Between domestic and international new ventures: the relevance of entrepreneurs' and firms' characteristics

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Abstract: We investigate the relevance of both the characteristics of entrepreneurs and those of firms as determinants of new international ventures. Our investigation is built on the knowledge-based view and upper-echelons theories. Using data from a cross-sectional survey of 4193 new ventures, domestic and international, we combine the net effects from structural equation modelling (SEM) with the combinatorial effects from a fuzzy set qualitative comparative analysis (fsQCA). The findings show that both the firms' and entrepreneurs' characteristics are relevant to a new venture becoming international. The fsQCA's results show that both high and low values for the entrepreneurs' personality characteristics influence new ventures going international.

Keywords: international entrepreneurship; domestic new ventures; international new ventures; entrepreneur's personality; entrepreneur's demographics; firm's characteristics; fsQCA.

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1   Introduction

The international entrepreneurship (IE) research started almost three decades ago with McDougall's seminal article (1989) as its starting point (Jones et al., 2011). This field can be defined as "the discovery, enactment, evaluation and exploitation of opportunities – across national borders – to create future goods and services" (Oviatt and McDougall, 2005, p.540). As suggested by Jones et al. (2011), this research field comprises three main areas: entrepreneurial internationalisation, which analyses "entrepreneurship that crosses the national borders" (Jones et al., 2011, p.635); international comparisons of entrepreneurship that focuses on comparing entrepreneurship behaviours across countries or cultures; and comparative entrepreneurial internationalisation that is a blend of the first two. This study falls within the scope of the first area of research because it analyses the factors that differentiate international new ventures (INVs) and domestic new ventures (DNVs). Although some of the first studies in the field explored the differences between these two types of firms (McDougall, 1989; Oviatt and McDougall, 1994; McDougall et al., 2003), only recently has a scarce number of studies begun to address this difference (e.g. Spence et al., 2011; Rasmussen et al., 2012; Madsen et al., 2015).

A review of the literature in the IE field shows that most studies focus on the characteristics of the firm (Keupp and Gassmann, 2009; Jones et al., 2011). However, the studies that view the entrepreneur's characteristics as determinants of INVs only consider demographic features (McDougall et al., 2003; Belso-Martínez, 2006; Zucchella et al., 2007). Researchers in the IE field have not explored personality or psychological characteristics as determinants of INVs, although the entrepreneurship field has widely examined them (Zhao and Seibert, 2006). Finally, the majority of the research in this field uses net effects methods (like regression-based techniques). This study extends the research by combining both firms' and entrepreneurs' characteristics while balancing correlational and configurational methods.

According to several researchers in IE (Crick and Spence, 2005; Rialp et al., 2005; Mtigwe, 2006), a single theory cannot explain the INV phenomenon. Therefore, this research is built on two complementary theoretical frameworks: upper-echelons theory and the knowledge-based view. The first theory argues that top managers' characteristics, behaviours, and values influence their strategic choices and therefore the performance of the firm (Hambrick and Mason, 1984; Hambrick, 2007). In this way, the interpretation of a given situation by the managers of a firm accounts for their own demographic and psychological characteristics as well as their functional background, financial position, and tenure with the firm (Hambrick, 2007). The knowledge-based view (Grant, 1996b) argues that knowledge (both explicit and tacit) is one of the major factors in firms achieving competitive advantage. The knowledge-related characteristics of the firm, especially the intangible and tacit-based, are very difficult to imitate or transfer, and therefore constitute a major value for firms. The strategic posture, for instance entrepreneurial or international, can be interpreted as a knowledge-based resource that leads firms to achieve higher competitive advantage in international markets (Wiklund and Shepherd, 2003; Al-Aali and Teece, 2014). But, the firm's age can also be an indicator of knowledge intensity (Yli-Renko et al., 2002).

The purpose of this research is to understand how entrepreneurs' and firms' characteristics influence whether a firm becomes a INV or remains a DNV. Specifically, the study's objectives are threefold: to explore the net effects of different characteristics that are related to both the entrepreneur and the firm that determine whether a firm

becomes an INV; to understand how these causal characteristics combine to explain INVs, and to examine if the configurations that lead DNVs are asymmetrical to the solutions for INVs.

To achieve those goals, we use a large data set of Portuguese new ventures ($n = 4193$), both domestic and international, that we obtained through a cross-sectional survey. We perform both structural equation modelling (SEM) and the fuzzy-set qualitative comparative analysis (fsQCA) to access both net and combinatorial effects. In recent years this complementarity has gained momentum, and an increasing number of researchers in the management field are using these two methods simultaneously (e.g., Skarmeas and Leonidou, 2013; Skarmeas et al., 2014; Tho and Trang, 2015; Hernández-Perlines et al., 2016).

The results of the net effect analysis confirm that both entrepreneurs' and firms' characteristics are simultaneously relevant to INVs. Moreover, entrepreneurs' demographic characteristics are not the only ones that are significantly associated with INVs but also two psychological characteristics: openness to experience and low conscientiousness. Complementarily, the configurational analysis shows that there are several combinations of characteristics that are sufficient for INVs. But, some of the entrepreneurs' characteristics can integrate those combinations with different values, that is, being present or absent. The configurational analysis on DNVs shows the complexity of these phenomena since the configurations are not symmetrical.

The rest of the paper is structured as follows: The second section is a literature review on the differences between INVs and DNVs and the antecedents of the INVs. The next section summarises the data collection process and the methods. Next, we cover the results. Finally, we discuss the key findings and conclude.

2 Literature review and hypotheses development

2.1 International new ventures versus domestic new ventures

Since the 1990s, the research on new ventures has given increasing attention to the growing number of new and young firms that decide to compete in foreign markets from or close to inception (McDougall, 1989; Oviatt and McDougall, 1994; Oviatt and McDougall, 1997; McDougall et al., 2003). This new category of firms has challenged the traditional theory of incremental internationalisation in which firms start to expand internationally several years after competing exclusively in their domestic market (e.g., Johanson and Wiedersheim-Paul, 1975; Johanson and Vahlne, 1977). The research has labelled this new model as international entrepreneurship theory (Mtigwe, 2006) or theory of international new ventures (Zahra, 2005).

This theory defines these firms, called international new ventures (INVs) as organisations that from inception "seek to derive significant competitive advantage from the use of resources and the sale of outputs to multiple countries" (McDougall et al., 1994, p.470; Oviatt and McDougall, 1994, p.49). This research also labels INVs as born globals and uses both terms interchangeably (Coviello et al., 2011). These firms usually face three types of liabilities (Zahra, 2005): newness, smallness, and foreignness.

The first two types of liabilities exist in domestic new ventures (DNVs). Since both these two types of firms are young, they face disadvantages when competing with established firms because of inexperience and the limitations regarding access to

resources or lack of credibility. Thus, they suffer from a "liability of newness" (Oviatt and McDougall, 1994; Madsen and Servais, 1997). Similarly, these firms are usually small. Hence, they also face the "liability of smallness" that limits their stocks of resources and knowledge, and their resistance to failure.

A major difference between INVs and DNVs is the "liability of foreignness," because INVs endeavour to access foreign markets, they face disadvantages to domestic competitors in those new markets (Oviatt and McDougall, 1994; Madsen and Servais, 1997). This disadvantage means that they must work harder to overcome entry barriers to foreign markets while also identifying and accessing their potential clients and suppliers, and getting approval from their customers.

Some of the first studies in the IE field explore the differences between these two types of firms (McDougall, 1989; Oviatt and McDougall, 1994; McDougall et al., 2003). For instance, McDougall et al. (2003) test the relevance of the entrepreneur's characteristics in terms of the strategic aspects of the firm and industry factors to distinguish between INVs and DNVs. They find that the entrepreneurial team's international, industry, and technical experience contribute to distinguishing between those two types of new ventures. The experience, knowledge, or linkages of the entrepreneur (or the entrepreneurial team) may compensate for the lack of organisational experience and knowledge developed internally by the company, which is needed to compete successfully on international grounds (Cooper and Dunkelberg, 1986; McDougall et al., 2003).

Despite the importance of this issue, the number of recent studies that distinguish between these two types of ventures is scarce (e.g. Spence et al., 2011; Rasmussen et al., 2012; Madsen et al., 2015).

From a holistic view, an examination of INV process can disclose several types of antecedents related to the industry, market, entrepreneur, and the firm. It can also identify several types of characteristics of firms, such as their actions, decisions, or networks (Jones and Coviello, 2005; Rialp-Criado et al., 2010; Crespo et al., 2015). However, in this study, we focus on the relevance of specific entrepreneurs' and firms' characteristics.

2.2 *Entrepreneurs' demographic characteristics*

For new ventures, organisational decisions are usually in the hands of one person or a small group of people – the entrepreneur or the entrepreneurial team – that have a distinctive and vital role in the organisation (Bloodgood et al., 1996; Westhead et al., 2001; Zucchella et al., 2007). The upper-echelons theory argues that the top manager's behaviour and values influence the firm's strategic choices and organisational performance (Hambrick and Mason, 1984; Hambrick, 2007). Thus, a set of characteristics of top managers, such as age, education, functional background, socioeconomic roots, financial position and tenure in the organisation, and psychological dimensions can influence a given situation (Hambrick and Mason, 1984).

Although entrepreneurs are the trigger for the process (Gartner, 1988), the IE research scarcely examines their role. Most of the literature in the IE research has focused on the characteristics of the firm (Jones et al., 2011). Several authors highlight this issue (Keupp and Gassmann, 2009; Jones et al., 2011; Coviello, 2015). In new ventures, the systems, politics, and routines are still in an embryonic phase, and the entrepreneur's personal experience that supports decisions (Oviatt and McDougall, 1997).

The literature has extensively analysed the relevance of the entrepreneurs' foreign experience and knowledge at this stage both theoretically (e.g. McDougall et al., 1994; Madsen and Servais, 1997; Oviatt and McDougall, 1997; Jones and Coviello, 2005), and empirically (e.g. Bloodgood et al., 1996; Kuemmerle, 2002; Belso-Martínez, 2006; Zucchella et al., 2007; Federico et al., 2009). An entrepreneur's prior professional experience abroad, foreign educational experience, and travelling experience translate into international exposure and knowledge about foreign markets that he or she can apply to the new venture (Kuemmerle, 2002; Federico et al., 2009). Several researchers conclude that the higher the educational level, the higher the propensity that new ventures become international (McDougall et al., 1994; Kuemmerle, 2002; Thai and Chong, 2008). Other authors also conclude that entrepreneurs with MBA or Masters degrees who have been exposed to international business issues (Kuemmerle, 2002) have higher international knowledge. The entrepreneur's international experience or exposure can directly affect a firm's business and institutional knowledge of other countries (Federico et al., 2009; Spence and Crick, 2009). Therefore, we test three demographic characteristics of entrepreneurs as determinants of INVs: entrepreneur education level, foreign professional experience, and foreign education.

Based on the arguments presented above, we formulate the following research hypothesis:

H1: Three demographic characteristics of entrepreneurs are associated with INVs: a) foreign education; b) foreign professional experience, and c) entrepreneur education.

2.3   Entrepreneurs' personality characteristics

Although the entrepreneurship research has widely discussed the personality characteristics of entrepreneurs, it needs to explore further their influence in the internationalisation process. The entrepreneurship field has studied a set of personality traits that integrate the five-factor model of personality (FFM) but it lacks consistency with the IE research (Zhao and Seibert, 2006; Zhao et al., 2010; Brandstätter, 2011; Markin et al., 2017). This model comprises neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. In the literature, there is evidence of the universality of these five factors as reflected in the studies on different populations and various different variables (Costa et al., 1991; Costa and McCrae, 1992).

The study by Costa and McCrae (1992) describes the five dimensions. Neuroticism embodies the differences between individuals in their emotional stability and adjustment. A high score expresses negative emotions and a low score indicates self-confidence. Extraversion evaluates the scope of personal features such as talkativeness, dominance, assertiveness, energy, and enthusiasm. The openness to experience assesses an individual's intellectual curiosity and tendency towards seeking new experiences and ideas. Agreeableness describes one's interpersonal orientation. Someone at the high end of agreeableness is trustworthy and altruistic, whilst individuals scoring low on this dimension are prone to manipulation and ruthlessness. Conscientiousness characterises a person's degrees of organisation, persistence, and motivation to achieve his or her goals, where a high score describes an efficient and organised person, and a low score manifests recklessness.

Using this all-inclusive approach, some researchers have explored the influence of these five traits on entrepreneurial behaviour. Zhao and Seibert (2006) study the

differences between entrepreneurs and managers and find that the five personality traits influence the entrepreneurial status where conscientiousness and openness to experience have a determinant role. Zhao et al. (2010) show that both conscientiousness and openness to experience are the two most significant constructs associated with entrepreneurial intention and performance. Moreover, Ismail et al. (2009) find significant relations between openness to experience and extraversion and entrepreneurial intention. Obschonka et al. (2010) describe an entrepreneurial personality in which a person presenting high levels of conscientiousness, extraversion, and openness to experience displays higher entrepreneurial intentions.

Therefore, an entrepreneur's personality clearly influences his or her thoughts, actions, and achievements (Brandstätter, 2011). The assessment of a business opportunity depends on the entrepreneur's skills, experiences, and personality characteristics. These personality or psychological characteristics define the entrepreneur's ability to recognise and exploit opportunities across borders (Miner, 2000; Zahra et al., 2005). Hence, this study outlines and tests three personality dimensions, openness to experience, conscientiousness, and extraversion. We combine those with demographic and firm characteristics as determinants of INVs.

In this context, based on the previous literature, we formulate the following research hypothesis:

H2: Entrepreneurs' personality characteristics of a) openness to experience, b) conscientiousness, and c) extraversion are associated with INVs.

2.4   Firms' characteristics

The knowledge-based view argues that sustained competitive advantages involve resources that are idiosyncratic (and therefore scarce) and not easily transferable or replicable (Grant, 1991; Grant, 1996a). This argument underlines knowledge as the most strategically important resource of a firm. Knowledge-based resources can be particularly vital in providing sustainable competitive advantage due to their intrinsic difficulty regarding imitation, and thus in leveraging sustainable differentiation (McEvily and Chakravarthy, 2002). In this sense, knowledge can be defined as a distinctive and strategic production factor that has a high impact on several of the firm's capabilities, such as productivity, innovation, and product development (Spender, 1996). Hence, the firm's strategic orientation can be a relevant measure of non-imitable and transferable knowledge. Entrepreneurial orientation is the firm's strategic orientation and captures the particular entrepreneurial aspects of decision-making styles, practices, and methods (Lumpkin and Dess, 1996). A firm with high entrepreneurial orientation is a firm that "engages in product-market innovation, undertakes somewhat risky ventures, and is first to come up with 'proactive' innovations, beating competitors to the punch" (Miller, 1983, p.771).

Therefore, entrepreneurial orientation influences several of the firm's actions or decisions for gaining competitive advantage over its competitors, and thus, obtaining superior performance (Lumpkin and Dess, 1996; Wiklund and Shepherd, 2003). Entrepreneurial orientation is one of the most relevant constructs analysed in the entrepreneurship field (Covin et al., 2006; Keupp and Gassmann, 2009; Rauch et al., 2009) and in the IE research field (Jantunen et al., 2005; Keupp and Gassmann, 2009; Hansen et al., 2011; Jones et al., 2011; Celec et al., 2014). Several authors identify a

positive relation between the entrepreneurial orientation's dimensions and the creation of an INV (Kropp et al., 2008; Sozuer et al., 2017). Kropp et al. (2008) find that risk-taking and proactiveness play an essential role in the process of transforming start-ups into actual business ventures. In a different study, although a correlation between entrepreneurial orientation and the degree of internationalisation is absent, Jantunen et al. (2005) find that the firm's entrepreneurial orientation is associated with performance. Moreover, they find a significant influence of international organisational capabilities on performance not solely for born globals and SMEs but also for firms already established in foreign markets. Entrepreneurial orientation seems to be part of the born globals' mindset that works as an action mechanism towards international performance (Knight and Cavusgil, 2004). The same is true for new exporters who manifest a higher global orientation than non-exporters (Moen and Servais, 2002; Acedo and Florin, 2006).

International orientation also is a great predictor of the internationalisation of small firms (Ruzzier et al., 2007). This strategic posture translates the high relevance that firms give to international markets when they develop their products and use their technology (Preece et al., 1999; Berry and Brock, 2004).

Further, a firm's age also influences its internationalisation process. Some studies posit that by getting older, firms gain greater knowledge, and therefore age can act as an indicator of knowledge intensity (Yli-Renko et al., 2002). Therefore, it can also lead to competitive advantage. Thus, age positively impacts international growth (Westhead, 1995; Andersson et al., 2004; Kropp et al., 2008). Other researchers argue that although older firms can be more experienced, younger firms such as an INV have a tendency to act quickly that works as an advantage when entering new markets (Autio et al., 2000; Carr et al., 2010). Hence, we test three different characteristics of the firm as determinants of INVs: entrepreneurial orientation, international orientation, and age.

Considering the previous literature concerning firm's characteristics, we make the following research hypothesis:

H3: Three characteristics of firms, a) entrepreneurial orientation, b) international orientation, and c) age, are associated with INVs.

We also make the following hypotheses on the overall relevance of these three groups of characteristics:

H4: The configurations of causal conditions that lead to INVs include both entrepreneurs' and firms' characteristics.

H5: Configurations of entrepreneurs' and firms' characteristics that lead to INVs are asymmetrically different from those that lead to DNVs.

Figure 1 graphically illustrates the proposed conceptual framework and the hypotheses presented in the previous sections.

Figure 1 Research framework
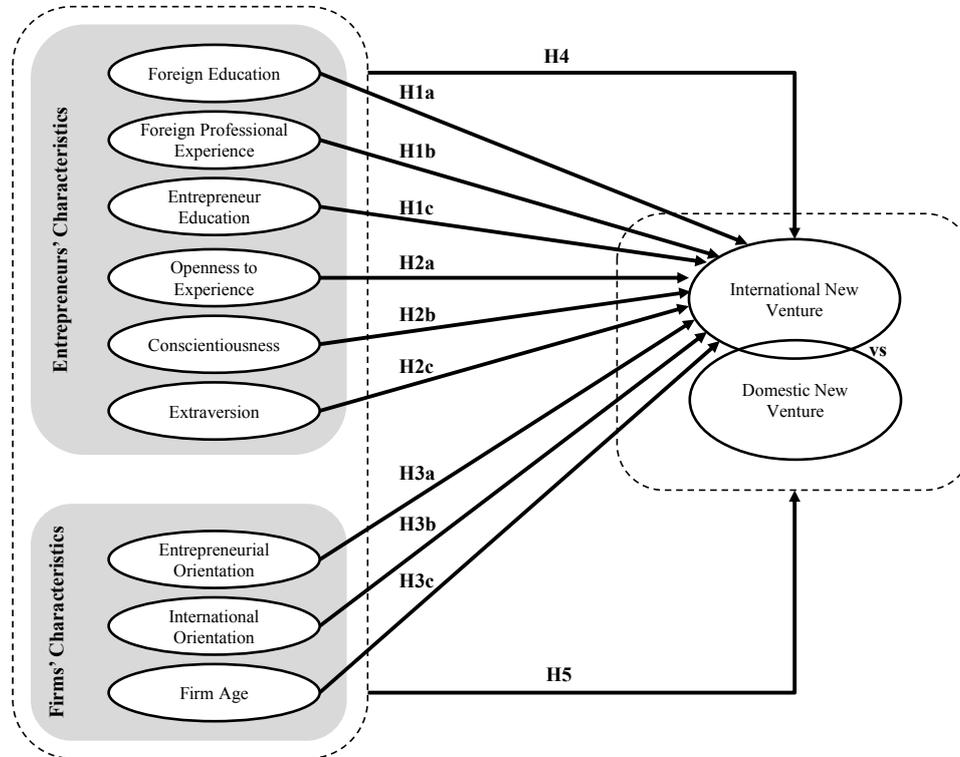
3 Methods

3.1 Data collection

We collected our data through an online questionnaire. The initial population comprised Portuguese new ventures (both DNVs and INVs) that cumulatively observed the following conditions: founded between 2004 and 2013 and remained active until 2013; included all industries except for the tourism and transport sectors because these industries are more difficult to measure because they usually deal with international customers without being effectively international; and have an available email address. The database came from eInforma (Dun & Bradstreet) and originally contained a total of 38,098 firms. The questionnaire was pretested with a sample of 15 firms. The first invitation and three subsequent reminders with the link to the survey questionnaire were sent by email to the participants. We received a total of 5287 responses, which represents a response rate of 14.7% (3019 DNVs and 2268 INVs). In order to enhance the reliability of the results, several procedures were applied. The questionnaires that were not completed by the initial founders or main managers of the firms (726) were excluded as well as the incomplete and unengaged responses (368). Therefore, the final sample comprised 4193 firms (2461 DNVs and 1732 INVs), which equals a final response rate of 11%.

The firms had an average age of 6.2 years (S.D. = 2.7), and about 41.4% of the firms operated in international markets. Since the original sample was multi-industry, the most represented sectors were: services (48.7%), commerce (29.1%), manufacturing (9.9%), and construction (9.6%). The INVs took on average 1.7 years (S.D. = 2.1) to start the internationalisation process. The mean of exports is 17.1% (S.D. = 30.7%) of their total turnover, and these ventures have international experience of on average 4.5 years (S.D. = 2.7).

3.2   Measures

Though this study uses some observed variables (firm age, entrepreneur education and new ventures with international operations), the majority of variables are assessed by multi-item scales. The scales use a 7-point Likert type scale that ranges from "1=strongly disagree" to "7=strongly agree." All of the scales come from previous studies in the literature and are already validated instruments. The information concerning the measurement items and the reliability and validity assessments of the variables is presented in Appendix A.

We measure the personality and demographic variables related to the entrepreneur differently. Regarding the personality variables, we measured openness to experience (3 items), conscientiousness (3 items), and extraversion (3 items) with the items from Caliendo et al. (2014). The demographic variables were operationalised as follows: foreign education and foreign professional experience were measured by using a Likert type scale ranging from "1 = very low" to "7 = very high." The respondents were asked about the founders' experience in those particular aspects. The entrepreneur's education level was operationalised as a codified ordinal variable (Elementary school = 1; Middle school = 2; Some high school = 3; High school = 4; Professional school = 5; Bachelor's degree = 6; Post-degree or specialisation degree = 7; Master's degree = 8; Doctoral degree = 9).

The variables related to the firm comprised two perceptual variables and a demographic variable. Entrepreneurial orientation was measured using a second-order scale of 11 items from Lumpkin and Dess (2001), organised in four dimensions: innovativeness (3 items), proactiveness (3 items), risk taking (3 items) and competitive aggressiveness (2 items). International orientation was measured using a 5-item scale from Preece et al. (1999) that was also used by Berry and Brock (2004). The firm's age, the only demographic variable related to the firm in this study, was computed as the difference between the year of the launch of the study and the year of the inception of the firm. The scales were originally in English and, therefore, were translated into Portuguese.

The dependent variable, labelled INV_DNV, is a *dummy* variable that is classified as one if the respondents answered that the firm has already started international activity and as zero if the respondents answer that the firms only have activity in a domestic market.

Since the values of the variance inflation factors (VIF) range between 1.073 and 1.392, and are much lower than the 10.0 threshold, there are no multicollinearity problems (Hair et al., 2009).

3.3 SEM analysis and fsQCA

In this study, two methods of analysis are used complementarily, as recommended by several authors (Rihoux and Ragin, 2009; Vis, 2012), they are structural equation modelling (SEM) and a fuzzy-set qualitative comparative analysis (fsQCA). These two methods have been used in a balancing way, since they depend on different principles; the SEM is variable-oriented, and the fsQCA is case-oriented. Further, the SEM relies on the principles of unifinality, additive effects, and linearity and focuses on the net effects of a set of independent variables on a dependent variable. The fsQCA follows different principles such as equifinality, multi-finality, asymmetric causality, and conjunctural causation and therefore focuses on how several independent variables (or conditions) combine to achieve a specific dependent variable or outcome (Rihoux and Ragin, 2009; Woodside, 2013). In the recent years, this method has been increasingly used in the fields of business and entrepreneurship (Roig-Tierno et al., 2016; Seny Kan et al., 2016; Roig-Tierno et al., 2017).

4 Empirical analysis

4.1 SEM analysis

As recommended by Anderson and Gerbing (1988), we follow the two-stage approach in which the latent variables are evaluated in measurement models before adding them to the structural model (Fornell and Larcker, 1981; Anderson and Gerbing, 1988; Hair et al., 2009).

4.1.1 Non-response bias and common-method bias

To test for non-response bias, we compare the responses of early and late participants (first 75% and last 25% of responses) regarding the items of constructs and demographic variables. We identify no major problems.

Since the data come from a self-reported source, the common method bias (CMB) could be an issue (Podsakoff and Organ, 1986; Podsakoff et al., 2003). We implement several procedures in the survey design to avoid CMB (Podsakoff et al., 2003): (i) anonymity of respondents is assured to limit the social desirability of responses; (ii) respondents are not aware of the conceptual model; (iii) the sequence of questions does not replicate the order of the variables in the conceptual model; and (iv) the constructs used originate from different sources that have been previously validated.

Moreover, to control for CMB, we perform Harman's one-factor test that includes all of the variables in the present study. A principal component factor analysis with a non-rotated solution generates eight factors (eigenvalues > 1.0). These factors explain 66.7% of the total variance in which the first extracted factor accounts for 23.6% of the total variance. These results do not offer any reason for concern regarding CMB.

4.1.2 Measurement model

An initial confirmatory factor analyses (CFA) uses a maximum likelihood estimate. We perform it to evaluate the unidimensionality, validity, and reliability of all latent variables (Bagozzi and Yi, 2012). This procedure is executed by using the AMOS software

package (Byrne, 2010). We use an interactive process to purify the scales and drop some items, and therefore we measure some constructs with only two items. In this study, this is not problematic due to the large dimension of the sample (Hair et al., 2009).

As shown in Appendix A, all of the items in the latent variables show loadings above the 0.70 threshold (Bagozzi and Yi, 1988; Bagozzi and Yi, 2012), which constitutes evidence on the unidimensionality of the variables (Hair et al., 2009). These values are also relevant to ensure the convergent validity of the variables. The average variance extracted (AVE) for each latent variable is also higher than 0.50, which demonstrates high convergent validity (Hair et al., 2009). Moreover, since one of the latent variables, entrepreneurial orientation, is a second-order construct, the loadings of the relations between the first-order dimensions (innovativeness, proactiveness, risk taking, and competitive aggressiveness) and the second-order construct need to be significant (Bagozzi and Yi, 2012). In this study, this requisite is also satisfied because all of the coefficients are high and significant: innovativeness ($\gamma = 0.77$; $p < 0.001$), proactiveness ($\gamma = 0.86$; $p < 0.001$), risk taking ($\gamma = 0.74$; $p < 0.001$), and competitive aggressiveness ($\gamma = 0.70$; $p < 0.001$).

All the latent variables have Cronbach's alpha (α) and composite reliability (CR) values above the 0.70 thresholds (Nunnally, 1978; Hair et al., 2009): openness to experience ($\alpha = 0.80$, CR = 0.80), conscientiousness ($\alpha = 0.70$, CR = 0.71), extraversion ($\alpha = 0.87$, CR = 0.87), entrepreneurial orientation ($\alpha = 0.90$, CR = 0.85), and international orientation ($\alpha = 0.87$, CR = 0.85). These values demonstrate good construct reliability.

Lastly, all the pairs of constructs meet Fornell and Larcker's (1981) assessment of discriminant validity, since the square root of the AVE from each construct is higher than the values of the correlations (r^2) between each construct and the other constructs in the model (see Table 1).

Table 1   Correlation matrix

	1	2	3	4	5	6	7	8	9	10
1. Openness to Experience	**0.815**									
2. Conscientiousness	0.475**	**0.739**								
3. Extraversion	0.398**	0.274**	**0.881**							
4. International Orientation	0.112**	0.034	0.028	**0.769**						
5. Entrepreneurial Orientation	0.483**	0.236**	0.206**	0.401**	**0.770**					
6. Foreign Education	0.095**	0.006	0.017	0.089**	0.070**	-				
7. Foreign Prof. Experience	0.119**	0.031*	0.056**	0.182**	0.172**	0.426**	-			
8. Entrepreneur Education	0.033*	-0.026	-0.032*	-0.018	-0.011	0.239**	0.131**	-		
9. Firm Age	-0.024	-0.010	-0.048**	-0.028	0.010	-0.044**	-0.039*	-0.078**	-	
10. INV_DNV	0.090**	-0.037*	-0.001	0.306**	0.197**	0.120**	0.240**	0.068**	0.003	-
Mean	5.63	5.72	5.47	4.08	4.14	1.89	2.91	5.56	6.23	
Standard Deviation	0.99	0.93	1.21	1.60	1.60	1.76	2.08	1.71	2.67	

Notes: The boldface scores on the diagonal are the square root of the AVE.
          * $p<0.05$ and ** $p<0.01$ ($n = 4193$).

The overall measurement model has a good fit. Although the chi-square test is significant ($\chi^2_{(166)} = 1041.07$, $p = 0.000$), and the chi-square/degree of freedom ratio is above 5.0 ($\chi^2/df = 6.27$) (Bollen and Long, 1992), these measures are sensitive to sample size, particularly when the sample exceeds the 400 or 500 cases (Bagozzi and Yi, 1988; Hair et al., 2009; Bagozzi and Yi, 2012). All of the other indices show good fit: goodness of fit index (GFI) = 0.98, normed fit index (NFI) = 0.98, comparative fit index (CFI) = 0.98,

incremental fit index (IFI) = 0.98, relative fit index (RFI) = 0.97, standardised root mean square residual (SRMR) = 0.032, and the root mean square error of approximation (RMSEA) = 0.035.

4.1.3 Structural model

We used SEM to assess the net effects of the relations between the entrepreneurs' and the firms' determinants and the INVs. The overall structural model shows a good fit (Table 2). Again due to the sample dimension (Bagozzi and Yi, 1988; Hair et al., 2009; Bagozzi and Yi, 2012), the chi-square test is significant ($\chi^2_{(259)}$ = 1610.26, p = 0.000), and the chi-square/degree of freedom ratio is high (χ^2/df = 6.22) (Bollen and Long, 1992). Nevertheless, the remaining measures indicate good fit: GFI = 0.97, NFI = 0.97, CFI = 0.97, IFI = 0.97, RFI = 0.96, SRMR = 0.044, and RMSEA = 0.035.

Table 2 Structural model results

	Hyp.		Standardized Estimate (*t*-value)	R^2
ENTREPRENEUR	H1a	Foreign Education ➔ International New Venture	0.01 (0.84)	
	H1b	Foreign Professional Experience ➔ International New Venture	0.17 (10.62)***	
	H1c	Entrepreneur Education ➔ International New Venture	0.06 (4.00)***	
	H2a	Openness to Experience ➔ International New Venture	0.05 (2.00)*	
	H2b	Conscientiousness ➔ International New Venture	-0.09 (-4.31)***	
	H2c	Extraversion ➔ International New Venture	-0.01 (-0.76)	
FIRM	H3a	International Orientation ➔ International New Venture	0.29 (15.58)***	
	H3b	Entrepreneurial Orientation ➔ International New Venture	0.10 (4.33)***	
	H3c	Firm Age ➔ International New Venture	0.01 (0.64)	**0.17**

Overall Structural Model Fit:
$\chi^2_{(259)}$=1610.26, p=0.000; χ^2/df=6.22; GFI=0.97; NFI=0.97; CFI=0.97; IFI=0.97; RFI=0.96; SRMR=0.044; RMSEA=0.035

Note: *** *p*<0.001; ** *p*<0.01; * *p*<0.05.

The results of this model show that four of the six variables related to the entrepreneur are significant in explaining why new ventures operate in international markets. The results show that openness to experience (β = 0.05; p < 0.05) has a positive relation and conscientiousness (β = –0.09; p < 0.001) a negative relation to INVs, whereas extraversion has a non-significant relation.

Regarding the demographic characteristics of the entrepreneur, both foreign professional experience (β = 0.17; p < 0.001) and entrepreneur education (β = 0.06; p < 0.001) have positive relations, while foreign education has a non-significant relation.

For the variables related to the firm, while international orientation (β = 0.06; p < 0.001) and entrepreneurial orientation (β = 0.06; p < 0.001) have positive relations with new international ventures, age presents a non-significant relation.

4.1.3.1 FsQCA analysis

This research uses the fsQCA 2.5 software (Ragin, 2000, 2006) and performs two analyses. The first one explores the configurations of conditions that lead to INVs (INV_DNV), and the second investigates the configurations that lead to DNVs (~INV_DNV). Therefore, the two models are:

INV_DNV = f(Foreign Education, Foreign Professional Experience, Entrepreneur Education, Openness to Experience, Conscientiousness, Extraversion, Entrepreneurial Orientation, International Orientation, Firm Age)

~INV_DNV = f(Foreign Education, Foreign Professional Experience, Entrepreneur Education, Openness to Experience, Conscientiousness, Extraversion, Entrepreneurial Orientation, International Orientation, Firm Age)

4.1.4 Calibration

The fsQCA uses data that are already converted into fuzzy membership scores (Ragin, 2008). Therefore, the raw data for causal conditions and for the outcome needs to be calibrated by using the concept of set membership into scores ranging from 0.0 to 1.0, which denotes full non-membership or full membership, respectively (Ragin, 2008). The causal conditions in this study are operationalised through multi-item measures, namely openness to experience, conscientiousness, extraversion, entrepreneurial orientation, and international orientation. Hence, before calibrating these variables and since they meet the psychometrical properties, we calculate the average of their items.

To perform the calibration process is indispensable in identifying three different anchors (Ragin, 2008; Woodside, 2013): full membership, full non-membership, and the crossover point. Following the calibration process suggested by Woodside (2013), the 95th percentile of the original values for each variable distribution is defined as the full membership anchor, the 5th percentile as the non-membership anchor, and the 50th percentile as the crossover point. This procedure is used for most variables, with the exception of the outcome variable, INV_DNV, which is calibrated as a crispy variable. Since this variable is a *dummy variable*, where one corresponds to INVs and zero corresponds to DNVs, those values are specified as the full membership and non-membership anchors. Additionally, to prevent cases with fuzzy values of 0.50 from being excluded from the analysis, we follow the procedure suggested by Fiss (2011) and add a value of 0.001 to them.

The statistics and calibration values for all of the variables are presented in Table 3 (Part A).

4.1.5 Analysis of necessary conditions

The analysis of the fsQCA results begins by assessing whether any causal condition is necessary to achieve the outcome (Schneider and Wagemann, 2010). A specific causal condition is recognised as necessary if it is always either present or absent when the outcome is present or absent (Rihoux and Ragin, 2009). This rule means that for a new venture to be international, the specific condition (related to the entrepreneur or to the firm) needs to take place. To identify necessary conditions, the consistency score is used (Ragin, 2006).

A specific condition is recognised as "necessary" or as "almost always necessary" if the consistency score is higher than 0.90, or between 0.80 and 0.90, respectively (Ragin, 2000). Table 3 (Part B) shows the results of this analysis for the outcome considered in this study (INV_DNV) but also for its absence (~INV_DNV). The results show that neither the six conditions related to the entrepreneurs' characteristics (or their absence) nor the three conditions related to the firm (or their absence) are necessary for implementing INVs and DNVs (absence).

Table 3   Descriptive statistics, calibration values, and summary of necessary conditions

PART A

	Descriptive Statistics				Calibration Criteria		
	Mean	**SD**	**Min**	**Max**	**95%**	**50%**	**5%**
Outcomes							
INV_DNV	-	-	0.00	1.00	-	-	-
Conditions:							
ENTREPRENEUR							
Foreign Education	1.89	1.76	1.00	7.00	7.00	2.00	1.00
Foreign Professional Experience	2.91	2.08	1.00	7.00	7.00	2.00	1.00
Entrepreneur Education	5.56	1.71	1.00	9.00	8.00	5.50	2.00
Openness to Experience	5.63	0.99	1.00	7.00	7.00	6.00	4.00
Conscientiousness	5.72	0.93	1.00	7.00	7.00	6.00	4.00
Extraversion	5.47	1.21	1.00	7.00	7.00	5.50	3.00
FIRM							
Entrepreneurial Orientation	4.14	1.14	1.00	7.00	5.92	4.17	2.04
International Orientation	4.08	1.60	1.00	7.00	6.60	4.00	1.00
Firm Age	6.23	2.67	1.00	11.00	11.00	6.00	2.00

PART B

Causal Condition	Presence (INV_DNV)		Absence (~INV_DNV)	
	Consistency	**Coverage**	**Consistency**	**Coverage**
ENTREPRENEUR				
Foreign Education	0.33	0.65	0.24	0.56
~ Foreign Education	0.78	0.46	0.85	0.60
Foreign Professional Experience	0.61	0.60	0.42	0.50
~ Foreign Professional Experience	0.50	0.42	0.67	0.67
Entrepreneur Education	0.61	0.52	0.57	0.57
~ Entrepreneur Education	0.50	0.49	0.52	0.61
Openness to Experience	0.53	0.54	0.47	057
~ Openness to Experience	0.57	0.48	0.62	0.61
Conscientiousness	0.51	0.50	0.53	0.61
~ Conscientiousness	0.59	0.51	0.56	0.58
Extraversion	0.61	0.50	0.60	0.59
~ Extraversion	0.50	0.51	0.49	0.60
FIRM				
Entrepreneurial Orientation	0.63	0.56	0.51	0.53
~ Entrepreneurial Orientation	0.47	0.45	0.58	0.65
International Orientation	0.69	0.58	0.50	0.51
~ International Orientation	0.42	0.41	0.59	0.69
Firm Age	0.56	0.51	0.54	0.59
~ Firm Age	0.55	0.50	0.55	0.60

Note: The tilde symbol (~) before the causal condition represents the absence of the condition.

4.1.6   *Analysis of sufficient conditions*

The first step in analysing the sufficient conditions is the construction of a truth table (Ragin, 2008). The truth table is a synthesis matrix that comprises a total of 2^k rows (k = number of causal conditions), where each row represents a possible configuration of the different causal conditions. Our table has a total of 512 rows (2^9), each one representing a combination of the fuzzy membership scores for the different causal conditions. Each observation is allocated to a given configuration by taking into consideration their specific position in the scores of the conditions.

   To reduce the dimension of the truth table to the relevant configurations, we take several actions. First, there are a total of 78 configurations (called logical reminders) that do not include any case and, therefore, are excluded. Second, to advance with the distillation of the truth table, frequency and consistency thresholds need to be set to ensure that the number of cases included in each combination is meaningful for evaluating their relation with the outcome (Ragin, 2006, 2008; Rihoux and Ragin, 2009). The frequency threshold determines how many cases need to be included in each causal combination. Since this study has a large number of cases, this value should be set between five and ten (Rihoux and Ragin, 2009). We use a frequency threshold of eight observations by following the recommendation of Ragin (2008) in which the frequency threshold should be at least 80% of the cases in the sample. By using this threshold, 81% of the cases are used for the analysis of INV_DNV. Afterwards, we define the consistency threshold as 0.87, which is higher than the 0.80 cut-off (Ragin, 2008). We choose this threshold due to a large drop in the consistency levels of the configurations arranged in descending order.

   After applying these procedures, the fsQCA produces three types of solutions (Ragin, 2008; Rihoux and Ragin, 2009): a complex solution that does not comprise any simplifying assumptions in the minimisation process, a parsimonious solution that comprises all possible counterfactuals (i.e., the causal combinations with lack of empirical evidence) in the minimisation process, and the intermediate solution that only considers the theoretically plausible counterfactuals. We use as a basis of analysis the intermediate solution, since it is generally considered as the best solution (Ragin, 2008). Even so, due to the number of causal conditions, configurations, and cases, we also consider the parsimonious solution.

   To make the solution readable, we use a notation already presented in other studies (e.g. Fiss, 2011; Beynon et al., 2016): full circles (●) indicate the presence of a condition, crossed circles (⊗) indicate the absence of a condition, and the blank spaces indicate a situation where a condition is not important for the configuration (it can be present or absent). The dimension of the circles is also relevant: large circles identify core conditions (included in both the parsimonious and intermediate solutions), and small circles identify peripheral conditions (conditions only included in the intermediate solution). Configurations are numbered and labelled: they include an "I" after the number for the solution of INVs and a "D" for the solution of DNVs. Each column presents a different configuration in the solution (see Table 4).

Table 4 Configurations for new ventures with international focus and domestic focus

	INV									DNV	
	1I	2I	3I	4I	5I	6I	7I	8I	9I	1D	2D
ENTREPRENEUR											
Foreign Education	●	●	●	●	●	●	●	●	●	●	●
Foreign Professional Experience	•	•	•	•	•	•	•	•	•		
Entrepreneur Education			•		•	•	⊗	●	•	⊗	
Openness to Experience					⊗	●	•	⊗		⊗	
Conscientiousness	⊗				●	⊗	•		⊗	⊗	
Extraversion		⊗	⊗				•			⊗	
FIRM											
Entrepreneurial Orientation				●			•	●	●	⊗	⊗
International Orientation	●	●	●	●	●	●	●	●	●		⊗
Firm Age	●	•		●							
Consistency	0.82	0.83	0.82	0.82	0.82	0.83	0.85	0.82	0.83	0.82	0.77
Raw Coverage	0.17	0.16	0.19	0.18	0.16	0.17	0.14	0.17	0.18	0.12	0.16
Unique Coverage	0.001	0.000	0.006	0.006	0.001	0.001	0.003	0.001	0.001	0.004	0.04
Overall Solution Consistency				0.77						0.75	
Overall Solution Coverage				0.27						0.16	

Note: Black circles indicate the presence of a condition and the circles with "x" indicate its absence. Large circles indicate core conditions and small circles peripheral ones. Blank spaces indicate "not important".

4.2 *Causal recipes for international new ventures*

Table 4 shows that the overall consistency and coverage values of the solution exceed the threshold values: consistency is above 0.74, and coverage is above 0.25. So, this solution can be classified as informative (Ragin, 2008; Woodside, 2013).

The intermediate solution includes nine configurations. The overall consistency of the solution is 0.77, which means that 77% of the cases in the solution present those configurations of causal conditions, while the solution coverage of 0.27 means that 27% of new ventures that present high international activity are covered by those nine configurations.

The configurations that are sufficient for new ventures achieving high international activity are quite complex and include between five and eight causal conditions. Also relevant is the fact that all of the configurations have both entrepreneur and firm determinants. Regarding specifically the entrepreneur determinants, there is only one configuration (configuration 4) that comprises only demographic determinants.

Moreover, some conditions are always part of the configurations to achieve high international activity: entrepreneur's high foreign education and high foreign professional experience, and the firm's high international orientation. All nine configurations include these three conditions.

On the other hand, several conditions combine with the other conditions but with diverse values: in some configurations they are present (i.e., high values), while in others

they are absent (i.e., low values). This is true for the three entrepreneur personality characteristics (openness to experience, conscientiousness, and extraversion) but also for the entrepreneurs' education level.

4.3   Causal recipes for domestic new ventures

Since fsQCA is not a method based on net effects, we can analyse the negation of the outcome to assess configurations that lead to the inverse of the outcome (Schneider and Wagemann, 2010). This is particularly relevant because one of the properties of fsQCA is causal asymmetry, which is a combination of conditions that explain a specific outcome is not a logical opposite of the combination for the absence of the same outcome (Ragin, 2008; Fiss, 2011).

The purpose of executing this analysis is the identification of the configurations that lead to the absence of INV_DNV. We follow the same decisions as for the analysis of INVs on the frequency and consistency thresholds (frequency = 8 cases; consistency =0.87). Thus, the intermediate solution presents only two configurations. None of the configurations combines the logical opposites of the conditions. On the other hand, though both configurations present acceptable levels of consistency, 0.82 for configuration 1D and 0.77 for configuration 2D, the solution cannot be classified as informative since the its coverage is below the threshold of 0.25 (Ragin, 2008) (solution coverage = 0.16; solution consistency = 0.75). Therefore, the solution is completely asymmetric from the one for INVs.

5   Discussion

This study aims to explore how entrepreneurs' and firms' characteristics influence new ventures to operate abroad by using both a net effects-based method (SEM) and a combinatorial effects-based method (fsQCA). This research simultaneously tests a set of firms' characteristics and a set of entrepreneurs' characteristics (both demographic and psychological) as determinants of INVs instead of DNVs. As far as the authors know, this is the first study to include the entrepreneur's personality characteristics as determinants of INVs as well as the first that combines these two methods to explore the differences between INVs and DNVs.

Hypothesis 1 postulates that several entrepreneurs' demographic characteristics are associated with INVs. The results of SEM show that two of the three characteristics, foreign professional experience and level of education, are positively related to the dependent variable. This result aligns with previous studies in the IE field (e.g. Kuemmerle, 2002; Belso-Martínez, 2006; Zucchella et al., 2007; Federico et al., 2009; Spence and Crick, 2009). Thus, parts b and c of hypothesis 1 have support. Complementarily, the combinational effects of fsQCA show that greater foreign professional experience is a causal condition in all of the configurations for INVs, but the same is not true for the high level of education. This determinant combines with other causal conditions in six of the nine configurations (configurations 3I and 5I to 9I). This result shows that entrepreneurs can have a low educational level if they score high in all of their other characteristics (demographic and psychological), and if the firm shows high entrepreneurial and international orientations (configuration 8I).

Although suggested by several authors (Bloodgood et al., 1996; Belso-Martínez, 2006; Acedo and Jones, 2007), foreign education does not achieve statistical significance and consequently is not identified as a relevant determinant of INVs. Even so, other empirical studies have similar results (e.g. Bloodgood et al., 1996; Zucchella et al., 2007). Therefore, hypothesis 1a has no support. Nevertheless, the results of fsQCA show that this characteristic is always part of the configurations for INVs. This result goes against the net effects result, and therefore supports the combination of the two methods.

Hypothesis 2's parts a–c predict that several entrepreneurs' personality characteristics are related to international new ventures. Again, the net effects of SEM show that two of the three characteristics, openness to experience and conscientiousness, are statistically relevant to justify an INV, and extraversion is not statistically significant. The net effect of openness to experience is positive whereas conscientiousness affects negatively affects INVs. Entrepreneurs that decide to go to international markets seek for new ideas and experiences, but somehow show some lack of organisation. Therefore, parts a and b have support but c does not. Although this is a new result for the IE field, it is in line with the arguments of several researchers (Miner, 2000; Zahra et al., 2005).

The results of fsQCA show that there are some causal recipes where high openness to experience combines with other conditions (configuration 6I and 7I), but there are also causal recipes where the low openness to experience combines (configuration 5I and 8I). Similarly, conscientiousness also combines both as a low value (configuration 1I, 6I and 9I) and as a high value (configurations 5I and 7I). Extraversion is part of three causal recipes that lead to INVs: two by presenting low values (configurations 2I and 3I) and one by showing a high value (configuration 7I).

These findings are very relevant and show that the entrepreneur's personality or psychological characteristics definitely play a role when talking about recognising and exploiting opportunities in international markets (Miner, 2000; Zahra et al., 2005). But these findings are rather complex, since the weaknesses (low values) of some of these dimensions of personality can be overcome by other personality or demographic features or even by some characteristics of the new venture.

Regarding firms' characteristics, hypothesis 3 suggest that several characteristics are linked to INVs. The results of SEM show that international and entrepreneurial orientations are positively related to INVs with the net effect of international orientation being stronger. These results are in line with the conclusions of other researchers (Knight and Cavusgil, 2004; Jantunen et al., 2005; Kropp et al., 2008; Sozuer et al., 2017), and hence hypothesis 3 parts a and b have support.

The results of fsQCA are well-matched with these findings: all of the configurations that lead to INVs include high international orientation, and four of them also include high entrepreneurial orientation (configurations 4I, 7I, 8I and 9I).

On the other hand, age is not statistically relevant, and so hypothesis 3's part c has no support. This result neither aligns with the researchers that argue that younger firms act quickly and show advantages when entering new markets (Autio et al., 2000; Carr et al., 2010), nor with the ones that suggest that older firms show high knowledge intensity and high international growth (Westhead, 1995; Yli-Renko et al., 2002; Andersson et al., 2004). Still age is included in three causal recipes in fsQCA (configurations 1I, 2I and 4I) that present a high value, what means that older firms can go international by combining this condition with other aspects of the firm and of the entrepreneur.

Our analysis to the results of fsQCA shows that all of the configurations that lead to INVs always have causal conditions related to firms' and entrepreneurs' characteristics.

Hence, hypothesis 4 has support. Contrary to the majority of studies that only present a single solution as a net effect, the fsQCA presents equifinal configurations where these characteristics combine to predict INVs. Therefore, the paths that lead to an INV are diverse, but they always include characteristics of entrepreneurs and firms.

Remarkably, while the SEM analysis presents an explained variance for the INVs of 17% ($R^2 = 0.17$), the fsQCA shows robust support for the variance of 27% (solution overall coverage = 0.27).

Hypothesis 5 postulates that configurations that lead to DNVs are asymmetrical from the ones that lead to INVs. The results distinctly support this hypothesis not only because the final solution for DNVs includes two configurations instead of the nine as for INVs, but also because none of the configurations is the simple opposite of one of the configurations for INVs. However, in both configurations, high foreign education combines low values with the other characteristics for both entrepreneurs and firms. Therefore, in a context where foreign education programs are becoming more common, entrepreneurs need to combine the right characteristics to develop INVs.

6   Conclusions and contributions

The results confirm that the decision to go international or to stay in the domestic market is a complex phenomenon for new ventures that is influenced by both entrepreneurs' and firms' characteristics simultaneously. This is clearly the main conclusion of this study.

As a methodological conclusion, the integration of SEM and fsQCA methods results in very helpful insights. Instead of a single solution with net effects, fsQCA presents nine equifinal solutions that enable new ventures to become international. Additionally, the way the causal conditions combine can change, mainly for entrepreneur's personality characteristics and education. In some configurations, high values of a specific characteristic combined with other characteristics is sufficient to achieve INV; and in other configurations, a low value of the same characteristics can combine with a different set of characteristics that lead to the same outcome.

Some entrepreneur- and firm-related characteristics that we do not identify as statistically relevant in SEM's results (specifically extraversion, foreign education and firm age), figure as part of the configurations that are sufficient for INVs.

The examination of configurations that lead DNVs is also very insightful, since they are not symmetrical when compared to the ones that lead to INVs. This conclusion is new to the literature on IE, since its majority focuses on net-effect methods and assumes symmetric relationships.

6.1   Contributions for theory

Most research regarding the factors that differentiate INVs from DNVs contemplates that these variables are linear, additive, and net effects, since the majority of studies uses regression-based techniques. By combining the use of SEM with fsQCA, this research advances the comprehension of determinants that lead to INVs.

This way, instead of talking about specific net effects that lead some determinants to promote international activities of new ventures, we identify several causal recipes that combine different determinants related both with the entrepreneur and the firm, which

can lead to the same outcome. Also relevant, several characteristics of the entrepreneur, namely openness to experience, conscientiousness, extraversion, and level of education, are in several recipes for that outcome but with opposite values (high vs. low).

This study answers the call by several authors for more studies differentiating INVs and DNVs (e.g. Spence et al., 2011; Rasmussen et al., 2012; Madsen et al., 2015), and also for studies that examine the role of entrepreneur's personality characteristics for the entrepreneurial internationalisation process (Evald et al., 2011; Jones et al., 2011; Coviello, 2015).

The findings clearly show that not only are firm's and entrepreneur's characteristics essential to INVs, but also the entrepreneurs' demographic features and their personality traits are relevant for INVs. This is a relevant contribution to the theory, since these three dimensions have never been used to differentiate these types of new ventures (Miner, 2000; Zahra et al., 2005).

6.2 *Contributions for practice*

The findings of this study can be relevant to practice. On the one hand, if governments and policymakers want to increase the creation of international firms, they need to design public policies for firms and for entrepreneurs. They need to develop programs or policies that influence the characteristics of the firms and help them to overcome foreign liabilities. But, complementarily they also need to implement programs that help entrepreneurs or future entrepreneurs to become international and enhance their knowledge about international markets. These programs should also cultivate their personality characteristics that have a positive effect on the probability of implementing international ventures.

In another perspective, being aware of the entrepreneur's characteristics that influence a new venture to go international help for future entrepreneurs when they are organising their teams. From these findings, they need to find members for the entrepreneurial team, which in addition to certain characteristics important for the specific project, have foreign professional experience or foreign educations, and a high level of education. In terms of psychological characteristics they need to find individuals with a great openness to experience and low conscientiousness.

6.3 *Limitations and future research*

This research presents some limitations. First, this study only uses a small group of firm- and entrepreneur-related characteristics due to the complexity of the fsQCA analysis that exponentially increases with the use of additional conditions. Hence, possible extensions of this study could deal with the use of different characteristics that are related with the firm (for instance strategy decisions or networking practices), the entrepreneur (such as size of entrepreneurial team or other personality and demographic characteristics), but also with the industry or the context.

Second, this study only uses as an outcome whether the new ventures are domestic or international. A possible extension is the use of other outcomes, such as the degree of internationalisation, scope of internationalisation, or international performance.

Third, since this study uses cross-sectional data rather than longitudinal data, the usual cautions related to the lack of causal evidence apply. This is due to the fact that both entrepreneurs and firms develop over time. Therefore similar studies that use longitudinal data are welcome.

Finally, this study is multi-industry, and we do not control for the industry in order to maintain the SEM and fsQCA methods comparability. Future studies might explore the industry as a characteristic of the firm and therefore surpass this weakness.

Acknowledgements

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Appendix A: Measurement items and validity assessment of constructs

Items	Description	Standardized Factor Loadings	T-Values
Openness to Experience (α=0.80; AVE=0.66; CR=0.80)			
OE_it1	Is original, comes up with new ideas.	0.84	fixed
OE_it2	Values artistic experiences.[a]	-	-
OE_it3	Has an active imagination.	0.79	37.95
Conscientiousness (α=0.70; AVE=0.55; CR=0.71)			
CO_it1	Does a thorough job.	0.72	fixed
CO_it2	Does things effectively and efficiently.	0.75	22.37
CO_it3R	Tends to be lazy.[a]	-	-
Extraversion (α=0.87; AVE=0.78; CR=0.87)			
EX_it1	Is communicative, talkative.	0.90	fixed
EX_it2	Is outgoing, sociable.	0.86	32.13
EX_it3R	Is reserved.[a]	-	
International Orientation (α=0.87; AVE=0.59; CR=0.85)			
IO_it1	We think primarily about global applications for our technologies.[a]	-	-
IO_it2	Foreign exports are essential to pay for the development costs of our products.	0.75	fixed
IO_it3	Export markets will be more profitable than domestic markets.	0.76	43.82
IO_it4	We need to hurry into foreign markets before our technologies become obsolete.	0.79	43.13
IO_it5	We have the necessary financial resources to pursue foreign markets.	0.78	42.61
Entrepreneurial Orientation (α=0.90; AVE=0.59; CR=0.85)			
Innovativeness (α=0.89; AVE=0.73; CR=0.89)			
EO_it1	In dealing with competitors, my firm typically initiates actions which competitors then respond to.	0.79	fixed
EO_it2	In dealing with competitors, my firm is very often the first business to introduce new products/services, administrative techniques, operating technologies, etc.	0.90	63.75
EO_it3	In general, the top managers of my firm have a strong tendency to be ahead of others in introducing novel ideas or products.	0.86	60.97
Proactiveness (α=0.85; AVE=0.57; CR=0.80)			
EO_it4	In general, the top managers of my firm favor a strong emphasis on R&D, technological leadership, and innovations.	0.79	fixed
EO_it5	Very many new lines of products/services marketed in the past 5 years.	0.74	46.25
EO_it6	Changes in product or service lines have usually been quite dramatic.	0.72	44.57
Risk Taking (α=0.83; AVE=0.66; CR=0.85)			
EO_it7	A strong proclivity for high risk projects (with chances of very high returns).	0.76	fixed
EO_it8	Owing to the nature of the environment, bold, wide-ranging acts are necessary to achieve the firm's objectives.	0.80	43.55
EO_it9	When confronted with decisions involving uncertainty, my firm typically adopts a bold posture in order to maximize the probability of exploiting opportunities.	0.87	48.31
Competitive Aggressiveness (α=0.75; AVE=0.60; CR=0.75)			
EO_it10	My firm typically adopts a very competitive "undo-the-competitors" posture.	0.72	fixed
EO_it11	My firm is very aggressive and intensely competitive.	0.83	39.55
Notes:	R= Reverse coded item. α= Cronbach's alpha; CR= Composite Reliability; AVE= Average Variance Extracted a – This item was deleted during the scale purification process.		