ENTREPRENEURIAL COGNITION AND INTERNATIONALIZATION SPEED: TOWARDS A POTENTIAL MODERATING EFFECT OF EXPERIENTIAL AND RATIONAL INFORMATION PROCESSING

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ENTREPRENEURIAL COGNITION AND INTERNATIONALIZATION SPEED: TOWARDS A POTENTIAL MODERATING EFFECT OF EXPERIENTIAL AND RATIONAL INFORMATION PROCESSING

Abstract

This study explores the influence that entrepreneurial cognition, in terms of the dichotomy in human information processing, has on the earliness of internationalization and post-entry speed. Entrepreneurial cognition is investigated through the lens of the dual-process theory, which posits that human information processing is formed of two systems, the experiential cognitive system (System 1) and the rational and analytical cognitive system (System 2). The speed of the entire internationalization process is analyzed in terms of earliness (how soon after inception a company enters its first international market) and post-entry speed (how fast it enters new markets after the first internationalization). Drawing on ten cases, we find that companies that internationalized earlier and faster were managed by entrepreneurs with higher levels of the experiential cognitive system. In contrast, companies that internationalized later and more gradually were managed by entrepreneurs with higher levels of the rational cognitive system. Thus, our study reveals that the speed of the entire process of internationalization is governed, at least partially, by the entrepreneur's cognition. On the basis of our findings, we introduce three propositions on the moderation that the entrepreneur's cognition exerts on the well-established relations between environmental signals and both earliness of internationalization and post-internationalization speed.

Keywords: internationalization process, entrepreneurial cognition, speed of internationalization, decision-making process, dual-process theory

1 Introduction

The speed of internationalization is paramount for understanding the healthy growth of firms in an ever-changing international environment and explains a significant portion of a firm's performance (Caputo & Pellegrini, 2019; Chetty et al., 2014). This notion of speed covers two different aspects, namely earliness (the speed at which the firm commits resources to international markets for the first time after its inception) and speed of post-internationalization expansion (how fast the firm grows internationally, either by digging deeper into extant international markets or by widening its scope to new international markets, resulting in higher international sales) (Acedo & Jones, 2007; Casillas & Acedo, 2013). In considering both moments, pre-and post-internationalization, we refer to the entire process of internationalization, which can be developed faster and not necessarily in a gradual manner, or at a slower rhythm and more gradually. However, new realities in international business have led to increasing levels of uncertainty in the global context (Zucchella, 2021). Thus, the pressing questions are how and why some entrepreneurial ventures choose to go international earlier and achieve faster post-internationalization growth than their counterparts under similar contextual conditions.

A recent systematic literature review on firm internationalization recognized that to cope with constant environmental changes, firms follow heterogeneous pathways (Dabić et al., 2020; Niittymies & Pajunen, 2019). Accordingly, researchers have called for further empirical research to examine individual behaviors as the antecedents of firm internationalization strategic choices, and there remains a need to deepen the micro-foundations of international entrepreneurship (IE) (DeGhetto et al., 2021; Surdu et al., 2020, Zahoor et al., 2020; Zucchella, 2021). Given that in the bulk of research so far, the environmental and organizational levels of analysis are quite similar, but there are still heterogeneous internationalization paths, the differences must originate at the ultimate level of analysis – the entrepreneurs.

International entrepreneurship (IE) is particularly concerned with discovering, enacting, evaluating, and exploiting opportunities across national borders (McDougall & Oviatt, 2000; Oviatt & McDougall, 2005). This approach has found that entrepreneurial firms develop relatively fast in terms of internationalization and may not follow a gradual process. This is in contrast to traditional firms anchored in the tenets of the Uppsala model of a slower and gradual internationalization based on experiential knowledge acquired during the process (Oviatt & McDougall, 2018). The results include international new ventures (INVs) that achieve significant international sales soon after inception (Oviatt & McDougall, 1994) and the born global (BG) phenomenon of firms that go even further, obtaining high percentages of their sales from international markets in the first three years of organizational life (Knight & Cavusgil, 2004). Both INVs and BGs have a special ability to identify and exploit international market imbalances (Oviatt and McDougall, 1994), and IE is centered on the role of the decision-makers cognition in discovering, enacting, evaluating, and exploiting the opportunities that arise from those imbalances (Zucchella, 2021).

To address these gaps in the research and identify the sources of such heterogeneity, we turn to the concept of entrepreneurial cognition. Numerous studies in entrepreneurship and international business have acknowledged that the way that entrepreneurs perceive and react to environmental stressors plays a vital part in firms' performance and survival (Baldacchino et al., 2019; DeGhetto et al., 2021; Puig et al., 2018). Entrepreneurial cognition is particularly relevant in the case of small ventures (SVs) (Vlačić et al., 2020), companies with a maximum of 50 employees and either an annual turnover not exceeding EUR 10 million or an annual balance sheet total not exceeding EUR 10 million (European Commission, 2015, p. 11). Moreover, SVs are often subject to additional pressure and sensitivity to external factors, such as environmental uncertainty and competition, which influences their strategic choices and internationalization decisions (Dabić et al., 2020; Paul & Rosado-Serrano, 2019; Vahlne & Johanson, 2020; Knight & Liesch, 2016; Laufs & Schwens, 2014).

From investigations in the general stream of entrepreneurship, entrepreneurial cognition is defined as "the knowledge structures that people use to make assessments, judgments or decisions involving opportunity evaluation and venture creation and growth" (Mitchell et al., 2002, p. 97). In recent decades, this has attracted the attention of scholars studying entrepreneurial action through a cognitive lens. Forbes (1999) conducted a review of 34 papers dealing with this topic in relevant management journals, the earliest dating to the late 1980s. Grégoire et al. (2011) reviewed the topic across 150 articles and found that, when trying to explain the cognitive differences between entrepreneurs and non-entrepreneurs, investigations frequently conceived cognition as a resource the entrepreneur has, instead of what s/he does. They also emphasized that the bulk of research on this topic has explored the consequences of entrepreneurial cognition rather than the origins and development of those consequences. Randolph-Seng et al. (2015) gave a non-exhaustive list of 95 papers published between 1991 and 2010 dealing with the topic (see their table 3.2, pp. 238–268) and concluded that there is a need for further investigation on those origins. Mitchell et al. (2007) ended their editorial to one of the several special issues on the topic of entrepreneurial cognition by emphasizing the need for a better understanding of the major social cognitive categories, namely, person, situation, cognition, and motivation. Similarly, Grégoire et al. (2011) encouraged scholars to address entrepreneurial cognition with a process orientation.

In the field of international business, the cognitive approach is still underrepresented, although one of the main theories of the internationalization of firms, the Uppsala model, is a behavioral explanation of how firms commit resources to international activities gradually through experiential learning to reduce the inherent risk (Niittymies & Pajunen, 2019). In their review, Niittymies and Pajunen found only 38 studies dealing with cognitive processes, most of them related to knowledge management, and another 40 related essentially to perceptions. No behavioral explanations were included regarding how organizations and managers perceive and make sense of what should be learned. This is the case despite the acknowledgment of seminal works, such as that of Aharoni (1966), that decision-makers occupy a central position in explaining foreign investments. The firm-level of analysis has remained predominant, to the neglect of the decision-maker level of analysis (Maitland and Sammartino, 2015; Guercini & Milanesi, 2020). Yet, the decision-makers cognitive strategy can help to explain a venture's internationalization speed (Acedo & Jones, 2007; Silva et al., 2021). In this connection, cognitive strategy refers to "the information processing approach employed by individuals in a given situation and may be influenced by cognitive style as well as by situational factors including time constraints, amount of information available and level of uncertainty present" (Baldacchino, 2019, p. 38).

We address this deficit in the research by incorporating entrepreneurial cognition into the situation of internationalization and IE reality and, specifically, into the cognitive strategy of international entrepreneurs in their decision-making process, in line with the work of Maitland and Sammartino (2015) and, more recently, Vlačić et al. (2020), among others. We suggest that entrepreneurial cognition (how decision-makers use their cognition as part of the micro-foundations of a venture's internationalization) plays a role in explaining the observed differences in the earliness of internationalization and post-entry speed in similar contexts. We supplement existing theories of IE by introducing into this conversation the dual-process theory (DPT) (Evans & Over, 1996; Evans, 2003), which reveals that individuals use two different cognitive systems when making decisions and that the reliance on one system over the other is relatively persistent over time (albeit task-dependent) and is idiosyncratic to the individual (Bless et al., 1996; Finucane et al., 2000; Phillips et al., 2016). One system is the expertise-based cognitive System 1, which is heuristic, intuitive, effortless, and related to quick and associative-based processes. The other system is the rational and analytical System 2, which requires a huge number of cognitive resources, is slower, more deliberate, conscious, and related to a careful consideration of facts and figures (Pacini & Epstein, 1999; Evans & Stanovich, 2013). We also investigate a number of factors that may act as stressors of the internationalization decision-making process performed by these two cognitive systems, such as time constraints, risk and uncertainty perception, and the awareness of features of the environment (Kahneman & Frederick, 2002; Bingham & Eisenhardt, 2011; Vlačić et al., 2020). We adopt the four-stage model of decision-making (perception, options, evaluation, and final choice) (Fellows, 2004; Vlačić et al., 2020) to elucidate the role that entrepreneurial cognitive strategy plays in internationalization speed. Overall, this study aims to shed light on this main question: *How do entrepreneurial experiential and rational information processing affect internationalization earliness and post-entry speed?*

The remainder of the paper is organized as follows. Section 2 summarizes the issues around entrepreneurial cognition and the decision-making process and introduces the DPT perspective. We also synthesize previous research on both earliness of internationalization and post-entry speed. In Section 3, we present the methodology of our qualitative study, explaining the four-stage decision-making process, the protocol for case selection and data collection, and the three-stage technique to present the thought units based on the work of Gioia & Sims (1986). Our results regarding earliness, speed and entrepreneurial cognition are reported in Section 4. We discuss the results and their implications for theory in Section 5. Finally, based on our findings, we go a step further, introducing a number of propositions to stimulate future investigations now that we know how entrepreneurial cognition in terms of cognitive strategy affects the process of internationalization.

2 Literature review

2.1 Entrepreneurial cognition and the decision-making process

Cognition is defined as information processing within the field of cognitive psychology, whereas within functional psychology, it is studied in terms of behavior. These two perspectives complement each other since, in a functional-cognitive framework, there is a functional level to explain behaviors and a cognitive level to understand mental mechanisms (De Houwer et al., 2018). Thus, cognition can be understood as a set of procedures by which neurological inputs are transformed, condensed, interpreted, stored, renewed, and used, and it includes the individual's perceptions, memory, and thinking (Neisser, 1967). Cognition is also understood in terms of interactions between individuals and their environment. The cognitive theory introduced the term "knowledge structures" to denote cognitions that optimize the effectiveness of an individual within a certain situation (Fiske & Taylor, 1984). Among the factors in cognition that require deeper analysis and comprehension is the decision-making process. From a monographic review of approximately 100 studies, Randolph-Seng et al. (2015) found that entrepreneurial cognition is dynamic and socially situated; thus, it is not merely embodied but is also adaptive, action-oriented, situated, and distributed. Therefore, the main aim is to understand the dynamics of how the

entrepreneur thinks within a certain context. Such thinking will lead to action (Smith & Semin, 2007), which may be defined as the decision-making process in response to external stimuli. In other words, cognition is specific to a context; interactions with and within those situations may influence the dynamics of cognition from one moment to the next, and they can be performed automatically or consciously. The application of DPT to how individuals make decisions may help understand this further (Evans & Stanovich, 2013).

Decision-making consists of interaction in the environment and the cognition of the decision-maker (Markóczy, 1997). Intrinsic to human behavior (Fellows, 2004), it is the process of selecting between different alternatives in order to make a final decision. It includes a combination of different factors, such as automatic and emotional responses, past associations, and future goals. The decision-making process is affected by uncertainty, timing, and risk. Fellows (2004) summarized a three-stage model that supports the understanding of the process, in which the first stage consists of identifying the options or possible choices, the second consists of evaluating those options, and the third involves making a choice itself.

However, a pre-stage introduced by Kahneman (2003), followed by Vlačić et al. (2020), consists of perception: the first stage of the decision-making process that leads to a whole range of options evaluated to reach the satisficing final decision. According to Vlačić et al. (2020), introducing perception as the antecedent offers a better understanding of the internationalization decision-making process. The entrepreneur's perception is connected to the recognition of an international opportunity related to the decisions that will be made later in the process. Thus, to understand the decision-making process, an outline of the cognitive system is required. The cognitive system is a psychological dimension representing an individual's method of perceiving, memorizing, discerning, and problem-solving (Kozhevnikov, 2007).

Scholars have identified two types of cognitive processes or cognitive systems: System 1 (aka System X), which involves intuitive expertise-based information processing, and System 2 (aka System C), which involves analytical and rational stepwise approach (Evans & Stanovich, 2013; Frederick, 2005; Healey & Hodgkinson, 2014; Kahneman & Frederick, 2002; Pacini & Epstein, 1999). One can also refer to these types of information processing as experiential or heuristic (System 1) and rational (System 2) (Pacini & Epstein, 1999). DPT, a theory based on these two systems, explains how individuals process information and ultimately make decisions (Evans & Stanovich, 2013). The term "dual-process" assumes that the human brain reaches decisions using two cognitive systems: the intuitive and experience-based cognitive system and the rational and analytical cognitive system (Kahneman, 2003). The combination of the two cognitive systems is distinctive to the individual, and even individuals with the same genetic pattern have unique cognitive systems. This uniqueness comes from formal and informal learning, both of which arise from diverse involvements, practices, and socially constructed belief systems (Maitland & Sammartino, 2015). Subsequently, contextual factors such as education, work experience, or personal needs form one's cognitive system, such that the environment shapes entrepreneurial cognition, which in turn influences entrepreneurial decisions (Brigham et al., 2007; Vlačić et al., 2019). The decision-making process incorporated in a firm's internationalization is thus extremely challenging, highly dependent on the entrepreneur's experience, and influenced by many factors, including the environment, competitors, and resources (Johanson & Vahlne, 1977; Johanson & Kalinic, 2016).

When studying the cognitive approach to decision-making, experience-based intuitive (fast) thinking and rational, analytical (deliberative) thinking are of particular interest. Experiential information processing is quick; it can provide feelings of confidence and is better able to deliver correct judgments when based on pertinent experiential learning and applied to contexts similar to those in which it was learned (Evans, 2010). A noteworthy characteristic of System 1 is that a long time and a valid environment are required for the individual to learn from it (Kahneman, 2003). A valid environment yields clear clues, such that the individual realizes that such a clue led to a certain automatic decision and that the decision was right. In internationalization decisions, entrepreneurial decisions stemming from System 1 can be trusted only if applied to a new international market similar to the domestic market (or existing international markets), where the firm has had time to learn from experience.

Although System 1 has been characterized as primitive in relation to System 2, for those who attain skill, complex cognitive processes can be transferred from System 2 to System 1 (Kahneman & Frederick, 2002). Regarding the concept of experiential information processing included in DPT, the first point to note is that it is a nonconscious process (Barnard, 1938), although not all nonconscious processes are fundamental to intuition. Various nonconscious processes have been associated with the method of learning, whereas intuitive processes are associated with the use of experience and information that has already been learned (Dane & Pratt, 2007; Kahneman, 2003). In the specific case of entrepreneurial cognition, the use of experiential information processing is a means of going beyond the analytical processing of information. Entrepreneurs use the business intuition that arises from their experience to quickly mark out a wider perspective on a specific situation (Baldacchino et al., 2014, 2015). Accordingly, one of the roles of System 2 is to supervise mental processes. System 2 also seems, in some cases, to have the function of monitoring System 1. However, that is not always the case, and in effect, the output of System 1 is supervised only very lightly by System 2. It is crucial to emphasize that, given high levels of skill and experience, the outputs of System 1 can have a high level of accuracy. Hence, highly experienced

entrepreneurs can perform better when following their intuitions than when they analyze a situation exhaustively (Kahneman, 2003; Kahneman & Frederick, 2002).

Nevertheless, if entrepreneurs depend only on their experiential information processing, the probability of specific details and data being left unnoticed is high, which can be damaging (Clarke & Mackaness, 2001). This is particularly relevant in decision-making about internationalization, which involves high levels of risk and uncertainty (Eduardsen & Marinova, 2020). However, analytical and rational processes are limited, a fact that is referred to as bounded rationality (Simon, 1987), since there are limitations to what is available to the entrepreneur for rational analysis, given the restrictions on the time and information available (Gilovich et al., 2002). In terms of the internationalization process, the role of System 1 (experiential knowledge) is even more critical, given the pace of change in the international environment.

2.2 Earliness and speed of internationalization

As internationalization is a dynamic phenomenon, the notion of time is central to any analysis of the internalization of a firm, and speed is the most important time-based dimension to understand (Zahoor & Al-Tabbaa, 2020). In the international business field, the concept of internationalization speed is of particular relevance and represents one of the key challenges in entrepreneurial decision-making (Chetty et al., 2014).

Scholars have proposed various instruments to measure speed in the international business field (Aygoren & Kadakal, 2018; Casillas & Acedo, 2013; Chetty et al., 2014). For example, Hsieh et al. (2019) proposed that earliness (speed of pre-internationalization) should be measured as the time taken by a firm to make its first international sales since its inception. Post-entry internationalization speed (the change in the degree of internationalization per unit of time) is another relevant aspect to address (Johanson & Kalinic, 2016). Accordingly, Casillas and Acedo (2013) distinguished three types of internationalization speed: (a) the speed of change in international commercial intensity or exporting intensity, which includes the increasing proportion of foreign sales in a specific period of time; (b) the speed of change in the commitment of foreign resources, measured, for instance, as the number of new subsidiaries abroad and international companies that were acquired in a specific period of time; and (c) the speed of change in the breadth of international markets, defined as the number of countries, variety, and distance to which the company internationalizes. Thus, two different metrics are to be analyzed: earliness, which measures pace or time to an event, and post-internationalization speed, which is a measure of events per unit of time.

Earliness has been defined as the number of years between a firm's inception and its first international sales (Autio et al., 2000; Luo et al., 2005; Pla-Barber & Escribá-Esteve, 2006; Acedo & Jones, 2007; Zhou, 2007; Coeurderoy & Murray, 2008; Musteen et al., 2010; Ramos et al., 2011; Teixeira & Coimbra, 2014). Overall, the most commonly used measure is the time in years it takes for a firm to become an international seller, which leads to a definition of experience based on time. Zucchella et al. (2007), and later Aygoren & Kadakal (2018), concluded that there is a positive link between entrepreneurs' experience and the internationalization predisposition of firms. In addition, Amorós et al. (2014) found a positive relationship between the educational level of entrepreneurs and their inclination to internationalize. This is crucial for the first international entry, as in the absence of organizational experience in international markets, entrepreneurial or managerial experience is a determinant factor in the venture's first entry into international markets.

In terms of post-internationalization speed, several scholars have found that international experience driven by the international team is crucial for post-entry internationalization speed (Luo et al., 2005; Coeurderoy & Murray, 2008). However, for other scholars, the team's experience was not relevant (Nowiński & Bakinowska, 2012). There is a similar disagreement around the level of education of the team as part of its experiential knowledge. Lamotte and Colovic (2015) found this to be relevant, whereas Acedo and Jones (2007), Nowiński and Bakinowska (2012), and Coeurderoy and Murray (2008) found that entrepreneurial cognition was not relevant in explaining internationalization speed. This lack of consensus implies that an interactive effect may be hidden and may be related to how the entrepreneur thinks and acts (i.e., the entrepreneur's cognition).

Studies of the speed of the entire internationalization process, including the periods of pre-internationalization (e.g., Aygoren & Kadakal, 2018; Li et al., 2015; Nowiński & Bakinowska, 2012; Teixeira & Coimbra, 2014) and post-internationalization (Casillas & Moreno-Menéndez, 2014; Johanson & Kalinic, 2016; Lin, 2012; Mohr & Batsakis, 2014; Hilmersson et al., 2017), have identified two drivers of the speed of internationalization: internal factors, which are strategic factors such as entering international markets to possess and gain competitive advantage; and external factors, which are networks (Musteen et al., 2010), in other words, the number of relationships established by the company (Silva et al., 2012). Internal factors are crucial in this investigation since these are closely related to action stemming from entrepreneurial cognition (Pla-Barber & Escribá-Esteve, 2006). However, recent investigations have emphasized that different forces drive internationalization speed with two major and distinct characteristics, the individual level (related to the individual micro-level cognitive strategy) and the company level (associated with the organization's behavior, values, and norms) (Li et al., 2015).

The high speed of internationalization associated with INVs and BGs is consistent with the fact that older firms can develop impediments in relation to a determinant factor of internationalization speed, namely the development of learning capabilities that allow firms to adapt quickly to different markets in new environments. Newer firms tend to be more flexible, making them better able to learn quickly and develop the skills that will allow them to continue growing rapidly abroad (Autio et al., 2000). This factor is intimately related to the behavior of the manager and the management team within the firm. Furthermore, the high speed of internationalization is often allied with a positive firm performance associated with first-mover advantages, where a can gains resources that are valued but difficult for latecomers to attain or replicate. Combined with the fact that entrepreneurs have limits when using rational analysis (i.e., bounded rationality), this may lead to suboptimal decisions and higher costs in terms of opportunity costs, costs of reversing activities, and inefficiencies (Mohr & Batsakis, 2017).

In their case study, Oyson and Whittaker (2015) concluded that some entrepreneurs had imagined rather than discovered an international business opportunity that was therefore invisible to other entrepreneurs. Although creating an opportunity is a deliberate process that relies heavily on System 2, they found that discovered opportunities were broad, vague, or incomplete. The exploitation of such opportunities needed further elaboration, and entrepreneurs who discovered international opportunities tended to seek more information – typical outcomes of System 2. Conversely, imagined opportunities were readily available in the entrepreneur's mind without conscious awareness of how they had come to be there. In such a situation, the entrepreneur draws on creative imagination to uncover the details rather than screening and analyzing the environment – typical outcomes of System 1. Oyson and Whittaker also concluded that entrepreneurs did not internationalize until they had created (imagined) or discovered an international opportunity. Those that created an international opportunity went international more quickly than those who elaborated a discovered international opportunity. Thus, it is quite likely that the way in which the entrepreneur uses both cognitive systems influences earliness and post-internationalization speed.

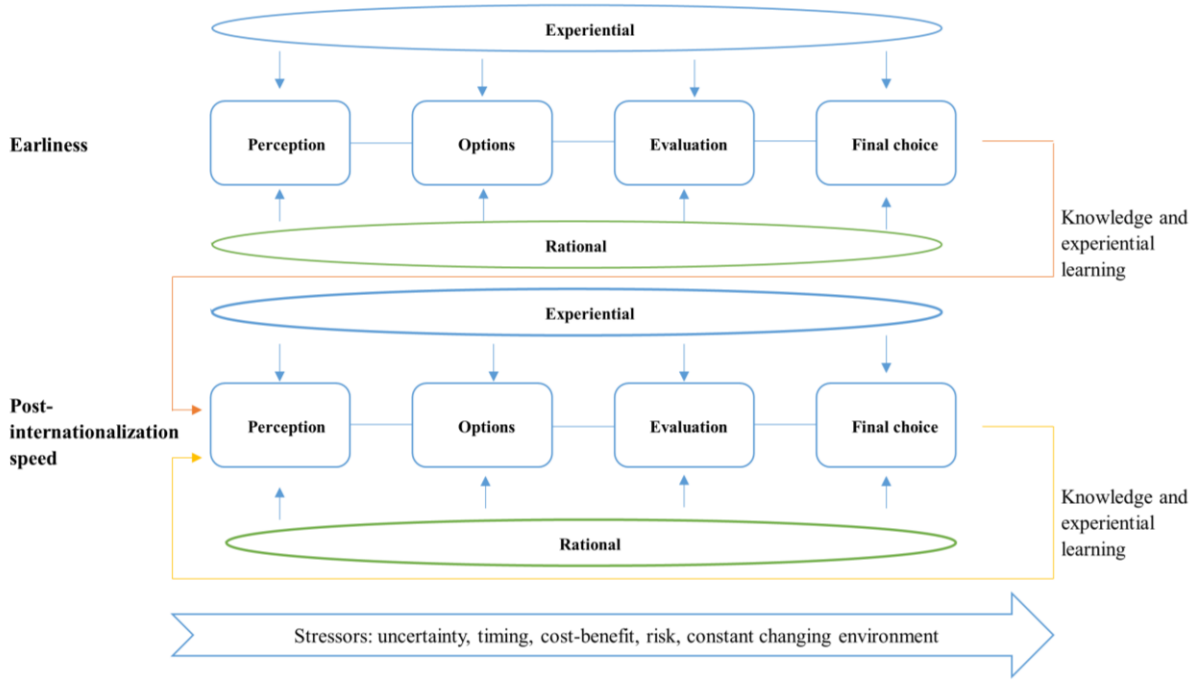
These considerations are pertinent in the framework of our study since experience-based knowledge of international markets is one of the main mechanisms explaining a venture's internationalization (Johanson & Vahlne, 1977; Vahlne & Johanson, 2020). Thus, the entire process of internationalization could be speeded up or slowed down by the entrepreneur's cognition. However, both cognitive systems have drawbacks; System 1 is more prone to cognitive biases, whereas System 2 requires intensive use of time and cognitive resources to reach a decision.

3 Methodology

To understand the role of entrepreneurial cognition and investigate how and why entrepreneurs' information processing guides decisions regarding the speed of internationalization, the present study adopts a qualitative approach. Essentially, the qualitative approach enables exploring a relatively unknown and complex phenomenon in an inter-organizational setting (Alasuutari, 1995; Bingham & Eisenhardt, 2011). Next, the choice for case studies is deemed appropriated for the interest in entrepreneur's cognition, experiences, and interpretation of the internationalization path, which is consistent with the investigation of Langley's (1999) lived experiences. The cases selected represent different behaviors, unique characteristics, and contexts due to the industry, which is useful for theorizing and broadening the theoretical lens and interpretations (Eisenhardt & Graebner, 2007; Eisenhardt, 1989; Piekkari & Welch, 2010; Piekkari et al., 2010). For the purpose at hand, the time and the entrepreneur's lived experiences are crucial dimensions in the study since the investigation revolves around the speed of the internationalization process. Following Langley (1999), the temporal bracketing approach disaggregates the time dimension of the entrepreneur-owner's experience into phases or periods. The approach was developed with the decision-making process as its foundation, using the four-stage model drawn from the work of Fellows (2004) and its application to internationalization (Vlačić et al., 2020), as represented in Figure 1.

We acknowledge that our study cannot accompany entrepreneurs over the entire process and can only retrieve information from the interviewees' memories. However, this approach enables understanding embedded actors within the case idea (Halinen et al., 2013). Therefore, this cannot be considered a pure processual study. Nevertheless, although the retrieval process can bias memories, it should be noted that the way in which an interviewee verbalizes the memories is itself pertinent to understanding how the decision-making process was shaped (Okoli et al., 2016). Additionally, the theme of experiential and rational information processing in the naturalistic approach to the literature on decision-making is considered appropriate to examine how entrepreneurs employ cognitive strategies when making complex decisions (Okoli and Watt, 2018).

Figure 1: Earliness and post-entry internationalization speed: the decision-making process



Source: own draft based on Fellows (2004) and Vlačić et al. (2020)

3.1 Case selection

A purposeful sampling strategy was used to identify cases that could serve as a foundation for the conceptual proposal. Building on the upper echelon perspective, according to which a firm's outcomes and actions are a reflection of the entrepreneur's cognitive strategy and consequent actions (Hambrick & Mason, 1984), this study investigated the role of entrepreneurial cognition in SVs. In the upper echelon theory, decision-makers represent a fundamental source of internationalization strategy and play a central role in all decisions connected with internationalization (Fletcher & Plakoyiannaki, 2011; Fletcher et al., 2018). An approach of multiple case studies was adopted and developed, followed by the identification of codes transversely to all cases (Locke et al., 2020). The inclusion criteria required the SVs to have a continuing (current) internationalization process and be present in more than one international market. These criteria enabled a deeper understanding of changes in the process of internationalization per se and decisions related to earliness and post-entry internationalization process patterns.

As the work of Laufs and Schwens (2014) has shown, the specific industry also plays a meaningful role in the development of a competitive strategy. Hence, the international path and behavior may differ from company to company since different industries have different conditions of competition and uncertainty (Eduardsen & Marinova, 2016). This indicates that the type of industry strongly influences internationalization decisions (Puig et al., 2014). In fact, because SVs created in certain industries are required to internationalize more quickly, a kind of "born to run" effect is found (Hagen & Zucchella, 2014), and this may be accentuated by a strategy of targeting a narrow niche that requires quick internationalization to widen the targeted market (Hennart, 2014). Accordingly, this study selected a number of different industries to include cognitive profiles (those more focused on System 1 and those more oriented to System 2) and compare how these profiles influence international decisions in different industries.

The candidates were selected from the Iberian Balance Sheet Analysis System (SABI database) compiled by Bureau van Dijk, contacted by email and telephone, and interviewed according to their availability. A total of ten companies that met the selection criteria agreed to participate in this investigation. All the companies are based in Portugal. The selection of this country is significant since the domestic market is limited in size, and companies need to internationalize to survive in this small economy that displays a high degree of openness (Puig et al., 2014; Silva et al., 2012). The characteristics of the selected cases are presented in Table 1, which shows that we included a balance of cases that have taken an INV approach to internationalization (Cases A to E, which went international quickly after inception) and those that have taken a more gradual approach (Cases F to J, which first exploited the domestic market before going international).

Table 1: Overview of selected cases, interviewees, and company information

Case/Characteristic	A	B	C	D	E
Interviewee's role in the company	CEO	CEO	CEO	CEO	CEO
Interviewee's cognitive strategy predominance: experiential/rational	Experiential > Rational	Experiential > Rational	Experiential > Rational	Experiential > Rational	Experiential > Rational
Year of inception	2007	2006	2005	2019	2016
Ownership	Ltd.	S.A.	Ltd.	Ltd.	Ltd.
Number of employees	5	45	8	3	21
Year and country of first international market entry	2007, China	2008, Spain	2005, France	2019, Germany	2016, Switzerland
Years and countries of further internationalization	2008 France, UK	2010 Czech Republic, Slovakia	2005 China	2019 Spain, Netherlands, Belgium, France, Luxembourg, Austria, Poland, Switzerland	2017 Russia, US, France, Mozambique, Qatar
	2013 Spain, Belgium, Italy, China	2013 Brazil	2007 Australia, New Zealand, Malaysia, Vietnam, Singapore, Indonesia, Cambodia		2018 Spain
	2017 Netherlands, Germany, Norway, Switzerland	2014 Belgium	2009 US, Canada		
		2016 Turkey	2012 Brazil		
		2017 Colombia, Mexico Germany			
		2019 Egypt	2013 Libya, South Africa		
Entry mode	Subsidiary, export	Partnership, export	Partnership, import, export	Export	Partnership, export
Foreign sales/total sales	100%	100%	75%	80%	65%
Statistical Classification of Economic Activities in the European Community (NACE Rev. 2)	4616	7112	5229	5229	7410
Industry	Clothing and textile agency	Engineering activities and related technical consultancy	Other transportation support activities	Other transportation support activities	Specialized design activities

Table 1 (continued): Overview of selected cases, interviewees, and company information

Case/Characteristic	F	G	H	I	J
Interviewee's role in the company	CEO	CEO	Internationalization and Commercialization Manager	CEO	CEO
Interviewee's cognitive strategy predominance: experiential/rational	Experiential < Rational	Experiential < Rational	Experiential < Rational	Experiential < Rational	Experiential < Rational
Year of inception	1997	1961	1948	2004	1943
Ownership	Ltd.	Ltd.	Ltd.	Ltd.	Ltd
Number of employees	10	50	22	27	20
Year and country of first international market entry	2004, Morocco	1981, France	1991, Spain	2018, Spain	1986, UK
Years and countries of further internationalization	2012	1982–1989	1991–2000	2019	1987
	Mozambique, Malawi, Brazil, Venezuela	Tunisia, Algeria, Belgium	Greece, Scandinavia, Italy, Czech Republic	France, China	Spain, Israel, Italy, Austria
	2013	1990 - 1999	2000-2010	2020	1997
	Turkey, Réunion (France), Angola	Germany, Denmark, UK, US	France, Germany, Poland, Mexico	Online store available in 40 countries	US
	2014	2020	2010-2018		2004
	Mexico, Spain, Belgium	South Africa, Venezuela, Colombia, Dubai, Southeast Asia	UK, Netherlands, Switzerland		Belgium
	2016		2018-2020		2010
	Senegal		US, New Zealand, Australia		Switzerland, Hong Kong
	2019				2012
	US				France
Entry mode	Partnership, export	Export, subsidiary	Export	Export	Export, import
Foreign sales/total sales	50%	65–75%	98%	60%	90%
NACE Rev. 2	7112	2599	1392	4616	1414
Industry	Engineering activities and related technical consultancy	Manufacture of other fabricated metal products	Manufacture of made-up textile articles (except apparel)	Clothing and textile agency	Manufacture of underwear

3.2 Data collection

To fulfill the objectives of this study, semi-structured interviews were conducted, as they offer a flexible and versatile method of data collection. Their main advantage lies in the possibility of developing a discussion that takes into consideration an interview guide (developed beforehand and consisting of open-ended questions) as well as questions that arise during the conversation, instead of a strict interview with a questions-and-answers typology (DiCicco-Bloom & Crabtree, 2006; Kallio et al., 2016). In addition, the opportunity to obtain firsthand testimonies from entrepreneurs who have continuously experienced the phenomenon under study is also extremely valuable (Gioia et al., 2013). The interviews were conducted between January and February 2020 with the principal decision-makers of the ventures, and each had a duration of 45 to 90 minutes. The interviews were recorded, transcribed and analyzed on the same day. Following the data analysis and coding, the codes were examined in line with previously acknowledged guidelines, the literature review (Niittymies & Pajunen, 2019; Vlačić et al., 2020), and analysis of the recorded transcripts. Table 2 presents an overview of the experiential and rational cognitive system codes used in the analysis.

Triangulation was used to obtain supplementary data. Additional information about the cases was obtained from the firms' websites, where it is possible to find out about their foundation, international market activities, and other relevant secondary data. The main advantage of triangulation is that it enriches and maximizes confidence

in the findings, which adds depth to the results (Guion et al., 2011). According to Gioia and colleagues (2013) recommendations, rigorous qualitative research must rely on multiple data sources. In the present study, the sources were interviews, media documentation (such as the company's website), SABI database information (including financial information), and other relevant information available on the Internet.

Table 2: Summary of the experiential and rational cognitive system codes

	Experiential	**Rational**
Associative thinking	• Judgments based on relevant past experience[1] • Use of experience and information learned in the past [2,3,4] • Prefers solving problems by looking at the whole: holistic[5] • Management situations that are unstructured, fluid, and spontaneous are preferable[5]	• Detailed approach, problem-solving sequentially using logic[5] • Management situations that are well structured and that can be carefully planned are preferable[5]
Reasoning	• Holistic[4] • Encodes reality in concrete images, metaphors, and narratives[4]	• Analytical[2] • Logical[4] • Deductive[5] • Flexible[2] • Rational responses [1 7]
Speed of decision-making	• Automatic[6] • Effortless[6] • Rapid [6,7]	• Controlled[6] • Effortful[6] • Slow [6,7]
Knowledge and learning process	• Slower, since it requires more experience, and so the output of experiential knowledge is more reliable. It takes more time to understand and learn from what one did as an automatic reaction to environmental stimuli[1, 2, 3] • Changes slowly, since the changes occur with repetitive and intense experience[4]	• Depends more on explicit knowledge[7] • Changes more rapidly with the speed of thought4
Consciousness	• Little consciousness[7]	• Deliberative[7] • Abstract (encoding reality as numbers or symbols)[4] • Experienced actively and consciously[4]
Cognitive biases	• Decision-making is experience-based, which can lead to biases[7] • Emotional[4]	• Calls for justification via logic and evidence[4]

Source: adapted from Vlačić et al. (2020)

Note: [1] Evans (2010); [2] Kahneman (2003); [3] Dane & Pratt (2007); [4] Epstein (1994); [5] Agor (1984); [6] Kahneman & Frederick (2002); [7] Evans & Stanovich (2013).

3.3 Data analysis

The approach best suited to this investigation was the abductive approach, which allows a combination of induction and deduction (Dubois & Gadde, 2002). This approach enables the elucidation and explanation of observed facts (Lipscomb, 2012; Richardson & Kramer, 2006), and is essentially linked to the questions of how and why entrepreneurial cognition impacts internationalization speed.

A three-stage technique was used to analyze and code the interview transcripts (see Table 3). The first stage consisted of unitizing, that is, reading the interview transcripts thoroughly in order to recognize individual thought units (Gioia & Sims, 1986). A thought unit can be an expression, a phrase, a whole sentence, or even a group of sentences that captures a whole idea or thought pertinent to the study's objective. In the second stage of the data analysis, the statements from the first stage were categorized to identify second-level themes or sub-processes (i.e., perception, options, evaluation, final choice, knowledge, experiential learning phase, experiential cognitive system, analytical cognitive system, risk perception, uncertainty perception, awareness of features of the environment, and perception of time). Finally, when saturation point was reached, each thought unit was allocated to an aggregate dimension (i.e., decision-making process, feedback, cognitive systems, and stressors of internationalization).

Table 3. Data structure

First-level theme	Second-level theme	Aggregate dimensions
Statements that mention initial ideas from experience, observation, and association with the external or internal environment	Perception	Decision-making process
Statements that mention the battery of options available	Options	
Statements that mention which options were evaluated and how, and the speed with which they were carried out	Evaluation	
Statements concerning the final choice concerning the internationalization entry and internationalization path followed	Final choice	
Statements that mention in what ways past decisions can lead to potential improvements in subsequent internationalization stages	Knowledge and experiential learning phase	Feedback
Statements in agreement with the codes previously defined by scholars and compiled in Table 2 regarding the experiential information processing behind the decision-making process of the company's internationalization path	Experiential cognitive system	Cognitive systems
Statements in agreement with the codes previously defined by scholars and compiled in Table 2 regarding the rational information processing behind the decision-making process of the company's internationalization path	Rational cognitive system	
Statements regarding the impact of risk perception on the decision-making process of the company's internationalization path	Risk perception	Internationalization stressors
Statements regarding the impact of uncertainty perception when making decisions about the company's internationalization path	Uncertainty perception	
Statements regarding the state of the domestic and foreign environments in the past, present, and future	Awareness of features of the environment	
Statements that show awareness of the time available to internationalize and of the length of the process itself	Time perception	

4 Results

4.1 Decision-making process and speed of internationalization

4.1.1 Internationalization earliness

From the information analyzed, companies A, B, C, D, and E demonstrated earliness, since they internationalized within three years of their inception (Knight & Cavusgil, 1996; Oviatt & McDougall, 1994; Oviatt & McDougall, 2005). Thus, they could be regarded as following INV or BG internationalization patterns. In contrast, Cases F, G, H, I, and J adopted a gradual approach, starting with the exploitation of the domestic market over a period (ranging from 7 to 43 years), followed by a gradually increasing commitment to international markets (Johanson & Kalinic, 2016).[1] The internationalization process of the companies that adopted a gradual approach is consistent with the Uppsala model, as they began their internationalization in geographically close countries, and then continued to countries that are close in terms of cultural and psychological distance. This can be seen in Case F, a company that internationalized first to Morocco and later to Mozambique and Brazil,[2] and in Case H:

[1] Given the large volume of data collected from the interviews, we adopt a parsimonious approach, including only key descriptive quotations that provide support for the framework and the main findings.

[2] Given the historical linkages stemming from the colonial period, these countries are to be regarded as culturally close to Portugal.

"The first market was Spain. We needed to make contact with new markets, and we choose Spain because it was the closest market, and at the time it was one of the markets that had a lot of demand for our products."

Although the internationalization patterns of the sample were distinct, these companies were confronted with the limited size of the domestic market and with economic and financial stressors. As the interviewee from Case C explained:

"If we stay in the domestic market, the target public that we can attain are those 10 million. Our domestic market is really small, we are 10 million consumers."

The interviewee from Case F expressed a similar point of view regarding the domestic market when deciding to internationalize for the first time; according to the CEO, the lack of projects and work and the limitations of the domestic market drove him to start looking at foreign countries.

Similarities in the earliness of companies A, B, and D were noted in the phases of perception of international opportunities and options, where the experiential cognitive system was predominant. In the words of the respondent for Case D:

"[Case D, Perception, Experiential] I had sufficient information about the markets. International experience was not nothing new for me, and I speak five different languages."

The decision-makers in Cases A and C had a period of evaluation and final choice in which the experiential cognitive system was also predominant, and this guided both companies to internationalize in the year of their inception. For Case A, the experiential cognitive system predominated in the perception, options, evaluation, and final choice in the first stage of internationalization. In contrast, the company Case B took two years to start the internationalization process. From the industry perspective, seeking a new market requires evaluating whether the firm had the necessary resources to carry out the internationalization process. Overall, the companies that followed an INV or BG internationalization pattern showed a predominance of the experiential system compared with other companies.

For companies that adopted a gradual approach, the decision to internationalize could take up to 20 years after the foundation of the company, as in Case G, whose owner at the time decided to participate in a fair in France to raise new clients. Similarly, the CEO of Case J acknowledged that the company's internationalization could be regarded as passive, since its domestic clients fueled the company.

4.1.2 Post-internationalization speed

Similar patterns were found in the analysis of the post-entry speed of the internationalization process. Case A had a preponderance of experiential cognitive system in the phases of perception and evaluation. In the specific case of company E, there was a preponderance of the experiential cognitive system through all four stages of the decision-making process. Meanwhile, Case B had higher levels of experiential cognitive system in the options and evaluation stages, and in Cases A and E, the decision-makers seemed to follow the market and the projects. The company in Case E started the process of internationalization in the year of its foundation since that was the main business concept. However, the decision to continue internationalizing was less analytical and controlled:

"[Case E, Perception, Experiential] The clients make us look for these markets […] I travel and find myself in a determined place, where they offer the same as me and go looking for the same."

"[Case E, Evaluation and final choice, Experiential] In the end, the destination of this kind of companies in this industry is, a lot, in the function of the clients, the clients make us look for these markets."

For Case A, perception and evaluation when assessing the acceleration were dominated by experiential cognitive system:

"[Case A, Perception, Experiential] Deep down, when we are exporting, the exporting process, there are several countries that are similar, mostly in terms of mentality."

"[Case A, Evaluation, Experiential] If we are talking about exporting to Europe, of course every country has its singularity. However, still, the countries are quite similar, and so is the approach to the client, regardless of the market."

Companies that delayed their first entry and then gradually increased the post-entry speed demonstrated a predominance of analytical cognitive system in almost all phases of the decision-making process, specifically the internationalization process per se.

> "[Case F, Evaluation, Rational] I consider that, in our particular case, the process must never be too fast or rapid, since entering an international market and an international project demands a lot of study and practice so that we can achieve a level of maturity fitted to the projects."

> "[Case G, Evaluation, Rational] We study all the markets that have a strong propensity for our products."

4.2 Biases in entrepreneurial information processing

In all the cases under study, strategic internationalization decisions regarding speed involved a certain bias in the options phase since not all options were considered (i.e., tunnel-vision) (Hultman et al., 2021), or not many options were identified. That is, the normative model of Fellows (2004) stated that a number of options should be identified prior to their evaluation, and many if not all the cases already had a preferred option prior to any evaluation, which entails an anchoring bias: they tried to justify the immediate outcomes from their experiential reasoning. This seems to be related to the fact that all companies have a specific method of internationalizing; they seek clients through fairs and the pursuit of international projects that seem appropriate. Case A demonstrated a potential bias in relation to earliness, associated with the fact that the Asian option seemed to be immediate and connected with the experience gathered before founding the company:

> "[Case A, Experiential] I started as a textile agent, the internationalization process was something natural for me. […] When I started my own company, it was destined to go abroad. […] Then, the clients started to source in Morocco, meanwhile, some clients started to order more from Asia. That was the reason why I established an office in Shanghai when I created my own company. […] Until it reached a point where I decided to change my strategy radically because I was too focused on a specific product, that made me focus on a specific product in a specific market. […] The future is all about more clients, product diversity, variety of suppliers and service diversity."

After suffering this negative experience, the interviewee from Case A started to consider more options when internationalizing, which is why the process changed to a more thoughtful, analytical, and methodical one:

> "[Case A, Rational] If I am working in suits and I intend to export them, I seek clients that might need the product, which clients are in which countries. […] Essentially, my method is producing the product, identifying who might need it and export[ing] it."

Although the experiential cognitive system is faster and effortless, it is also more prone to these cognitive biases (Dane & Pratt, 2007; Epstein, 1994; Evans, 2010; Kahneman, 2003). Furthermore, outcomes from this cognitive system can only be trusted in valid environments similar to the one in which the clue-decision was learned. This implies that, at least in business management, the analytic cognitive system reviews the outcome of the experience-based system to check for potential biases and deviations. Yet, this seems to happen only when the entrepreneur detects that the outcome of the decision was poor.

4.3 Knowledge and experiential learning in internationalization

This investigation confirms the findings of, among others, Sommer and Haug (2011) that knowledge and experience are relevant when dealing with the speed of the venture's internationalization processes. The companies selected did not always perform well in their first internationalization, and this experience provided them with valuable insights into how to improve subsequent attempts. The interviewee in Case F mentioned that the first internationalization did not go as planned since "the country did not have the necessary conditions and other domestic companies that were working with us went bankrupt." The contacts with other domestic companies and the role of the networks that served as partners (and that had internationalized first) were also mentioned as important factors in the learning process. The importance of knowledge and experiential learning was mentioned again in Case A:

> "[Case A, Knowledge and experiential learning phase] … that made me focus on a specific product in a specific market. After I suffered from a bad experience, and bad experiences also bring good things, I changed radically."

The fact that the Case A decision-maker relied heavily on the experiential cognitive system changed the sequence of the decision-making process, and as a result, the evaluation phase took place only after the final choice of the Asian market. This is characteristic of experiential cognition, in which automatic decision-making entails a faster decision-making process.

The interviewee in Case F also emphasized the importance of the evaluation phase, concluding from experience that "there are countries that apparently seem like a good option to internationalize and then are extremely difficult to do business with." This feedback contributed to the ease of the internationalization process from that point onward. Moreover, in subsequent phases, "The knowledge and experience that was shared through our domestic partner companies with whom we work regularly, and that internationalized earlier, was a very

relevant input for our decision." This view was confirmed by Case G, whose decision-maker also mentioned that experience was crucial when deciding on subsequent internationalization. This indicates that feedback from the environment plays a key role in subsequent internationalization and experiential cognitive system. Likewise, the use of experience and information learned in the past and judgments related to relevant experience played a major role in a quick and successful response. In short, this feedback looping entails building a heuristic from experience that may shorten the process of decision-making and thus speed up the process of discovering international opportunities and implementing the relevant actions. The loop is faster when the entrepreneur relies heavily on the experience-based cognitive system, making the experiential learning process even faster and allowing it to be translated into early international entries and quicker post-internationalization expansion.

4.4 Internationalization stressors

The cases selected for this study showed a high preponderance of foreign sales in relation to total sales (greater than or equal to 50%), which reflects their awareness of environmental risk, uncertainty, competition, and time constraints. In the specific case of risk and uncertainty perception, all the interviewees stated they had been aware of the stressors and had done what was possible to mitigate the risk. Companies that demonstrate earliness and a more accelerated pattern of internationalization are more exposed to risk, and the CEOs of Cases A, B, and E made the following remarks:

> "[Case A, Risk and Uncertainty perception] Diversifying significantly reduces the risk, because when something goes wrong, the impact will not be as high. It is extremely important to have a great variety of products and services that we deliver to clients. […] we have a huge product variety, and we work in a niche market. All of this to reduce the risk and improve future opportunities."

> "[Case B, Risk and Uncertainty perception] The biggest risk was to bet in a market and the market does not show itself as a buyer. […] We always have uncertainty, it is necessary to live with this day by day, even with good preparation there doesn't exist a way to anticipate events that change the paradigm completely."

> "[Case E, Risk perception] The markets are very volatile in terms of everything. Everything interferes with the global economy."

However, companies that started to internationalize later not only demonstrated an awareness of risk and uncertainty but also seemed to take longer to analyze ways of mitigating these stressors, which is compatible with and characteristic of analytical cognitive system:

> "[Case F, Risk and Uncertainty perception] Our main risk was always related to the contractual and financial components of the projects, in such a way that we can minimize payment defaults, which can also be a reality. […] Some markets are highly unstable, there are strong possibilities that some clients change options during the implementation of the project, and sometimes even the cancellation of some projects."

> "[Case G, Risk, and Uncertainty perception] The risk was always calculated. We participate in fairs always with associations, due to Portugal 2020. So, yes, the risk was always calculated, so what we gather in a fair always covers all the costs that we support. […] We study all the markets that have a strong propensity for our products."

Additionally, in terms of environmental awareness and its features, the cases in the sample mentioned the limited reach of the market if the decision was to stay in Portugal.

The perception of time was different for all the companies in the sample. However, in companies that started their internationalization earlier and demonstrated an accelerated pattern of internationalization, the decision-making process was quicker, in line with their use of the cognitive system:

> "[Case A, Time perception] Our approach to one client is more or less similar to our approach to other clients, regardless of the country."

> "[Case B, Time perception] In a slower process, it enables solidity and more time to learn and make fewer mistakes, on the other hand, it loses the market potential. In a rapid process, we can get a bigger payback, or at least quicker. It has the inconvenience of being riskier and demanding more resources."

5 Discussion and implications

The findings of this study reveal that the speed of the entire internationalization process (i.e., the earliness and post-entry speed dimensions) is strongly influenced by the decision-maker's cognitive strategy. Companies that internationalized earlier were guided by decision-makers who based their information processing

predominantly on the experiential cognitive system. These companies seemed to have a clear idea about internationalization from the very beginning. In contrast, companies that entered international markets later and more gradually had a preponderance of analytical and rational cognitive system. They first decided to exploit the opportunities in the domestic market and then conducted a careful analysis of the knowledge required to mitigate the high risk inherent in internationalization (Eduardsen & Marinova, 2016). Through the accumulation of experience and knowledge, internationalization was gradually developed in countries that were more culturally and psychologically distant (Johanson & Vahlne, 1977). This is consistent with the findings of Oyson and Whittaker (2015) on imagining versus discovering international opportunities; entrepreneurs who mentally create an international opportunity tend to go earlier and more quickly into international markets than those that rely more heavily on the analytic cognitive system.

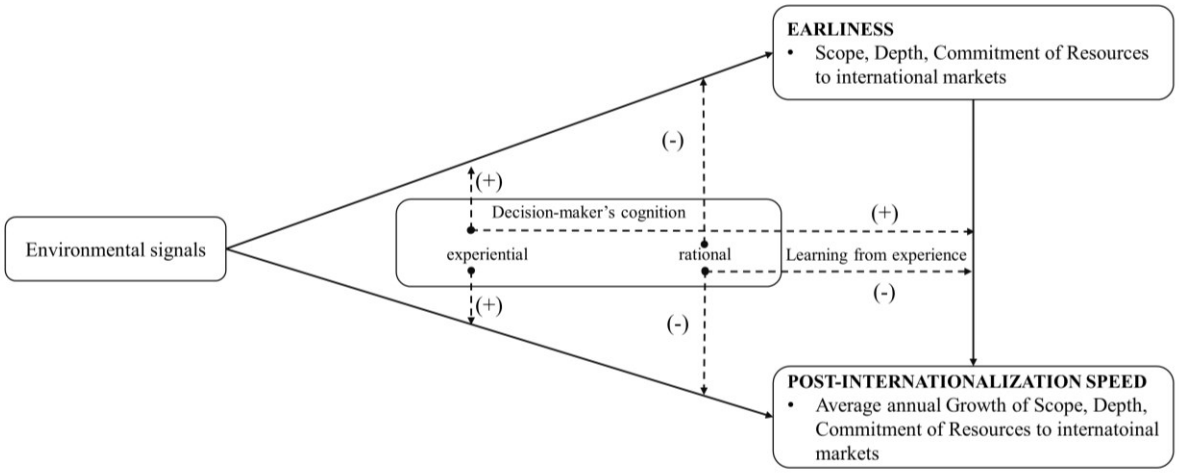
Nevertheless, we should note that the entrepreneurs who relied heavily on the experiential cognitive system were the owners of ventures that had been established more recently and that those who trusted the analytic cognitive system were the owners of firms that had been established decades ago. The only exception is Case I, which was established in 2004 and went international 14 years later but opened an online store available in 40 countries in only the second year of internationalization. Consequently, it is plausible that the time of the firm's establishment is relevant to this behavioral pattern of accelerated internationalization in recent decades. This is consistent with the findings of several studies that earliness and accelerated patterns of internationalization are due to the ease of going international (Pla-Barber & Escribá-Esteve, 2006), which is not limited to particular industries (Choquette et al., 2017, Puig et al., 2018). However, in the cases under study here, the service industries are overrepresented in the group of entrepreneurs who rely on the experience-based cognitive system and the INV pattern of internationalization (four cases out of five); the converse is the case for manufacturing industries in the group of entrepreneurs who rely on the analytic and rational cognitive system and a more gradual approach to internationalization. Since the INV phenomenon is not specific to particular industries, it seems to involve a certain relationship between the use of cognitive systems and going international at a given point. This raises the question, which lies beyond the scope of the present study, of whether there is an optimal mix of cognitive systems contingent on the industry and the speed of the entire internationalization process.

Building on these findings, this study emphasizes the necessity of developing a cognitive strategy that enables entrepreneurs to familiarize themselves with the faster pace characteristic of new international markets. All the interviewees acknowledged that their international experience had been crucial in developing successful market strategies, in being capable of undertaking international projects, and in being able to approach countries that are more distant not only geographically but also culturally and psychologically. This finding is in line with previous research (e.g., Aygoren & Kadakal, 2018; Coeurderoy & Murray, 2008; Zucchella et al., 2007), which found that international experience plays a significant role in the internationalization process. Nevertheless, the speed of the approach differs from entrepreneur to entrepreneur according to how they use their cognitive systems.

These findings are also in accordance with those of Johanson and Kalinic (2016), as all the companies had periods of acceleration and deceleration (changes in the rate of increase/decrease of the speed of internationalization), confirming that internationalization is not a linear process. This variation may be due to the industry in which a company operates and the mode of commitment that it adopts. Hence, the combination of both cognitive systems is necessary to carry out the internationalization process successfully.

We extended the discussion to a higher level of abstraction to consider what these findings imply for the relationships already established in the investigation of IE and entrepreneurial cognition. Our results imply a connection between the entrepreneur's interpretation of environmental signals and the speed of the entire process of the venture's internationalization, including the timing and the post-internationalization expansion. We, therefore, introduce three main propositions for future testing (see Figure 2). The constructs are environmental signals for the discovery of international opportunity and both earliness and speed of post-internationalization. We introduce the moderating effect of entrepreneurial cognition into these relationships. Where the main relationships entail a number of different operationalizations (depth, breadth, and scale of internationalization), the same logic applies to all of them.

Figure 2: Role of entrepreneurial cognition on the speed of the entire internationalization process



5.1 Moderating effect of entrepreneurial cognition

The speed of the entire process of internationalization depends on how fast the decision-maker discovers, enacts, evaluates, and exploits opportunities across national borders. Thus, both earliness and post-internationalization speed are affected by how decision-makers use their cognitive systems. Although the environmental signals are the same for every firm competing in a certain industry, how they are interpreted and transformed into an international business opportunity depends on the decision-maker's cognition, which regulates the final decisions on the earliness of the first entry (when the firm should go international), the scope and the number of new international markets, and which resources are to be committed to which international markets. The decision-making seems to be heuristic-based in the case where the entrepreneur relies strongly on the experience-based System 1, and rule-based in the case where the entrepreneur essentially trusts the rational and analytic System 2.

The same logic applies to post-internationalization decisions. Entrepreneurs who rely on experiential cognition acquire the relevant knowledge faster than their counterparts, as the experiential system is a faster and automatic response to external stimuli. Since foreign market knowledge and learning within foreign networks is paramount to the speed of a firm's international expansion, the impact of environmental signals on these decisions is likely to vary according to the decision-maker's cognition. Entrepreneurs who imagine international opportunities are more likely to trust the experiential cognitive system. These decision heuristics, widely used by entrepreneurs (Mitchell et al., 2007), are faster and useful under conditions of uncertainty and ill-structured context due to its efficient use of available information combined with expertise (Shapiro & Spence, 1997). Furthermore, since those international opportunities are imagined and therefore not available to anyone else (Oyson & Whittaker, 2015), they will enjoy the first-mover advantage and be protected against imitation until the firm ventures into this international opportunity. Even after that, causal ambiguity may protect them from imitation, allowing them to internationalize more quickly.

We acknowledge stressors such as risk, uncertainty, competition, and time constraints in terms of environmental signals. Hence, the way the entrepreneur perceives the environment and the future of the venture will have a stronger impact depending on the extent of the entrepreneur's reliance on the experiential cognitive system. On the basis of these considerations, we offer our first and second propositions:

P1: The impact of environmental signals on a firm's earliness to international markets is moderated by the entrepreneur's cognition, such that the impact is higher if the decision-maker relies heavily on experience-based cognition than if the decision-maker relies heavily on rational and analytical cognition.

P2: The impact of environmental signals on a firm's speed of post-international expansion is moderated by the entrepreneur's cognition, such that the impact is higher if the decision-maker relies heavily on experience-based cognition than if the decision-maker relies heavily on rational and analytical cognition.

Consequently, we suggest that entrepreneurs who rely on the experiential cognitive system will push their ventures to international markets earlier than average for the industry, whereas entrepreneurs who rely on the rational cognitive system will lead their ventures to international markets later than average for the industry. Likewise, the latter will expand the venture internationally more slowly than the former.

In the transition from first to subsequent entries, the same logic explains how quickly a venture passes from the first milestone (how early it goes international) to the next (how fast its international expansion is). If the

venture enters a new international market similar to the domestic one, then the entrepreneur is very likely to apply the same business model. Here, "similar" means that the environmental clues are as clear and unambiguous as they are in the domestic market, as may be the case in markets that are physically and culturally close. In such cases, it makes sense to trust System 1, as experience-based knowledge of the domestic market can be applied to the new international market, and the entrepreneur has had time to learn from experience in the domestic market (and perhaps in similar international markets). Conversely, when the venture enters new international markets that are dissimilar from the domestic market, then the entrepreneur should rely on the rational and analytic cognitive system to search for additional information to translate uncertainty (what is unknown) into measurable risk (what can be known). However, the question seems to be not whether the country is objectively similar but whether it is subjectively similar. The key factor is how the entrepreneur interprets the environmental signals to create an opportunity that is imagined and therefore invisible to others or to discover an opportunity available to everyone. It is likely that the entrepreneur's cognition will also regulate the venture's transition from first to subsequent international markets, and we, therefore, offer our third proposition:

P3: The speed of the transition from the first entry to international markets to subsequent post-internationalization expansion is moderated by the entrepreneur's cognition, such that the transition is faster for firms managed by a decision-maker who relies heavily on experience-based cognition than for firms managed by a decision-maker who relies heavily on rational and analytical cognition.

5.2 Implications for theory and practice

From an IE perspective, the entrepreneurial orientation of entrepreneurs has for decades been the main explanation for earliness and accelerated patterns of internationalization (Knight & Cavusgil, 1996; Oviatt & McDougall, 1994; Oviatt & McDougall, 2005). From an organizational perspective, the explanation of these issues falls under the niche strategy and the idea that to compete successfully in a narrow niche of the market, a venture should gain a relevant portion of the international market as soon as possible (Hennart, 2014; Hagen & Zucchella, 2014). For decades, the Uppsala model has been the main theory of the internationalization process, according to which a venture's lack of experiential knowledge of the host market and international networks of trade (the liabilities of foreignness and outsidership) are the main factors (Johanson & Vahlne, 1977; Vahlne & Johanson, 2020). Our study responds to calls from Niittymies and Pajunen (2019) and Surdu et al. (2020) regarding the cognitive foundations of internationalization.

Although the main antecedents of earliness and speed of post-internationalization expansion are valid, there is an issue of how to reconcile this with the existence of a variety of internationalization patterns even within the same industry and country of origin. The suspicion arises that some interaction between variables or levels of analysis remains hidden. Hence, Maitland and Sammartino (2015) and Vlačić et al. (2020) have pointed out what is potentially the ultimate explanation for this heterogeneity: If all the other factors are the same, the remaining and only different factor is the missing link, in this case, the entrepreneur/decision-maker/manager. The introduction of entrepreneurial cognition into this discourse may explain the heterogeneous patterns in internationalization, accounting for the fact that some firms in the same industry and from the same country choose different moments in their organizational life to go international and different ways of doing so. We thus introduce the subjectivity inherent in entrepreneurial cognition into the behavioral theory of internationalization.

From a practitioner perspective, we should note the perils implicit in the experience-based cognitive system and its heuristics. As shown here, and in line with the claims of DPT (Evans & Stanovich, 2013; Kahneman, 2003), the outcomes of this cognitive system can be trusted only if the entrepreneur has had enough time to learn from environmental clues and to understand the reasons for choosing a certain pattern of entrepreneurial action. This can be applied to a new international market if that environment is objectively valid and similar to those in which the experiential cognitive system learned the heuristics. The question then arises of how to measure this objectively without any kind of judgment stemming from experience. This critical question should be investigated further.

6 Conclusions

From the findings of this research, we conclude that earliness and post-internationalization speed require entrepreneurs to use both cognitive systems to reach a satisfactory final choice. Rationality has its limits (bounded rationality), and certain boundaries, particularly under the influence of time restrictions and/or a lack of available information, can be observed, not least in the current global pandemic. However, even in companies that internationalize earlier and at a faster pace, rational and analytical analysis is important in adapting to different markets, norms, and ways of working. Moreover, given the industry in which companies compete, an analytical system is indispensable during the whole internationalization process, either for taking a leading role in decision-making or for reviewing the outcomes of the experience-based cognitive system.

Nevertheless, in this study, entrepreneurs whose companies internationalized earlier were found to have more experiential information processing in more decision-making stages, whereas entrepreneurs who decided to internationalize later had more rational and analytical information processing in more stages. The novel finding

regarding post-entry speed is that when the venture focused initially on the domestic market in the first years after inception, the post-internationalization speed was slower and more gradual. In these cases, the entrepreneur tended to rely more on the analytic cognitive system and continued to rely on it during the post-entry internationalization process. Since those entrepreneurs emphasized the impact of stressors of internationalization (including risk, uncertainty, and time constraints) on their decision to continue the internationalization, it is likely that reliance on the analytic cognitive system is a reaction to these stressors that slows down the post-internationalization expansion. As a result, entrepreneurs who relied on the experience-based cognitive system chose a faster post-internationalization expansion than their counterparts.

On the basis of these findings, we offer three propositions regarding the moderation of the entrepreneur's cognitive system in the well-established relationships between environmental signals and both earliness of internationalization and post-entry internationalization speed. These propositions explain the heterogeneity of patterns of internationalization that are observed even within the same industry and country of origin.

6.1 Limitations and opportunities for future research

Although the contributions of this study provide avenues for future research, they are also subject to a number of limitations. First, although we investigated cases that followed heterogeneous pathways, there may be biases due to the fact that the entrepreneurs did not want to reveal all the aspects of their decision-making and cognitive strategy (which relate to competitive advantage). However, analysis of how the entrepreneur verbalized the experience addressed this shortcoming to a certain extent, since the responses revealed which cognitive system the respondent trusted more at each stage of the decision-making process. Second, although the study aims at capturing the effects of entrepreneurial cognitive strategy on internationalization speed, the specific opportunities that might appeal to researchers arise from investigating biases coming from cognitive systems. Such focus would enable a deeper understanding of the effects of the entrepreneurial cognitive system on the internationalization decision-making process. Third, no qualitative study can prove how much entrepreneurial cognition influences the earliness and speed of internationalization, an issue that only quantitative studies can fully address. Some attempts have been made, for example, by Silva et al. (2021), who found that cognition has no direct impact on the speed of post-internationalization expansion but influences decisions regarding the allocation of resources to exploration and exploitation activities. Further quantitative studies are required to explore the direct and interactive effects of entrepreneurial cognition on the speed of the entire process of internationalization.

On the basis of this investigation, an agenda for future research can be proposed. First, this study has focused on how and why entrepreneurial cognition affects internationalization speed. A different approach could focus on the quantitative aspects of the research question to evaluate the impact of entrepreneurial cognition on a company's performance through its internationalization speed. Second, medium-sized enterprises and large ventures are suitable objects of further research on the issue of elevating the objectives to the team level. Future studies should consider not only a manager (a single decision-maker) but also a management team, an approach that requires multilevel investigations into the effect of team cognition on the speed of internationalization. Finally, there remains a need for an investigation that connects entrepreneurial cognition and DPT with entrepreneurship and international business since decision-making in IE constitutes a history of how an individual's cognition modulates the final satisfactory choice.

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