003). The 'making' of an entrepreneur: testing a model of entrepreneurial intent among engineering students at MIT. *R & D Management*, 33(2), 135-147.

- Macko, A., & Tyszka, T. (2009). Entrepreneurship and risk taking. *Applied Psychology: An International Review*, 58(3), 469-487.
- Mazzarol, T., Volery, T., Doss, N., & Thein, V. (1999). Factors influencing small business start-ups. A comparison with previous research. *International Journal of Entrepreneurial Behaviour & Research*, 5(2), 48-63.
- MECD. (2012). *Las cifras de la educación en España - Estadísticas e indicadores*. Madrid: Secretaría General Técnica - Ministerio de Educación, Cultura y Deportes.
- Mitchell, R. K., Busenitz, L. W., Bird, B., Gaglio, C. M., McMullen, J. S., Morse, E. A., et al. (2007). The central question in entrepreneurial cognition research 2007. *Entrepreneurship Theory and Practice*, 31(1), 1-27.
- MMU. (2010). *Equality and Diversity Annual Report*. Manchester: Manchester Metropolitan University.
- Monsen, E., & Urbig, D. (2009). Perceptions of efficacy, control, and risk, A theory of mixed control. In A. L. Carsrud & M. Brannback (Eds.), *Understanding the entrepreneurial mind: Opening the black box* (pp. 259-284). New York: Springer.
- Moriano, J. A., Gorgievski, M., & Lukes, M. (2008). *Teaching psychology of entrepreneurship. Perspectives from six European countries*. Madrid: UNED.
- Mullins, J. W., & Forlani, D. (2005). Missing the boat or sinking the boat: a study of new venture decision making. *Journal of Business Venturing*, 20(1), 47-69.
- Nabi, G., Holden, R., & Walmsley, A. (2006). *Career-making: Graduating into self-employment*: NCGE
- Nabi, G., Walmsley, A., & Holden, R. (2013). Pushed or pulled? Exploring the factors underpinning graduate start-ups and non-start-ups. *Journal of Education and Work*(In press), 1-26.
- Nunnally, J. C. (1978). *Psychometric Theory*. New York: McGraw-Hill.
- Palich, L. E., & Bagby, D. R. (1995). Using Cognitive Theory to Explain Entrepreneurial Risk-Taking - Challenging Conventional Wisdom. *Journal of Business Venturing*, 10(6), 425-438.
- Ricciardi, V. (2004). A risk perception primer: A narrative research review of the risk perception literature in behavioral accounting and behavioral finance, *International Association for Research in*

- Economic Psychology Conference*. Philadelphia, PA: Society for the Advancement of Behavioral Economics.
- Roszkowski, M. J., & Davey, G. (2010). Risk perception and risk tolerance changes attributable to the 2008 economic crisis: A subtle but critical difference. *Journal of Financial Service Professionals*, 64(4), 42-53.
- Simon, M., Houghton, S. M., & Aquino, K. (2000). Cognitive, biases, risk perception and venture formation: How individuals decide to start companies. *Journal of Business Venturing*, 15(2), 113-134.
- Sitkin, S. B., & Pablo, A. L. (1992). Reconceptualising the determinants of risk behaviour. *Academy of Management Review*, 17(1), 9-38.
- Stangler, D. (2009). *The economic future just happened*. Retrieved 15 April 2010, from <http://www.kauffman.org/uploadedFiles/the-economic-future-just-happened.pdf>
- Taormina, R. J., & Lao, S. K. (2007). Measuring Chinese entrepreneurial motivation. Personality and environmental influences. *International Journal of Entrepreneurial Behaviour & Research*, 13(4), 200-221.
- Thompson, E. R. (2009). Individual entrepreneurial intent: construct clarification and development of an internationally reliable metric. *Entrepreneurship Theory and Practice*, 33(3), 669-694.
- Thurik, A. R., Carree, M. A., Van Stel, A., & Audretsch, D. B. (2008). Does self-employment reduce unemployment? *Journal of Business Venturing*, 23(6), 673-686.
- Tkachev, A., & Kolvereid, L. (1999). Self-employment intentions among Russian students. *Entrepreneurship and Regional Development*, 11(3), 269-280.
- Universities UK. (2012). *Patterns and Trends in UK Higher Education*. London: Universities UK.
- Veciana, J. M., Aponte, M., & Urbano, D. (2005). University students' attitudes towards entrepreneurship: a two countries comparison. *International Entrepreneurship and Management Journal*, 1(2), 165-182.
- Venkataraman, S. (2002). Ten principles of entrepreneurial creation. *Batten Briefings*, 1(1).
- Wincent, J., & Ortqvist, D. (2009). A comprehensive model of entrepreneur role stress antecedents and

consequences. *Journal of Business and Psychology*, 24(2), 225-243.

Zhao, H., Siebert, S. E., & Hills, G. E. (2005). The mediating role of self-efficacy in the development of entrepreneurial intentions. *Journal of Applied Psychology*, 90(6), 1265-1272.

**Appendix: Final items** (*Please read in conjunction with main text*)

**Theory or planned behavior measures (PA, PBC, entrepreneurial intentions).** 7-point Likert scale (1=total disagreement, 4=neither agree/ disagree; 7= total agreement)

- A1. Starting a firm and keeping it viable would be easy for me
- A2R. A career as an entrepreneur is totally unattractive to me
- A4. I am ready to do anything to be an entrepreneur
- A6. I will make every effort to start and run my own business
- A7. I am able to control the creation process of a new business
- A10. If I had the opportunity and resources, I would love to start a business
- A13. I am determined to create a business venture in the future
- A14. If I tried to start a business, I would have a high chance of being successful
- A15. Being an entrepreneur would give me great satisfaction
- A18. Being an entrepreneur implies more advantages than disadvantages to me
- A19R. I have a very low intention of ever starting a business
- A20. I know all about the practical details needed to start a business

**Risk perception measures (risk as opportunity, risk as threat).** 7-point Likert scale (1=total disagreement, 4=neither agree/ disagree; 7= total agreement)

- D1. Starting a new business is very risky
- D3. I see the possibility of starting a business as a potential opportunity to pursue
- D4. The probability of a new venture doing poorly is very high
- D5. If I don't start my own business, I may be missing a great opportunity
- D6. There is great uncertainty when predicting how well a new venture will do
- D7. Overall I would label the option of starting a business as something positive
- D8. The overall riskiness of a new venture is high

**Economic context measure.** 7-point Likert scale (1=total disagreement, 4=neither agree/ disagree; 7= total agreement)

- I1. I am happy to start a new business in the current economic climate
- I2R. For me, starting up a business in the current recession is a serious barrier
- I5R. Starting a business in the current economic climate would pose serious financial difficulties for me
- I8R. I see the current economic climate as unfavorable for me to start a business

**Figure 1. Structural entrepreneurial intention model.**

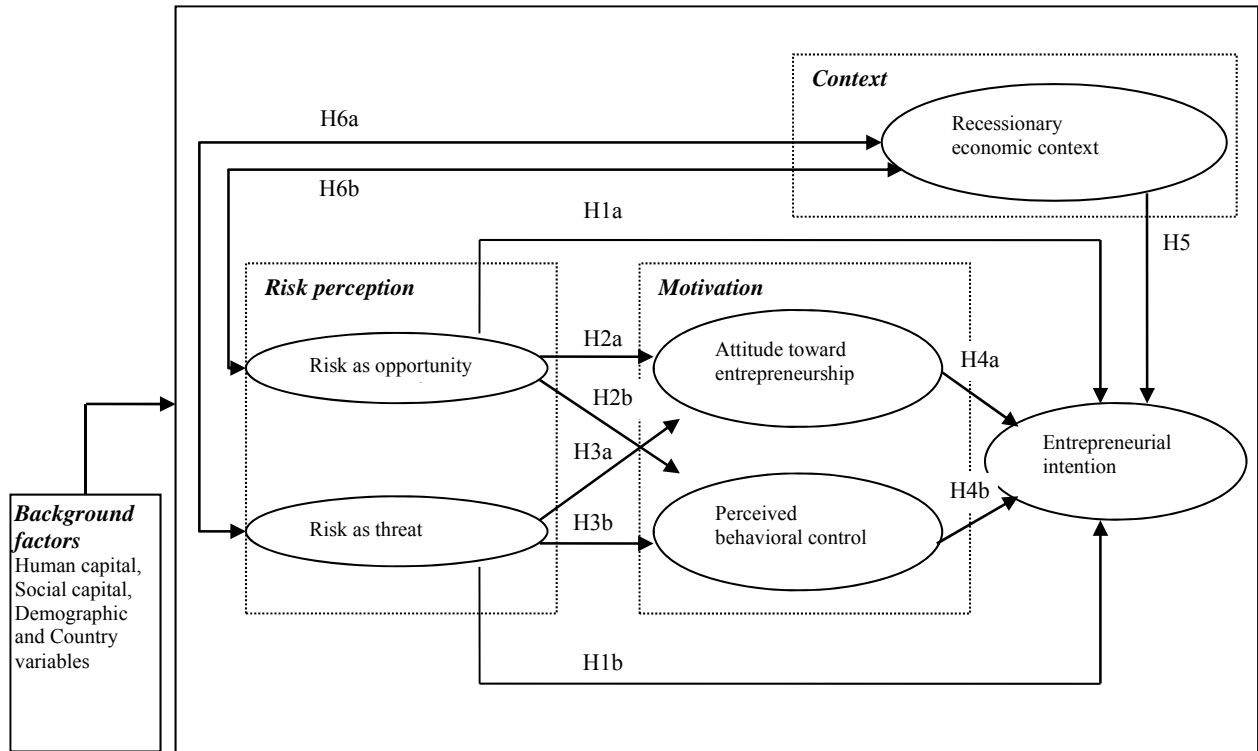
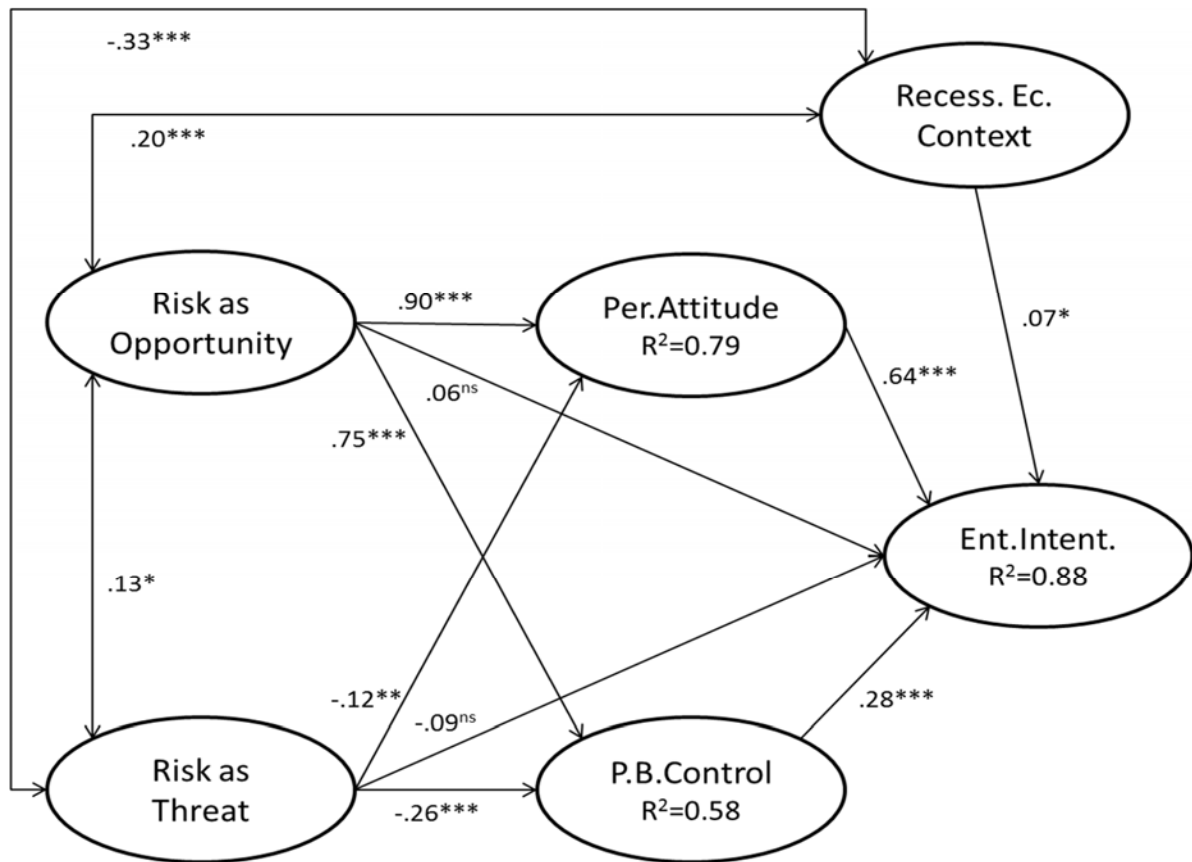
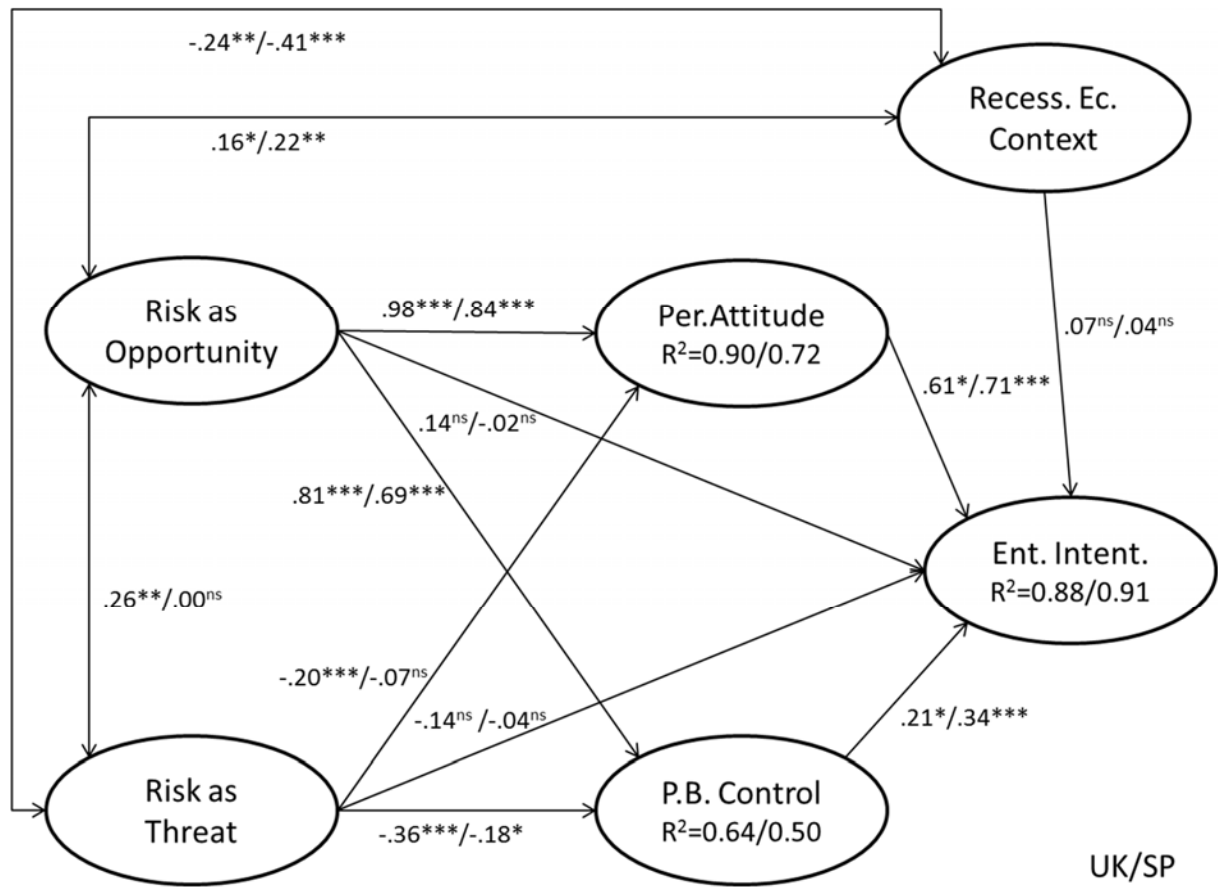


Figure 2. Results of Model 2 (standardized coefficients).



Significance levels of path coefficients: ns = not significant; \* = p<0.05; \*\* = p<0.01; \*\*\* p<0.001.

**Figure 3. Results of Model 2 for each country (standardized coefficients).**



Significance levels of path coefficients: ns = not significant; \* =  $p < 0.05$ ; \*\* =  $p < 0.01$ ; \*\*\*  $p < 0.001$ .



**Table 1.**  
**Sample Characteristics**

	Mean value		T-test for equality of means		
	UK	Spain.	t	df	Sig. (2-tailed)
Age (years)	21.21	20.67	2.911	636.541	<b>.004</b>
Gender	0.561	0.365	5.513	750.173	<b>.000</b>
Employment experience	0.869	0.445	13.710	646.145	<b>.000</b>
Ever self-employed/ SME owner	0.117	0.049	3.439	691.590	<b>.001</b>
Know entrepreneur	0.549	0.563	-.382	757.000	.702

<sup>a</sup> Levene's test for Equality of Variances was performed and the relevant result is presented.

**Table 2.**  
**Descriptive and Reliability Statistics**

Scale	Indicator	Loading	C.R. <sup>1</sup> ..	Cronbach's $\alpha$	AVE <sup>1</sup>
Risk as Opportunity	D3	5.292	0.732	0.715	0.479
	D5	4.606			
	D7	5.498			
Risk as Threat	D1	5.561	0.752	0.744	0.436
	D4	4.653			
	D6	5.291			
	D8	5.420			
Recessionary Economic Context	I1	3.133	0.762	0.757	0.448
	I2R	3.352			
	I5R	2.971			
	I8R	3.225			
Personal Attitude	A2R	5.604	0.788	0.778	0.484
	A10	5.906			
	A15	5.625			
	A18	4.961			
Perceived Behavioral Control	A1	4.087	0.733	0.730	0.410
	A7	4.585			
	A14	4.656			
	A20	3.630			
Entrepreneurial Intention	A4	4.205	0.856	0.853	0.603
	A6	4.729			
	A13	4.685			
	A19R	5.065			

N = 619 in all cases. R = reverse scored.

<sup>1</sup> C.R. = Composite reliability; AVE = Average Variance Extracted from the indicators in each construct.

**Table 3. Correlation between Indicators (N=619)**

Indicators	D3	D5	D7	D1	D4	D6	D8	I1	I2R	I5R	I8R	A2R	A10	A15	A18	A1	A7	A14	A20	A4	A6	A13	A19R
Risk as Opportunity	D3	---																					
	D5	0.38	---																				
	D7	0.58	0.46	---																			
Risk as Threat	D1	0.09	0.02	0.02	---																		
	D4	-0.06	0.05	-0.10	0.35	---																	
	D6	0.03	0.11	0.17	0.36	0.38	---																
	D8	0.06	0.11	0.10	0.52	0.43	0.51	---															
Recess. Economic Context	I1	0.24	0.21	0.20	-0.14	-0.11	-0.09	-0.17	---														
	I2R	0.09	0.10	0.06	-0.17	-0.11	-0.09	-0.16	0.44	---													
	I5R	0.05	0.07	0.05	-0.19	-0.12	-0.16	-0.18	0.30	0.41	---												
	I8R	0.07	0.11	0.07	-0.19	-0.15	-0.13	-0.19	0.50	0.53	0.37	---											
Personal Attitude	A2R	0.31	0.30	0.40	-0.06	-0.15	0.02	-0.05	0.10	0.07	0.11	0.03	---										
	A10	0.45	0.43	0.46	0.03	-0.09	0.01	0.04	0.16	0.08	0.07	0.08	0.41	---									
	A15	0.49	0.37	0.49	0.02	-0.10	0.03	0.04	0.12	0.00	0.06	0.03	0.44	0.55	---								
	A18	0.44	0.40	0.49	-0.03	-0.12	0.03	-0.01	0.18	0.02	0.12	0.09	0.38	0.46	0.59	---							
Perceived Behavioral Control	A1	0.31	0.24	0.37	-0.11	-0.10	-0.04	-0.08	0.28	0.10	0.15	0.13	0.27	0.28	0.35	0.29	---						
	A7	0.31	0.24	0.33	-0.02	-0.09	0.01	-0.03	0.22	0.07	0.07	0.06	0.23	0.35	0.33	0.30	0.43	---					
	A14	0.36	0.34	0.35	-0.09	-0.15	-0.09	-0.06	0.27	0.13	0.07	0.13	0.29	0.39	0.46	0.39	0.46	0.45	---				
	A20	0.22	0.29	0.25	-0.14	-0.08	-0.08	-0.08	0.25	0.10	0.02	0.10	0.17	0.21	0.20	0.25	0.39	0.37	0.37	---			
Entrepr. Intention	A4	0.37	0.33	0.44	-0.09	-0.17	-0.05	-0.06	0.23	0.10	0.16	0.11	0.42	0.40	0.51	0.46	0.35	0.36	0.38	0.29	---		
	A6	0.44	0.39	0.49	-0.06	-0.16	-0.06	-0.04	0.27	0.12	0.16	0.11	0.38	0.55	0.50	0.49	0.40	0.46	0.49	0.30	0.59	---	
	A13	0.51	0.48	0.52	-0.07	-0.15	-0.06	-0.06	0.30	0.14	0.18	0.16	0.41	0.61	0.58	0.52	0.41	0.42	0.56	0.31	0.55	0.71	---
	A19R	0.44	0.40	0.49	-0.10	-0.21	-0.06	-0.11	0.28	0.14	0.22	0.19	0.48	0.55	0.50	0.46	0.38	0.36	0.44	0.28	0.48	0.58	0.66

**Table 4.**  
**Path coefficients of control variables on model constructs**

	Risk as Opportunity	Risk as threat	Recessionary environment	Personal Attitude	P. Behav. Control	Entrepr.l Intention
Employment experience	---	0.212***	---	-0.083*	---	---
Self-employment exp.	0.218***	-0.143**	0.199***	---	---	---
Know entrepreneur	0.168***	-0.105*	0.137**	---	---	---
Country	-0.100*	0.140**	-0.226***	0.110**	-0.138***	---

Note: Control variables are dichotomous (0 = No/ UK; 1 = Yes/ Spain).

Significance level: \* =  $p < 0.05$ ; \*\* =  $p < 0.01$ ; \*\*\* =  $p < 0.001$ .