

## Corporate Entrepreneurship and International Performance: a Cross-Country Study

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### KEYWORDS

Corporate Entrepreneurship;  
Cultural Distance;  
Institutional Distance;  
Performance of Foreign  
Subsidiaries;  
High Tech Multinational  
subsidiaries.

### ABSTRACT

The overall purpose of this article is to examine the theoretical connections between Corporate Entrepreneurship-CE and International Performance-IP. More specifically, we address two main research questions: (1) How do different dimensions of CE influence IP and (2) To what extent the context of host country matters? Using a two-case study approach, we employ hybrid qualitative-quantitative analyses to address the effects of different dimensions of CE on IP. We adopted four statistical techniques: descriptive statistics, decision tree, cluster analysis, and principal components (factorial maps). The results show that country matters for the perception of the relationship between CE and IP. They show that it is meaningful to separate the different dimensions of CE (innovative behavior, new business ventures, competitive aggressiveness, product/service and process innovation, self-renewal, proactiveness, and risk taking) when examining their influence on IP. The paper focuses on three level of the organization: the production sector (staff), middle management (managers), and top management (CEO and directors). Such perspective allows to explore the role of first-level managers in a “bottom-up” process of corporate entrepreneurship. Furthermore, we distinguished between two levels of corporate entrepreneurship: results and entrepreneurial behavior.

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### PALAVRAS-CHAVE

Empreendedorismo corporativo;  
Distância Cultural;  
Distância Institucional;  
Desempenho de subsidiárias  
estrangeiras;  
Subsidiárias de multinacionais  
de alta tecnologia.

### RESUMO

O objetivo geral deste artigo é examinar as conexões teóricas entre o Empreendedorismo Corporativo-CE e o Desempenho Internacional-IP. Mais especificamente, abordamos duas questões principais de pesquisa: (1) Como as diferentes dimensões do EC influenciam a PI? e (2) Em que medida o contexto do país-sede é importante? Utilizando uma abordagem de estudo de dois casos, empregamos análises qualitativas-quantitativas híbridas para abordar os efeitos de diferentes dimensões de EC em PI. Adotamos quatro técnicas estatísticas: estatística descritiva, árvore de decisão, análise de cluster e componentes principais (mapas fatoriais). Os resultados mostram que o país é importante para a percepção da relação entre CE e PI. Eles mostram que é significativo separar as diferentes dimensões do CE (comportamento inovador, novos empreendimentos comerciais, agressividade competitiva, inovação de produto / serviço e processo, auto-renovação, proatividade e tomada de risco) ao examinar sua influência na PI. O artigo se concentra em três níveis da organização: o setor de produção (pessoal), a gerência intermediária (gerentes) e a alta administração (CEO e diretores). Essa perspectiva permite explorar o papel dos gerentes de primeiro nível em um processo “de baixo para cima” de empreendedorismo corporativo. Além disso, distinguimos entre dois níveis de empreendedorismo corporativo: resultados e comportamento empreendedor.

## 1 Introduction

Entrepreneurial and international business research indicates that the international performance (IP) of firms is highly correlated with their abilities to develop unique strategies to enter and grow in the foreign markets as global players. In particular, the entrepreneurship literature shows that proactiveness and innovativeness affect the performance of firms in both domestic and foreign markets (Zahra and Covin, 1995). Under international performance, we understand the economic and financial performance of MNC subsidiaries in the host countries.

However, we believe that by including additional divisions in the number of dimensions can provide the corporate entrepreneurial perspective with specific avenues that may add better understanding of the complex relationship between CE and IP.

However, when examining the relationship between corporate entrepreneurship (CE) and International Performance (IP) is particularly important to establish how multinational corporations (MNCs) cope with cultural and institutional differences among countries.

We posit that this multidimensional approach of CE is more effective for cross-country comparative studies. Thus, we adopt more dimensions to capture the effects of CE in different institutional environments and industries.

The overall purpose of this article is to examine the theoretical connections between CE and IP and test them by analyzing two cases of MNCs. Our study contributes to the literature in several ways. First, although prior research has generally found that CE has a positive impact on organizational performance (Zahra and Covin, 1995), few studies have explicitly focused on how different components of Corporate Entrepreneurship affect International Performance. Second, we specifically examine how different contexts shape the strategic orientation of firms. Third, the link between CE and IP represents a theoretical opportunity to examine the differences and hierarchies among the variables and to explore how they affect strategies and performances of multinational subsidiaries operating in different national contexts.

We decide to study the case of Brazil for several reasons. The country hosts subsidiaries from both MNCs. It is one of the leading countries

among emerging economies. Finally, studying the case of Brazil provides the opportunity to include context analysis in the general framework of corporate entrepreneurship and international performance.

We decided to address the case of high tech industries to capture the effects of innovation and its effects in different contexts.

The article proceeds as follows: First, we provide an account of the theoretical foundations of our study, after which we present relevant theory and present our general framework. Second, we provide the method and approach. We conclude with our research findings, drawing attention to how CE influences IP in different international contexts.

## 2 Theoretical Framework

### 2.1 International Performance

Firm internationalization has been extensively investigated by scholars in the field of International Business (Johanson and Vahlne, 1977, 2009). According to Penrose (1995) and Eriksson et al. (1997) internationalization refers to a process of increasing experiential knowledge.

When firms grow according to a deterministic path, decision makers are largely unable to influence and shape the strategic choices of the firm. However, studies have shown that firms have different international strategies that are strongly influenced by the decisions and choices of managers (Andersson, 2000). Several researchers in the international entrepreneurship field have highlighted the importance of top management in international business (Keupp and Gassman, 2009; Jones et al. 2011). Research has also found that the accelerated process of internationalization by firms operating in specific high-tech industries is positively associated with high innovative skills, including the ability to access effective R&D and distribution channels. This ability often occurs in partnerships characterized by close international collaboration and involving frequent, intense, and integrated efforts of cooperation across nations (Knight and Cavusgil, 1996; Madsen and Servais, 1997).

Furthermore, because internationalization involves the commitment of resources and risk taking in different countries, an organization can reinforce performance on an international level

through entrepreneurial activities, particularly in situations of high domestic uncertainty (Dimitratos et al., 2004).

International Corporate Entrepreneurship applies the dimensions of CE to higher levels of geographic expansion and exploration. Innovation and venturing are two important dimensions that must be incorporated into the general concept of international CE. Such dimensions are relevant for MNCs to identify new markets and develop new competencies (Zahra et al., 2004). In addition, Frishammar and Andersson (2009) investigate how the three dimensions of corporate entrepreneurship, proactiveness, innovativeness and risk taking (Miller, 1983; Covin and Slevin, 1991) are connected with International Performance. They find a positive relationship between proactiveness and IP but no relationship between the other two dimensions of corporate entrepreneurship (innovativeness and risk taking) and IP.

Zahra et al. (2009) state that internationalization enhances innovation through the enriched sources of knowledge gained through exposure to diverse stimuli. Expansion into foreign markets could be considered an experience, which is different from current activities and thus stimulates innovation.

## 2.2 Corporate Entrepreneurship

Several authors (Covin and Miles, 1999; Antoncic, and Hisrich, 2001; Goosen et al., 2002; Kuratko et al., 2004) suggest different typologies of the CE dimensions. The classical framework of three dimensions has proved to be too restrictive to capture the diversity of the activities, particularly in cross-country comparative analysis. To overcome such limitations, we distinguish between two main perspectives of CE.

The first emphasizes the behavioral features of entrepreneurial activities, defined as entrepreneurial behavior, that subsidizes the company with more innovative inputs, which includes the dimensions of proactiveness, innovative behavior, and self-renewal. This is an important perspective to the establishment of the general firm conditions to growth. However, such perspective is not sufficient to understand how such dimensions affect the performance of firms. Proactiveness, innovative behavior and self-renewal are key factors that will support the

internationalization of firms and their strategies to enter into different foreign markets. However, firms need to possess and develop a perspective of entrepreneurial result, which focuses on how to transform such firm assets in specific market outcomes.

The second perspective is entrepreneurial results that will focus on the result of the companies, which include risk taking, competitive aggressiveness, product/service and process innovation, and new business ventures. These dimensions, on the other hand, will convert the entrepreneurial behavior, particularly in different institutional contexts, in powerful assets to compete in foreign markets and generating high performance.

Lumpkin and Dess (1996, p. 136) define entrepreneurial orientation as “the processes, practices, and decision-making activities that lead to new entry.” They identify seven dimensions that shape entrepreneurial orientation in an organization. The same dimensions have been also used in the literature of corporate entrepreneurship. The first three come from prior researches that show that the dimensions of innovation, risk taking, and proactiveness are strongly related to a firm’s entrepreneurial orientation (Miller, 1983; Brazeal and Herbert, 1999). Lumpkin and Dess (1996) refer to the other two dimensions as competitive aggressiveness and autonomy (see Zahra and Covin, 1995). The dimensions can be independent of one another in a given context and circumstance. Certain dimensions either weigh more heavily on or have less of an influence on the performance of the firm (Lumpkin and Dess, 1996). The implicit logic behind the belief that CE add value to the company is that the key dimensions are vehicles that stimulate the identification and pursuit of lucrative opportunities while also providing a foundation for the creation of superior competitive positions (Zahra and Covin, 1995).

Entrepreneurial firms are those that identify new ways of doing business, develop new technologies, introduce new products, and enter new markets. They manage to find business opportunities and pursue them through exploitation and value creation. They also adapt entrepreneurial strategies in the pursuit of wealth. One way to achieve this is through an acquisition strategy, which facilitates access to specific assets (Farinós et al., 2011). Various scholars have shown the

importance of CE in relation to a firm's level of innovation and its competitive advantage and performance (Miller, 1983; Lumpkin and Dess, 1996; Covin and Miles, 1999). Antoncic and Hisrich (2001, p. 498) use the term "intrapreneurship" (see also Pinchot, 1985) to refer to CE and define it as "entrepreneurship within an existing organization.". They emphasize the intentional and behavioral aspects of intrapreneurship, implying that CE is primarily an activity-oriented phenomenon that enhances the development of different aspects, including products, strategy, structures, and operations, to move in new directions. Kuratko et al. (2004) focus on the antecedents of entrepreneurial behavior and find that entrepreneurial outcomes are often the result of a combination of organizational antecedents, such as management, autonomy, and rewards.

Corporate Entrepreneurship enhances the access to resources and the creation of new ones (Ahuja and Lampert, 2001). Covin and Miles (1999) argue that CE is strongly related to entrepreneurial activity and entrepreneurial posture. Entrepreneurial activity is essential because it helps stimulate superior performance and is a key element in the procurement of advantages related to competitors (Knight, 1997). Using a longitudinal study, Zahra and Covin (1995) also show that there is a strong positive relationship between CE and firm financial performance in terms of growth and profitability. As such, they suggest that CE should be approached as a long-term strategy rather than a short-term focus, to achieve superior results. They also find that the benefit of entrepreneurship within the boundaries of an organization is captured mainly by its financial performance, which is more likely to come to light in the long run. In the short run, CE practices might not have sufficient time to reach their full potential impact on financial performance.

### 2.3 Context and International Performance

Regardless of the size or the type of an organization, an corporate entrepreneurship is of large importance for the pursuit of strategic innovation, especially when the external environment shows to be dynamic and shifting (Knight, 1997). This is also studied by Dean and

Meyer (1996) who found that the structure and level of competition of an industry is closely related to the industry dynamism and the level of competitiveness. The choice for strategic orientation of an organization is often reliant on the managerial perspective of the industry through their perception and choice of strategy and direction (Weerawardena et al., 2006). Taking into account that EO is a strategic approach (Wiklund and Shepherd, 2003), it is also found by Barringer and Bluedorn (1999) that the entrepreneurial intensity is influenced by the strategic management practices such as the scanning intensity of the industry, the flexibility of their planning, the scope of the planning, the locus of the planning and the strategic control attributes. Lumpkin and Dess (1996) emphasize the relationship, there is between the strategic approach, such as EO, and a firm's performance. They argue that this relationship is context-dependent. The contextual factors that influence the EO are categorized into the organizational and the environmental context (Lumpkin and Dess, 1996; Dess and Lumpkin, 2005), or respectively as internal and external factors (Zahra and Covin, 1995).

We suggest to capture the context effect based on two main approaches. The first one, based on Porter's (1999) approach, which addresses the effects of four categories related to competition: factor condition, demand condition, firm strategy structure and rivalry, and related and supported industry. This suggests that in the case of Industries with high competition and rivalry between companies, the effects of the dimensions of entrepreneurial results may be higher than the behavioral dimensions. This suggests that the interactions between CE and IP can present differences in intensity and type of dimensions according to the type and competition level by industries.

The second approach is based on institutional theory, which predicts that the contexts of high uncertainty and institutional void are more likely to stimulate entrepreneurial behavior among firms. Sharif (2012) has pointed, in the case of Hong Kong that efforts to overcome obstacles to innovative entrepreneurship have to be connected to broader measures of transforming the existing culture and institutional environment. Therefore, we suggest that the higher the level of proactiveness, innovative behavior, and self-renewal, the greater is the IP of firms operating in

countries with high-risk and uncertainty.

## 2.4 General Framework

Taking into account that entrepreneurial orientation is a strategic approach (Wiklund and Shepherd, 2003), Barringer and Bluedorn (1999) find that entrepreneurial intensity is influenced by strategic management practices, such as the competitive intensity of the industry, the flexibility of planning, the scope of planning, the locus of planning, and strategic control attributes. Lumpkin and Dess (1996) emphasize the relationship between the firm's strategic approach (e.g., entrepreneurial orientation) and performance and argue that this relationship is context dependent. The contextual factors that influence entrepreneurial orientation are categorized into organizational and environmental contexts (Lumpkin and Dess, 1996), or as internal and external factors, respectively (Zahra and Covin, 1995).

The organizational factors are related to topics on a corporate level, such as size, structure, strategy, strategy-making processes, firm resources, culture, systems, and top management team characteristics. The environmental or external context contains factors that rely on the industrial level, including dynamism, munificence, complexity, governmental regulations, and industry characteristics (e.g., globalization, product-market life-cycle stage). In terms of context dependency, Dimitratos et al. (2011) find that strategic decisions are dependent on the culture of the country in which the organization is based. Covin and Slevin (1991) state that the external environment influences the presence of entrepreneurial activity in an organization. Hornsby et al. (2002) argue that middle managers should recognize five internal organizational factors to stimulate and promote entrepreneurial activity within an organization. These factors are management support, work discretion, rewards, time availability, and organizational boundaries. Of these, they show that management support has the greatest influence on Corporate Entrepreneurship.

In their model for the perception of middle management on these organizational factors, they show how this perception, limited by resources and managers' ability to overcome barriers, eventually

leads to the implementation of the entrepreneurial strategy chosen by the executive management.

Dynamic environments, characterized by uncertainty and rapid change, may have a more positive influence on firm performance than a competitive aggressive posture, which is more likely to have a positive influence on performance in highly competitive industries (Lumpkin and Dess, 1996). This notion is confirmed by Robinson and McDougall (1998), which find that the creation of new ventures is significantly more prominent in industries with a relatively low degree of industry concentration and high product differentiation. They also show that the performance of new ventures is significantly dependent on the stage of the industry life cycle. The best performance occurs when firms enter an industry in the introductory stage, not in the maturity stage.

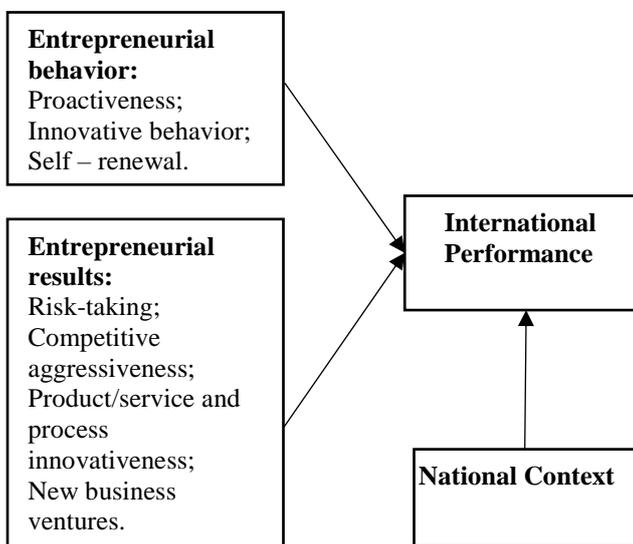
As mentioned previously, the classical corporate entrepreneurial framework of three dimensions has proven relatively too restrictive to capture the diversity and complexity of entrepreneurial activities, particularly in a cross-country comparative analysis. That is, the dimensions can lead to different outcomes when operating in different institutional and industrial contexts. For example, firms are more likely to develop complex behaviors in environments with high uncertainty or industries with high competition. The implications of such outcomes suggest that restricting the entrepreneurial dimensions would limit our understanding about how CE affects IP.

To overcome such limitations and in line with prior researches (Miller, 1983; Morris et al., 1994; Zahra and Covin, 1995; Wiklund, 1999; Messeghem, 2003), we propose distinguishing between two main perspectives of CE (see Figure 1). First, we emphasize the behavioral features of entrepreneurial behavior, which include proactiveness, innovative behavior, and self-renewal. This perspective is more oriented to capture the individual behavior. We emphasize the outcomes of entrepreneurial activities, or entrepreneurial results, which focuses on the firm performance. This perspective considers the following dimensions: risk taking, competitive aggressiveness, product/service and process innovation and new business ventures.

We also suggest that national context matters in terms of how the different dimensions shape a firm's IP. As such, we posit that the institutional

environment of the host country may have an effect on the individual dimensions and may explain why some dimensions are more effective in specific contexts than others. We advance three main sets of hypotheses based on the framework discussed previously. The first set pertains to the effect of the dimensions of entrepreneurial results on IP. The second set highlights the effects of the dimensions of CE on IP. The third aims to explicate the role of context in shaping the effects of the two sets of CE on IP. In the following subsections, we discuss each dimension separately and suggest hypotheses on the effects of entrepreneurial behavior and the entrepreneurial results dimensions on IP and why national context matters.

**Figure 1.** Main perspectives of CE



**Source:** Elaborated by authors (2017).

### 3 Methodology

We examine the relationship between CE and IP. Using a two-case study approach, we employ hybrid methodological procedures, using a qualitative approach, with quantitative assessments and analyses to evaluate the different levels of interactions between the different dimensions of Corporate Entrepreneurship and International Performance.

We selected two companies (Alpha and Beta) that operate in high-tech industries and engage in continuous involvement in foreign markets—Alpha and Beta, which are headquartered in Sweden and The Netherlands, respectively, both operate in Brazil. To ensure relevance to the information derived from the data collection, we

selected the companies according to the following criteria: they (i) engaged in international activities using different modes of entry, (ii) operated in different foreign markets, (iii) operated in high-tech industries, (iv) and presented strong evidence of Corporate Entrepreneurship.

Our challenge was finding companies that operated in the three countries at the same time and were willing to agree to be interviewed. In particular, our goal, following other studies (Burgelman 1983a, b; 1984; Kuratko and Audretsch, 2013), was to run interviews on three levels within the organization: the production sector (staff), middle management (managers), and top management (CEO and directors). Such perspective allows to explore the role of first-level managers in a “bottom-up” process of corporate entrepreneurship.

#### 3.1 Sample

Alpha was founded in the beginning of the twenty century, in a small city in Sweden, and is a supplier in the health care industry. According to the firm’s 2013 annual report, it has a history of successes, with an average growth from 2009 to 2013 of 7.05% per year. Today, the company has three business segments: Medical Systems, Extended Care, and Infection Control. It has proprietary sales companies in 33 countries, as well as 33 manufacturing plants in 14 countries. The company principally operates in the United States, the United Kingdom, France, Germany, Japan, Italy, Canada, The Netherlands, Australia, and China.

Beta is a high-tech MNC that was founded at the end of the 1960s, in a small city of Holland, and is staffed by a functional team of highly qualified professionals. The firm also has a history of success, with an average growth of 11% per year. According to its website, in 2012 Beta had subsidiaries in Holland, Sweden, Brazil, the United States, Japan, Australia, India, and South Africa, as well as offices in China, Italy, and Spain.

#### 3.2 Data Collection

The study consisted of documentary research and focused interviews with managers from headquarters and subsidiaries, in Sweden, Netherlands and Brazil.

Given our research interest, we designed a

questionnaire with 42 affirmations; for measurement purposes, seven variables to capture the Corporate Entrepreneurship dimensions, and one variable to capture the dimension of International Performance.

The script adopted a five-point Likert scale (1 = strongly disagree, 5 =strongly agree) for the eight dimensions (1 IP+ 7 CE). The proposed dimensions were ranked with low (negative perception), middle, and high (positive perception) intensity during the analyses.

The main dimensions and variables used to measure the impact of CE on IP, as described on table 1.

In total, we interviewed 16 employees from the two companies, in three countries, and representing the 3 different levels of organization: 1 General CEO (responding for Europe), 1 President from Brazil, 3 middle manager and 3 employees in the production area. We tried to maintain a balance in terms of the numbers of interviews for each company.

We mainly structure the questionnaire in order to capture the different perceptions of all levels of management of the two companies about the different dimensions of corporate entrepreneurship and on their perceptions of international performance. Our methodological procedures were based on the assumption that to capture the interactions between CE and IP, it is a need to collect the data not only from the subsidiaries, but also involving the high management in the home countries of the subsidiaries. This system of data collection allows an in depth approach of the phenomenon, and, also to, besides estimating the effects of different dimensions, to establish their importance and relevance for each context.

Since our main objective is to present a qualitative approach of the interactions between the corporate entrepreneurship dimensions and international performance, we adopt a methodological strategy that focus on a limited number of interviews, but we tried to approach the perceptions of different hierarchical levels of management.

In addition, we used secondary data to complete our analysis, based primarily on institutional websites.

**Table 1.** Variable Descriptions and Measurement

Variables	Measurement	Authors
<b>DependentVariable</b> IP	Market share, turnover, profitability, image, company expertise	Zahra and Covin (1995); Robinson and McDougall (1998)
<b>CE dimensions</b> <u>Entrepreneurial behavior</u> Proactiveness	Opportunity, creative solutions, quick decision	Goosen et al. (2002); Hill (2003); Ireland et al. (2006)
Innovative behavior	R&D, technological leadership innovation, autonomy, evaluation of employees innovativeness, recognition of new innovative ideas	Goosen et al. (2002); Hill (2003); Ireland et al. (2006)
Self-renewal	Self-improvement, individual entrepreneurship, urgency of change andinnovation, business units reorganization and autonomy	Hill (2003), Antoncic and Hisrich (2001), Ireland et al. (2006)
<b>Entrepreneurial results</b> Risk taking	High-risk project, management of uncertainty, exploring new growth opportunities, calculated risk taking	Antoncic and Hisrich (2001) Goosen et al. (2002), Hill (2003)
Competitive aggressiveness	Exploiting potential opportunities, maximizing profitability, new products or services, competitiveposture, creation of new demands	Ireland et al. (2006), Goosen et al. (2002)
Product/service and process innovation	Rate of new products, pioneering to introduce new products, improvement of processes, new product in the market	Hill (2003) Antoncic and Hisrich (2001) Ireland et al. (2006)
New business ventures	Broadening of business lines, new business in new industries, new market niches, rapid growth	Zahra and Covin (1995) Robinson and McDougall (1998)
<b>Control Variables</b> Country Company Position in the company	Brazil, Sweden, and the Netherlands AlphaandBeta Functional employees, middle management, and top management	

Source: Elaborated by authors (2017).

## 4 Results and Discussion

To analyze the relationships between International Performance and the Corporate Entrepreneurship dimensions, considering the data obtained this study opted to use four statistical techniques: descriptive statistics, decision tree, cluster analysis (dendrogram), and principal components (factorial maps). The four methods facilitate convergence of the data analysis. The adopted techniques are more suitable for small samples, with limited case studies. Our objective for the principal component analysis was to establish the underlying relationships between the entrepreneurial dimensions and their effects on IP. Cluster analysis allows for the identification of groups and subgroups, according to the host country of the subsidiary and to the position of the interviewees in the company. Finally, we used the decision tree technique (Loesch and Hoeltgebaum, 2012), with the aim to identify specific rules to establish the behavior of each dimension and its relationship to the firms' IP.

### 4.1 Descriptive Statistics

As reported in table 2, it seems that the respondents have a positive perception about the

international performance of the companies they belong. On the other hand, 37.5% of all respondents ranked the dimensions of innovative behavior; new business ventures, product/service and process innovation, and self-renewal on the same level. The variable risk taking was the dimension with the lowest scale perception.

**Table 2.** Perception of the Dimensions (per classes)

Measure	Competitive Aggressiveness Dimension (4 questions)	Self-renewal Dimension (8 questions)	Innovative Behavior Dimension (7 questions)	Proactiveness Dimension (4 questions)	Risk Taking Dimension (6 questions)	Product/Service and Process Innovation Dimension (4 questions)	New Business Ventures Dimension (5 questions)	IP Dimension (6 questions)
Low	25%	31.25%	18.75%		56.25%	25%	18.75%	18.75%
Middle	43.75%	31.25%	43.75%	43.75%	18.75%	37.5%	43.75%	31.25%
High	31.25%	37.5%	37.5%	18.75%	25%	37.5%	37.5%	50%

**Source:** Survey data.

## 4.2 Decision Tree

In the evaluation of the tests' arrangements, all 16 interviewed employees of our sample were classified correctly, with 100% accuracy occurring for all the precision and revocation of all classes (low [A], middle [B], and high [C]). We constructed the decision tree by considering the following control variables: company information, country of origin of the employees, and their position within the company (functional operation, middle management, and top management). In the following, we discuss the impact of each of these dimensions and variables. We treated the IP dimension as a separate class for the decision tree model. The minimum of observations taken was from two branches, and based on this, we derived specific rules.

The decision tree is a flowchart-like structure in which each internal node represents a "test" on an attribute, each branch represents the outcome of the test and each leaf node represents a class label (decision taken after computing all attributes). The paths from root to leaf represents classification rules. Our analysis identified 8 rules, pointing to the different paths that capture the relationships between the dimensions.

The basic rule number 2 of the tree decision construction states that if proactiveness is low (A) and self-renewal is in the middle (B), there is a 50% likelihood that IP will be scored at the low level (A). This means that proactiveness has a positive impact on the firms' IP.

The decision tree also provides rule number 6, which suggests that a middle level of

proactiveness (B), combined with a middle level of innovative behavior, will negatively affect the IP(A) of Beta.

Rule number 8 of the decision tree highlights a relationship between proactiveness and IP. In 63% of the cases, a high level of proactiveness implies a middle level of IP.

According to rule number 5, a middle level of proactiveness combined with a middle level of innovative behavior will also lead to a middle level of IP in 50% of the cases.

Rule number 7 shows that a middle level of proactiveness and a high level of innovative behavior will have a positive impact on IP for 70.7% of the sample.

A low level of proactiveness and self-renewal will lead to a high level of IP in 63% of the cases, as suggested by rule number 1.

Rule number 4 explains that a middle level of proactiveness (B) and a low level of innovative behavior will result in a high level of IP, but only in 25% of the cases.

According to rule number 3, there is no relationship between the low level of proactiveness, the high level of self-renewal, and IP.

In summary, the decision tree shows that the IP dimension is high when proactiveness is low, regardless of whether self-renewal is high or low. The same result can be found for innovative behavior; however, we found that IP was high when proactiveness registered a medium score; it was indifferent regardless of whether innovative behavior was low or high and when proactiveness was medium. Furthermore, the IP dimension was low when proactiveness was low and when self-renewal was medium.

The decision tree explains that the IP is directly related to the proactiveness, innovative behavior, and self-renewal dimensions. For increased reliability of the data, the decision tree also analyzed each company. We found that the greatest relationship with the IP occurred in Alpha. For the proactiveness and self-renewal variables, in Beta, the tree shows that the highest ratios are between innovative behavior and proactiveness.

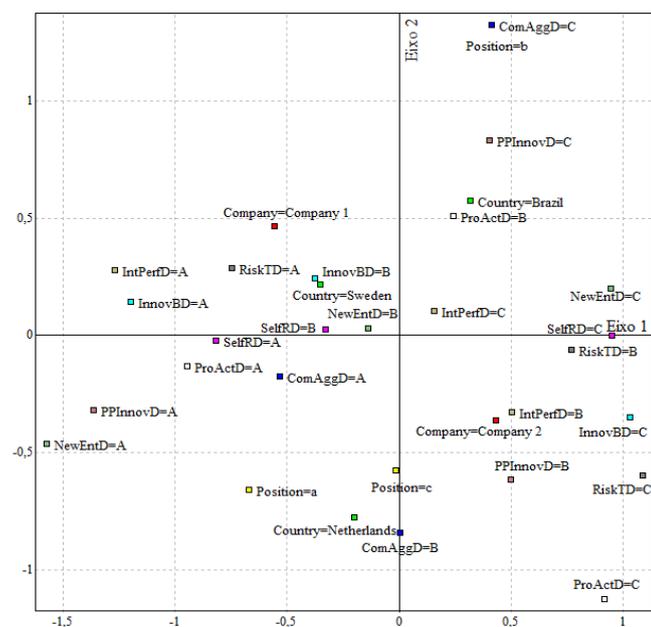
This primary result shows differences in terms of the influences of the dimensions of entrepreneurial behavior and entrepreneurial results. For Alpha, we observed that IP was related to proactiveness and self-renewal. Self-renewal is an entrepreneurial result. This company works with

high-tech medical equipment and needs more entrepreneurship focusing on results. Beta, the second organization studied, engages in obvious entrepreneurial behavior, such as R&D of agricultural products (i.e., seeds technology). We also observed that the proactiveness and innovative behavior dimensions were directly related to IP.

#### 4.3 Principal Component Analysis (Multifactorial maps)

The results of a Principal Component Analysis are usually discussed in terms of component scores, sometimes called factor scores (the transformed variable values corresponding to a particular data point), and loadings (the weight by which each standardized original variable should be multiplied to get the component score). The multifactorial maps resulted from the principal component analysis show the interdependencies of the dimensions and their relationships, as perceived by the analyzed companies. For greater understanding, we analyzed maps in the three countries (Sweden, Brazil, and The Netherlands for each company and considering separately the hierarchical level of the respondents at the companies (see Figure 2).

**Figure 2.** Multifactorial map of the dimensions



**Source:** Survey data.

For the factorial map of Brazil, we find that Brazil is closer to the variables with the highest dimensions, including competitive aggressiveness,

product/service and process innovation, IP, new business venture, and self-renewal.

Brazil finds itself in the same proximity to Alpha as to Beta, which means that it does not have a profile more directly related to the typical company studied in any of the two cases. When we use the factorial map with only the data of employees of companies in Brazil, we find that the profile of the two companies is different, with the high IP dimension lying in the middle of the two companies; Beta in the Brazil factorial map has the higher dimension of CE. The highest IP dimension appears for Sweden and Brazil, with high self-renewal and with middle proactiveness, innovation behavior, risk taking, and new business ventures.

Sweden finds itself between the middle dimensions of innovative behavior; new business ventures, and self-renewal. The lower IP is closer to Alpha in Sweden when we run the factorial map with only data of employees of companies in Sweden, the same occurs as when we analyzed the Brazilian subsidiary. Typical behavior found in businesses in Sweden was revealed as being at the middle level of the proactiveness dimension.

The Netherlands appears in the opposite quadrant to Brazil, and the closest low dimensions considered by respondents were new business ventures and product/service and process innovation, with the higher dimensions being proactiveness, innovative behavior, and risk taking. When we run the factor only with data from the employees of companies in The Netherlands, Alpha and Beta are almost the same, with the two nearest dimensions of IP and innovative behavior. Thus, the typical behavior found in businesses was revealed to be the middle competitive aggressiveness dimension.

In the following we will discuss the implications of the factorial analysis for the hierarchical position, companies, countries, and cluster analysis.

##### 4.3.1 Hierarchical position

The factorial map points to significant differences among the three countries, particularly regarding the IP, and to differences in terms of company employee perceptions. In terms of IP, while Sweden and the Nederland registered low to middle, particularly by the employees in the higher and lower positions, in Brazil, we observed a high IP perception of employees in the middle position.

The results of the factorial map suggest that lower-level employees have a low perception of IP. Battilana (2006, p. 663), states, “Individuals who belong to higher status social groups most often benefit from the prevailing institutional arrangements, which reinforce their dominance over individuals who belong to lower status social groups.” This behavior, in particular, can be observed in companies located in the developing country (Brazil). Top management gives the rules and directions, but middle managements are typically involved during the execution of the planning.

In this case, it seems that middle management has better knowledge that the top management—that is, middle management employees have higher perceptions of competitive aggressiveness, product/service and process innovation, self-renewal, and new business ventures, combined with a high IP perception in the Brazilian quadrant.

#### 4.3.2 Countries

This study includes Brazil, The Netherlands, and Sweden. The two latter countries are developed countries with small economies and high levels of trade openness, and they are the headquarters of the studies companies. For salience, it is important that the two countries are located in West Europe, which has a high level of development and a positive institutional environment. The two countries are leaders among developed countries in terms of internationalization, technology, and innovation. Conversely, Brazil is a developing country, with a large economy, depending less on international trade.

The factorial map shows that Sweden has the lowest perception of IP, combined with a low level of risk taking and innovative behavior and a middle level of, new business ventures, and self-renewal. The case of The Netherlands shows a similar perspective: low levels of competitive aggressiveness, proactiveness, self-renewal, and product/service and process innovation and a middle level of new business ventures. It is important to note that such perceptions are related more to top management employees and functional employees. As Zahra and Covin (1995, p. 55) explain, “the environment in which CE is practiced can have a strong and persistent impact on the effectiveness of an established firm's

entrepreneurial behaviors.”

#### 4.3.3 Companies

In terms of company analysis, Beta has headquarters in The Netherlands and appears in the opposite quadrant from Sweden and Alpha. In general, the scores from Beta are higher than those from Alpha for product/service and process innovation, risk taking, proactiveness, and IP. Alpha is a Swedish company with the lowest general scores.

Summing up, the results show that the higher the status of the respondent in the company, the greater is his or her impression of performance in general and the greater the impression of IP in particular. However, for CE, it seems that middle management has more positive perceptions, particularly in the case of Alpha. Finally, employees in the top management in The Netherlands have higher perceptions of IP than the top managements in Brazil and Sweden. As a person's status increases in the company, the greater is his or her impression of the company's IP. However, for CE, the map shows that middle management has a more positive perception of CE than the top management, especially for Alpha. The top management in The Netherlands realizes the international dimension of higher performance than that in Brazil and Sweden.

#### 4.4 Cluster Analysis

The cluster analysis identified a direct relationship between IP and the position of the interviewees in the company. The country in which the company is located also influences all other variables. The country, the position of the interviewees, and IP all affect the CE variable. As the cluster analysis shows, the competitive aggressiveness and product/service and process innovation dimensions are related and have direct effects on the proactiveness and self-renewal dimensions, which are interrelated, and with the dimension of risk taking. Furthermore, new business ventures and innovative behaviors are related to each other.

The cluster analysis, have had the rating hierarchical, the variables are the grouping objects; the standardization of variables ranged between 0-1, and the measurement distance were Euclidian and the aggregation methods were the average

distance. After running the three kinds of analyses, the relationships of the 7 CE dimensions and the IP dimensions confirmed not only in terms of companies but also on the country level, and the position of the employees to the company. Brazil has developed high scores showing the CE, which is not in line, with the most traditional theories of the impact of geographic and psychic distances between headquarter and subsidiary.

## 5 Conclusion

The main question of this article is how do different dimensions of Corporate Entrepreneurship influence International Performance, and to what extent the context of host country matters? As the results show, country matters for the perception about the relationship between CE and IP. We found a strong association between the high entrepreneurial behavior in a country and the high perception by different levels of management of IP. The factorial maps establish differences among the sampled countries, in that Brazil shows the highest perceptions of the dimensions represented in the map to identify entrepreneurial behavior.

This study contributes in several ways to the literature on CE and IP. First, it shows that it is meaningful to separate the different dimensions of CE (innovative behavior, new business ventures, competitive aggressiveness, product/service and process innovation, self-renewal, proactiveness, and risk taking) when examining the influence of CE on IP. These dimensions were derived from an extensive literature review (Miller, 1983; Guth and Ginsberg, 1990; Morris et al., 1994; Zahra and Covin, 1995; Sharma and Chrisman, 1999; Wiklund, 1999; Messegem, 2003; Covin et al., 2006; Rauch et al., 2009; and Bierwerth et al., 2015). We concluded that proactiveness, innovative behavior, and self-renewal have direct associations with International Performance. However, the study shows that proactiveness has the clearest positive connection with IP.

Second, the study shows that the international context has an influence on CE in the same organization. Brazil presented a significantly higher perception of CE than either Sweden or the Netherlands. This contradicts previous findings that highlight developing countries as a low-cost production alternative (Dunning, 1996; Birkinshaw and Hood, 2000; Frost, 2001). This suggests that

the institutional environment throughout the host country exerts a strong influence on the behavior of top management. In countries with some institutional uncertainties and high market imperfections, proactiveness and aggressive market approaches will significantly shape the performance of the firm and its commitment to the host market. We understand that foreign subsidiaries, when exposed to different institutional and cultural contexts, can develop different paths of entrepreneurial behavior, by strengthening some of the entrepreneurial dimensions (like proactiveness), or even by creating new entrepreneurial perspective. This seems to be an important outcome of the study, pointing to new avenues in corporate entrepreneurship researches. This implies that context can shape in large extent the entrepreneurial behavior of companies, particularly those operating in high-tech industries.

Third, this study shows that the perceptions of CE and IP are dependent on the position within the company. In this research, we divided the positions into top management, middle management, and functional positions. From the study, we can conclude that the lower the hierarchical position of employees, the lower are their perceptions of CE and internationalization. Although many companies are international, the research shows that employees still perceive them as more national than international. In terms of implications, it seems that the employees are national oriented—that is, they are focused more on the domestic market and have the impression that their internationalized company is quite different from everything they know. Thus, it is important to investigate in depth the relationship between IP and the internationalization perceptions of employees.

## 6 Implications and Further Research

These findings suggest valuable practical implications for the management in MNCs. First, the fact that IP is strongly dependent on some CE dimensions, mainly proactiveness, innovative behavior, self-renewal and innovativeness of the firm, which is in line with the meta-analysis review of Bierwerth et al. (2015). These mean that companies operating in different institutional environments have to take under consideration, mainly entrepreneurial behavior dimensions,

which are more related to individual behavior. On the other hand, this also suggests that proactiveness of Subsidiaries acting in developing countries may represent a Strategic asset to improve and sustain performance and growth.

Despite the contributions to the current knowledge to CE, the findings are constrained by Geographical limitation of the selected sample. Brazil, Sweden and Netherlands are leading countries as emerging and developed countries, but still present specific entrepreneurial behavioral that can't be fully generalizable.

Different avenues should be explored in light of the contributions of CE theories to international business. First, examining the interactions between the dimensions of entrepreneurial behavior and entrepreneurial results in different institutional and cultural contexts may open up new opportunities to clarify how MNCs manage the distances between home and host countries. Second, although some dimensions may overlap, and the conceptual and practical delimitations are sometimes not easy to capture, further research should explore the complex behavior of firms in different industrial contexts and institutions. Finally, it would be meaningful to address the effects of such dimensions for small firms or for firms with an accelerated process of internationalization.

It is important to make it clearly that the stated and the data can't be generalized.

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