



Toward A New Model For Firm Internationalization: Conservative, Predictable, and Pacemaker Companies and Markets

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Abstract

Through this article we develop a new model for the internationalization of firms, called the *Conservative, Predictable and Pacemaker (CPP)* model, for extending research in the domain of international business. The main purpose is to provide a new typology that can be used as a theoretical lens for future research and to motivate researchers to think beyond the established models, which are repeatedly used in many studies. This article is based on primary data collected from firms in the information technology sector in Puerto Rico. The CPP model may be useful for industry analysis and research dealing with the growth and internationalization of firms across industries and countries. © 2018 ASAC. Published by John Wiley & Sons, Ltd.

Résumé

Dans cet article, nous élaborons un nouveau modèle pour l'internationalisation des entreprises appelé le modèle ‘Conservative, Predictable, and Pacemaker’ (modèle CPP), dans le souci de contribuer à la recherche en commerce international. L'objectif principal est de fournir une nouvelle typologie capable de servir de grille théorique dans les recherches futures et d'encourager les chercheurs à penser au-delà des modèles établis qu'on retrouve dans de nombreuses études. L'article est basé sur des données primaires recueillies auprès d'entreprises du secteur des technologies de l'information à Porto Rico. Le modèle CPP peut être utile pour l'analyse de l'industrie et pour la recherche sur la croissance et l'internationalisation des entreprises dans toutes les industries et dans tous les pays. © 2018 ASAC. Published by John Wiley & Sons, Ltd.

Mots-clés: internationalisation, conservateurs, marché prévisible, stimulateurs cardiaques

Introduction

Globalization, in terms of a balanced geographic distribution of sales, reflects a special, and rather unusual, outcome of doing international business (IB). Traditionally, scholars have focused on the organization of economic

activities, and less on the characteristics of regions (Beugelsdijk, McCann, & Mudambi, 2010). The body of international business literature is growing, and, while notable contributions toward a theoretical and methodological integration are evident, the field is potentially fragmented and suffering from theoretical paucity (Jones, Coviello, & Tang, 2011; Paul, Parthasarathy, & Gupta, 2017).

Internationalization constitutes an important form of organizational transformation for local firms (Chittoor, Sarkar, Ray, & Aulakh, 2009; Papadopoulos, Chen, & Thomas, 2002). Many of the world's largest firms are not global, but regionally based in terms of market coverage breadth and depth. Such regional concentration of sales has important implications for various strands of mainstream research (Rugman & Verbeke, 2004). Theoretical frameworks such as the Uppsala model explain the process of internationalization (Johanson & Vahlne, 1977, 2009), while the Born Global model describes the attributes of rapidly internationalizing firms (Knight & Cavusgil, 1996, 2005,

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2015; Madsen & Servais, 1997; Knight, Madsen, & Servais, 2004). The Uppsala model discusses internationalization through stages into closer markets, and subsequently more distant ones. Existing models of the internationalization process have not captured the important phenomenon of the accelerated international growth of born-global firms (Freeman, Hutchings, Lazaris, & Zyngier, 2010). Firms face collocation advantages and disadvantages when crossing international borders and selecting host locations (Narula & Santangelo, 2009, 2012).

In this paper, we develop a new three-dimensional typology called the Conservative, Predictable, and Pacemaker (CPP) model for internationalization, with the three terms referring to firm types, including corresponding markets based on the context. The model introduces the term predictable market, with a definition based on a legal common market concept (no legal distance between countries for international business) such as multilateral and bilateral free trade areas like the North American Free Trade Agreement (NAFTA), European Union (EU), Gulf Cooperation Council (GCC), or overseas territories. We define predictable market in terms of legally integrated countries, not just based on geographical distance. Firms operating only in one country are classified as conservatives; firms operating and generating substantial revenue from legally integrated countries with no legal distance (administrative and institutional distance) are called predictables. In other words, if there is no legal distance between two countries for business (in terms of restrictions on business such as tariff barriers or non-tariff barriers), those countries are classified as predictable markets in this model. Firms that operate in and generate substantial revenue from the global market (beyond the predictable market) at a high pace, like multinational enterprises, are classified as pacemakers. The need for this new model arises primarily because the extant models do not take into account the phenomenon of internationalization into either predictable markets as defined in this paper or regional markets as outlined by Rugman and Verbeke (2004).

We make an effort to blend the past ideas of international business scholars (who focus more on multinational firms), and economic geography (who focus on regions and locations) in order to fill this gap in existing literature (for example, internationalization into Mexico or Canada by a firm from the United States is treated as internationalization into a predictable market, as per the CPP Model). With the establishment of regional free trade areas, the concept of predictable markets has become important for classification and analysis in research, as there is little legal distance between member countries. On the other hand, the born-global typology, despite its wide acceptance and robustness (Cavusgil & Knight, 2015), does not provide a legal framework for industry analysis. Therefore, we realize the need for a theoretical model that can serve as a benchmark framework for

analyzing different dimensions of internationalization such as path, process, pattern, and pace with a scientific classification of countries based on their legal distance for international business. Further, in this context, the present study examines the internationalization phenomenon of information technology (IT) firms in Puerto Rico (a Latin American territory of the US) to propose the new typology based on critical findings with three objectives: to analyze the theoretical dimensions of internationalization and carry out industry-specific analysis; to contextualize international business research grounded in the legal distance between regions/countries; and to provide a deeper understanding of the phenomena and directions for future research.

Embeddedness in multiple local contexts creates opportunities, but also raises challenges (Meyer, Mudambi, & Narula, 2011). Since most theories of firm internationalization are based only on country-level determinants, we develop a new model to overcome this deficiency, taking into account regional and firm-level factors such as free trade agreements, legal status, or firm-level competitiveness. While deciding on the objectives of the present paper, we assume that the concept of a predictable market was not very relevant when the Uppsala model of gradual internationalization was conceived and developed in the late 1970s. Our intention is to propose a usable model across industries and countries, which will help analyze at least two dimensions of internationalization at a time (for instance, process and pace). Furthermore, research on firms from Latin America has been underrepresented in management and business literature so far (Brenes, Montoya, & Ciravegna, 2014). Looking to fill this gap, this study proposes a new model based on empirical analysis using primary data from IT firms in Puerto Rico. We specify research objectives (RO) as: RO 1– to examine the growth path and demographic characteristic features of IT firms from Puerto Rico; RO 2– to identify the pattern and process of internationalization of those firms (following Knight et al., 2004; López, Cirevagna, & Kundu, 2009; Paul & Gupta, 2014); and RO 3– to propose a general theoretical framework, the CPP Model, for carrying out industry analysis and future research in the areas of international business, regional, and legal studies, with emphasis on process and pace (extending the theoretical contributions of Rugman & Verbeke, 2004, 2008; Kim & Aguilera, 2015).

The rest of the paper proceeds as follows: the literature review is given in the next section by classifying the theories and approaches on internationalization along with the studies on firm growth and industry analysis. Research methodology employed in the study is elaborated upon, followed by findings. Insights from the radiography analysis and cluster analysis are summarized and the CPP framework model is introduced. Directions for future research are then given, followed by limitations and conclusions.

Review of Literature and Theoretical Models

In this section, a review of the research studies focusing on internationalization models is undertaken to identify gaps in the literature for a new framework. This section consists of three sub-sections: Process and Pace of Internationalization; Path and Pattern of Internationalization; and Internationalization of the IT Industry.

Process and Pace of Internationalization

Internationalization helps the firm not only capitalize on opportunities in new markets, but also by protecting it against global competitors (Papadopoulos & Martín, 2010). The international business and economic geography literature essentially looks at the nexus between firms and countries (Rugman & Oh, 2013). In addition, knowledge plays an important role in the internationalization process (Gulanowski, Papadopoulos, & Plante, 2018); while discussing it, it is important to differentiate between born-global firms and gradually internationalized firms (Hennart, 2014; Dow, 2017). According to the definition by Knight et al. (2004), a born-global firm is one that internationalizes on average within three years of its founding, and generates at least 25% of total sales abroad. On the other hand, the Uppsala model, according to Johanson and Vahlne (1977), deals with the gradual internationalization process of a firm. Firms based on the Uppsala model gradually enter foreign markets outside the primary market, as they overcome psychic distance arising from liability of foreignness. Lack of knowledge about the language, laws, and social norms of a foreign country increases psychic distance, which in turn influences the decision of whether or not to conduct business in a foreign location. Johanson and Vahlne (2009) explain that, traditionally, firms used to internationalize in neighbouring markets and subsequently move further away. To overcome psychic distance, firms establish themselves in foreign markets using low-commitment modes: for instance, exporting, or using middlemen initially and eventually subsidiaries. It is worth noting that the effect of psychic distance may be more indirect in the contemporary environment than what was originally suggested by Johanson and Vahlne (1977).

The original Uppsala proponents assume developing knowledge with experience gained progressively in stages for internationalization (Johanson & Vahlne, 1997). This is based on the assumption that a firm gradually gains familiarity about foreign markets as regards business environments, laws, social norms, languages, and so on. Psychic distance, according to Johanson and Vahlne's (2009) definition, is the market remoteness of the firm that exports. Markets in themselves are networks of relationships, in which firms are linked to each other in various complex and invisible patterns. There could therefore be psychic distance due to liability of outsidership (Johanson & Vahlne, 2009). Johanson and Vahlne (2009) go on to demonstrate the

importance of business networks or partnerships in the internationalization process, substantiating the fact that the internationalization process need not always be gradual.

Pedersen and Shaver (2011) state that international expansion is a discontinuous process characterized by an initial big step; they hypothesize that the internationalization process may be characterized by classifying firms as either those taking a long period to make their first international investment, or those taking shorter but constant periods for subsequent investments. Casillas, Moreno, Acedo, Gallego, and Ramos (2009) propose a model to integrate the influence of knowledge on internationalization behaviour based on organizational learning in multinational companies. The model comprises phases such as prior knowledge, acquisition of new knowledge, integration of both sets of knowledge, action, and feedback. Knight and Liesch (2016) summarize how internationalization research has evolved over time, and how it will evolve in future. Gulanowski et al. (2018) posit six research propositions in an integrated model accounting for both incremental and born-global approaches, drawing on a systematic review of literature, using 87 articles.

The hard reality of distance, discussed in the CAGE model by Ghemawat (2001, 2003), is an important aspect to take into account when considering internationalization. The distance between two countries relies on factors such as culture, administration, geography, and economy. Ghemawat argues that most firms enter foreign markets with less distance in terms of those CAGE factors. In a fundamental sense, firms diversify along two lines: by geographical coverage; and by product type (Oh & Contractor, 2014). In this context, Musteen, Francis, and Datta (2012) show that geographically diverse international networks contribute to superior performance. Cuervo-Cazurra (2011) analyzes the selection process of the country in which a firm starts its international expansion. Some firms strategically choose non-sequential internationalization; in other words, they select a country dissimilar to their country of origin for their first foreign expansion. There are three types of knowledge that are useful to overcome challenges associated with internationalization: how to manage complexity; how to manage differences in competitive conditions; and how to manage differences in institutional environments (Cuervo-Cazurra, 2011).

Autio, Sapienza, and Almeida (2000) employ knowledge-based theory to shed light on the international growth of a firm and find that early initiation of internationalization and greater knowledge intensity are associated with faster international growth. Further, Musteen et al. (2012) show that firms that share a common language with their international ties are able to internationalize faster than firms that do not share a common language. The direct impact of psychic distance on internationalization by foreign direct investment is generally expected to be negative (Jiménez & de La Fuente, 2016). On the other hand, Rugman and Verbeke (2008) explore the

differences in international strategy between multinational enterprises (MNEs) in services and manufacturing, especially in terms of international diversification, as measured by their sales and asset dispersion, and found that the largest MNEs in services have a much stronger regional than global orientation; further, large MNEs from the list of Fortune 500 firms in the services sector average 83.9% of sales in their home region. Similarly, Satta, Parola, and Persico (2014) investigate the dimensions affecting the pace of internationalization of emerging service-sector multinational firms by performing an OLS regression analysis. Their findings show the role of cumulative benefits from inward internationalization and inter-regional diversification strategies. On the other hand, Kim and Aguilera (2015) argue for a new framework for analyzing internationalization in a semi-globalized world, wherein opportunities and constraints arise at both country and regional levels. Their model argues that firms internationalize through interplay among three mechanisms: intra-regional exploitation; intra-regional reconfiguration; and inter-regional exploration.

By developing a theoretical model for analyzing the growth of an industry as well as the path, process, pace, and pattern of the internationalization of firms, we seek to broaden research horizons in the areas of international business with reference to: regional, multilateral, and bilateral free trade agreements; and legal distance between countries.

Path and Pattern

Teece (2014) defines path in the context of strategy. Internationalization helps improve the performance of small firms, thereby facilitating growth (Lu & Beamish, 2001; Ribau, Moreira, & Raposo, 2016; Paul et al., 2017). Notable studies in the past have shown the link between internationalization path and firm performance in different countries or regional contexts (Jansson & Sandberg, 2008; Lin, Liu, & Cheng, 2011; Xiao, Jeong, Moon, Chung, & Chung, 2013). As a matter of fact, Lu and Beamish (2004) draw the S-curve hypothesis showing the relationship between international diversification and firm performance; using data from 1,489 Japanese firms, they report a consistent S-shaped relationship between multi-nationality and performance. Another notable point is that Small Knowledge Intensive Firms (SKIFs) have unique characteristics in their internationalization process (Zucchella & Kabbara, 2013); such firms go international in a series of phases characterized by triggering factors: for instance, partnerships, alliances, networking, entrepreneurship, value-creating events, performance, and distribution.

Boehe (2016) developed a framework called domestic market-seeking internationalization for firms from the service sector to internationalize, arguing that resource-scarce service firms undertake foreign direct investment to access intangible resources abroad, which are then used to develop firm specific advantages in the domestic market. A knowledge-intensive firm, according to Kärreman (2010),

is a firm whose competitive advantage is creating value by applying superior knowledge and judgment. Ruiner, Wilkens, and Küpper (2013) perform a pattern analysis of a knowledge intensive firm's IT-related workforce in Germany. Their findings suggest that organizational flexibility is important due to market dynamics. Nag, Han, and Yao (2014) identify patterns in the US manufacturing industry based on levels of raw material and inventory of finished goods to determine appropriate strategies, showing that inventory levels depend on the type of products, processes, and dynamics managed (relationships with suppliers, customers, and threats and challenges of substitutes and new entrants).

Young firms may compensate for their lack of firm-level international experience by using other sources of knowledge (Bruneel, Yii-Renko, & Clarysse, 2010). Drawing on organizational learning theory, they develop an integrative framework for internationalization of small ventures that looks at the joint and interactive effects of experiential learning by the firm, the management team's pre-start-up international experience, and inter-organizational learning from key exchange partners—essential path elements. Sarkar, Echambadi, and Harrison (2001) demonstrate the importance of strategic partnership for the growth of small firms and find that alliance pro-activeness leads to superior market-based performance. Vasilchenko and Morrish (2011), based on interviewing the founder/entrepreneur (s) of New Zealand firms, found that business contacts and social networks facilitate firms' internationalization process and present interesting ideas on the exploration of internationalization opportunities.

The review of theory and literature indicates that factors such as globalization and regional economic integration minimize the legal distance between countries. Further, drawing upon the guidelines of prior calls (Shapiro, Von Glinow, & Xiao, 2007; Shen, Puig, & Paul, 2017; Paul & Singh, 2017) for developing methods and frameworks to contextualize and extend the scope of research, this CPP model for internationalization will help avoiding replicated research using the same models.

Internationalization of the IT Industry

The importance of the IT sector's internationalization can be seen in three different studies (López et al., 2009; Vasilchenko & Morrish, 2011; Paul & Gupta, 2014). López et al., (2009), interview 40 Costa Rican software firms selected from 150 listed software companies in Costa Rica and show that Costa Rican firms take an average of four years from founding to start exporting and show that they are born-locals, meaning that they were not born with an export orientation, and that less than 40% of their customers are foreign. For Costa Rican companies, the markets with close psychic distance are the Latin American markets.

The IT industry, in general, is leaning toward emphasizing services (Suárez, Cusumano, & Kahl, 2013). In this context, Paul and Gupta (2014) study the internationalization process of 19 leading IT firms from India. They select the sample based on the highest total revenue generated by the firms. The study shows that the IT sector played a major role in India's economy for the last two decades. Their findings reveal that firm age has no relationship with internationalization. In addition, they show that the largest Indian IT firms do not qualify as born-global since they have taken longer to go global after they were set up. They follow the Knight et al. (2004) born-global definition and state that internationalization can be considered a way to access knowledge that is critical to succeed in such markets. They conclude that the younger the firm, the higher the possibility of expansion to international markets.

IT has emerged as one of the fastest growing industries in many countries (Paul & Gupta, 2014). Furthermore, IT has the main characteristics—internationalization and innovation processes—required to compete in this period of globalization (Melnikas, 2011). Software and IT firms are mostly knowledge-intensive because the supplies can be replicated at a low marginal cost (López et al., 2009). Knowledge-intensive businesses can go global with less effort than other types of businesses, and this is indeed the case with IT firms. Knowledge-intensive firms are based upon value creation rather than labour or capital (Kärreman, 2010). IT involves investment of intellectual resources; an IT firm is classified as knowledge-intensive only if it has advanced technology capabilities and a well-educated workforce (Vasilchenko & Morrish, 2011).

Method

The Global Competitiveness Index ranked Puerto Rico thirtieth among 148 countries around the world (Schwab & Sala-i-Martín, 2013), even though it is a territory of the United States. The IT sector was selected for this study because of its growing importance. Taking its importance into account, we conducted a quantitative study to examine the path (RO 1), pattern (RO 2), process (RO 2), and, with the development of a new typology, the CPP model (RO 3) for the internationalization of IT firms from Puerto Rico. According to the Puerto Rico IT cluster, there are a total of 70 IT firms in the country, of which 63 participated in our survey, resulting in a response rate of 90% (63/70) which makes the sample size (out of the population) acceptable. Senior executives from those firms (active partners, owners, or top managers) participated as respondents. The questionnaires were prepared in English, as all the senior executives in IT firms understand English well due to Puerto Rico's integration with the US as its territory. The firms in

Puerto Rico have a close relationship with the IT companies in the mainland US and often collaborate and partner with these firms.

The questionnaire at first was distributed online by using Formstack.com to executives who, according to Jadesadalug (2011), are the key informants in conducting such studies. Following prior research (Coviello & Jones, 2004), the interviewees selected from firms consisted of managing directors and senior managers responsible for international business, who had the greatest in-depth knowledge of the exporting operations of the firm. Respondents answered all the questions, and were in the age group of 45 to 65 with a work experience of at least a decade in the IT industry.

To improve the validity of the study, we followed Coviello (2006), and collected and analyzed some important secondary data (such as websites). In order to examine the historical internationalization path of the firms, we conducted a radiography analysis with reference to the demographic and geographic features of the sample. The information collected included demographic data such as primary industry of service, places of operation, and the age of the company in Puerto Rico, the US, and internationally. Additional information collected was the total number of employees in Puerto Rico, total number of customers, and total annual revenues. Following previous studies (López et al., 2009; Verma, 2013; Paul & Gupta, 2014), a cluster analysis was performed to summarize data by grouping similar IT firms together. Firms were segmented based on the similarity of the collected data from the firm executives. Euclidean distance was selected to compute the distance between two samples. The procedure to determine the clusters or groups was performed in SPSS Two-Step Clustering (IBM SPSS, 2012), featuring a distinct dataset for each one. Mooi and Sarstedt (2011) explain that such clustering combines the principles of the hierarchical and partitioning methods.

The independent variables used for the clustering process included the primary industry of service, countries/regions of operation, the age of the company in Puerto Rico, the age of the company in the US and globally, and the economy sector of service. Following Mooi and Sarstedt (2011), we used control variables such as the total number of employees in Puerto Rico, total number of customers, and total annual revenues. A first two-step clustering iteration was done including all variables. However, the total number of employees was removed by the second two-step cluster iteration to improve cluster quality, which constitutes a better classification of the groups. For output, additional control variables, also called evaluation variables, were used to describe clusters with places of operation and primary industry of service. Different clusters allowed for a better explanation of each one based on its characteristics (Verma, 2013).

Findings

Radiography Analysis (Growth Path and Demography, RO 1)

Blending the ideas of Teece (2014) with insights from our literature review, we defined growth path within the context of the basic questions: who and What. We elaborated on this idea within the context of the IT firms in this study. Subsequently, we conducted a radiography analysis to examine the research objective (RO 1), to understand the growth and demographic characteristics of the firms. We found that all 63 firms in our sample were established in Puerto Rico, with the youngest firm being one year old, and the oldest, 46 years old. The median age of the firms was 12 years. The standard deviation for the sample was 10 years (9.53).

The average age of the firms in the US was four years, and the corresponding figure for firms in international markets was three years. These two elements implied that most of the firms in our sample are international new ventures (INVs). INVs often suffer from two liabilities, newness and foreignness, which may increase their odds of failure (Mudambi & Zahra, 2007).

The primary industry of service provided by the IT firms in our sample was divided as follows: 25% in pharmaceuticals and biotechnology, 18% in related industries, 13% in health care, 11% in professional services, 11% in manufacturing, 11% in government, and 11% in banking. Figure 1 shows these data pictorially.

In regard to services provided by the firms to the private and public sectors, 83% of the firms served in the private sector, 14% in the central government sector, and 3% in

the city government sector. Figure 2 shows these data graphically.

The primary information collected through our survey was the number of employees in the firm and the annual revenue from three different markets (local, predictable, and global). The minimum and maximum number of employees in the firms in our sample was found to be 10 and 1,000 respectively, implying that most of the firms were small and medium enterprises. The minimum and maximum total annual revenue were \$50,000 and \$10 million (all figures

Figure 2. Services to private and public sectors for the firms in the sample ($n = 63$) [Colour figure can be viewed at wileyonlinelibrary.com]

Services to private and public sectors

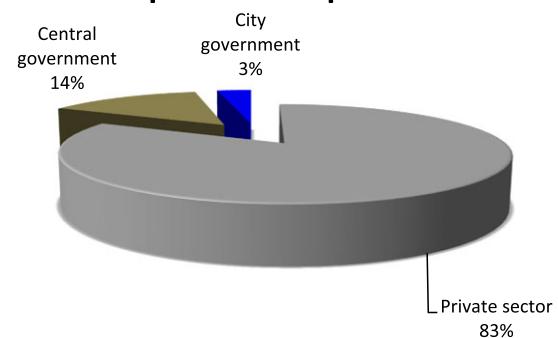
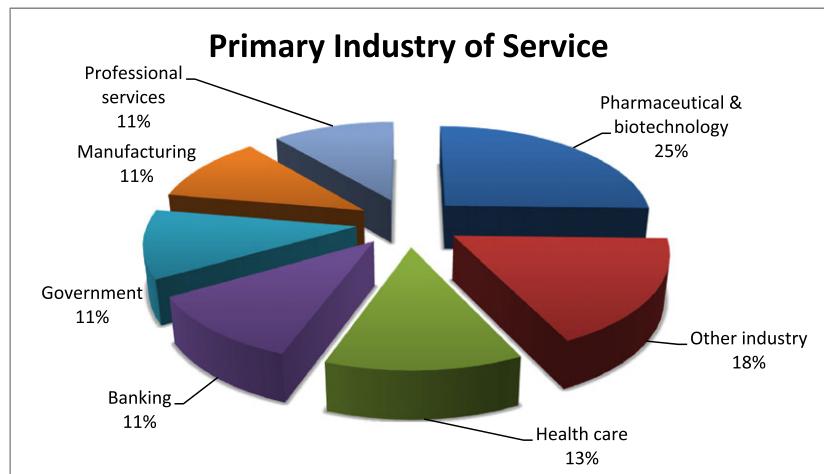


Figure 1. Main Industries of Service ($n = 63$) [Colour figure can be viewed at wileyonlinelibrary.com]



in US dollars) respectively, with an average total annual revenue for all firms of \$3.35 million.

Table 1 shows the average annual revenue of firms in different clusters. Total annual revenue was segmented into revenue generated locally (that is, in Puerto Rico); revenue generated from the predictable market (the US); and revenue generated from global markets (pacemaker market). It was found that the vast majority of the revenue of most firms came from the local (Puerto Rico) market.

Process and Pattern

The process can be defined in terms of the key mechanisms of internationalization, as does the Uppsala model in regards to entering foreign markets. Pattern can be defined in terms of variables such as firm age, place of operations, revenue, and so on. We carried out clustering to discuss the process and pattern of internationalization of firms. In other words, two-step clustering was employed as a tool to identify the internationalization process of the sample firms.

The overall importance of the variables in the clustering process was mentioned in order of importance: firms' number of years operating internationally; firms' number of years operating in the predictable market (Puerto Rico and the US, in our study); firms' total annual revenues; and firms' places of operation. These four variables were used equitably to create clusters. The number of clusters specified was three. The cluster quality and overall goodness-of-fit was fair and satisfactory due to the sample size and the number of clusters specified.

Cluster Structure

The cluster structure showed the pattern and process followed by the firms ($n = 63$). Table 2 shows the internationalization pattern, including the number of firms per cluster, age or number of years operating in the global market, age or number of years serving in the predictable market, and total annual revenue.

The first cluster had the highest number of firms (52 firms). The average annual revenue of firms in this cluster was less than \$2 million. They primarily relied upon the local market and generated more than 90% of their revenue from it. The average age of these firms in the predictable market was less than four years (3.67 years). Their average age in the global market was less than one year (eight months). Hence, they did not fall in the category of born-global firms, as per the definition of Knight et al. (2004). Therefore, this cluster was classified as conservatives.

The second cluster had the lowest number of firms (two firms). These firms' total annual revenues were approximately \$5.2 million. The firms included in this cluster had been operating mainly in the predictable market for close to 30 years (27.50 years), which represented the highest number of years. Firms from this cluster had a negligible presence in the pacemaker market, since they had been operating in the global market for almost two and a half years (2.50 years). Hence, the firms in this cluster were classified as predictables.

The third cluster had nine firms. These firms' total annual revenues were approximately \$7 million. Firms in this cluster had been operating in the global market (the pacemaker market in our model) for more than a decade

Table 1
Cluster analysis: Annual revenue of firms in three clusters

Statistical analysis	Total annual revenue	Annual revenue from local market, PR	Annual revenue from predictable market, US	Annual revenue from global market	Annual revenue from predictable and global markets
Mean	\$3.35 million	\$2.42 million	\$466,905	\$470,040	\$936,944
Min.	\$50,000	\$10,000	\$0	\$0	\$0
Max.	\$10 million	\$7.5 million	\$7.5 million	\$3.7million	\$8.75 million

Table 2
Cluster analysis: Internationalization process ($n = 63$)

Cluster number	Number of firms in each cluster	Mean age of firms (global market)	Mean age of firms (predictable market)	Mean of firms' total annual revenue
Cluster 1	52	0.73 year	3.67 years	\$2.6 million
Cluster 2	2	2.5 years	27.50 years	\$5.2 million
Cluster 3	9	13.3 years	2.78 years	\$7.0 million

(13.3 years). Most of these firms had been operating in the predictable market as well. In the sample used for the cluster analysis, firms from Cluster 3 are defined as pacemakers due to two reasons: they are truly global players; and they generate more average revenue than firms belonging to the group of conservatives and predictables. Table 2 summarizes data for each cluster.

We found that Cluster 3 firms operating in the global market generate more revenue than firms in Clusters 1 and 2. Firms in Cluster 2 made more revenue than those in Cluster 1, as the latter operates exclusively in the local market. Based on these findings and grounded in extant literature (Autio et al., 2000; Mudambi & Zahra; 2007; López et al., 2009; Paul & Gupta, 2014), we posit:

P1: Internationalization helps firms generate more revenue than firms operating in local markets, and thereby facilitates better performance.

Cluster Comparison

We compared the demographic characteristics of firms in different clusters in this sub-section. Table 3 shows the cluster analysis results and the total number of firms in each cluster along with the number of employees.

Similarly, Table 4 shows the cluster analysis statistics with number of firms in each cluster, mean of number of employees per firm (firm size), and the mean of total annual revenue of firms (yearly income).

Figure 3 shows a detailed description for each cluster in a graph. The median total number of employees is the x-axis, the median total annual revenue is the y-axis, and the size of each bubble represents the total number of firms in each cluster based on the findings of this study.

Discussion and the CPP Model

This section provides insights based on three research objectives and analysis comprehensively. Based on the findings and the literature review (specifically, Ghemawat, 2001, 2003; Rugman & Verbeke, 2004; Meyer et al., 2011; Narula & Santangelo, 2012; Kim & Aguilera, 2015), we argue that

Table 3

Cluster analysis: Number of firms and employees (firm size)

Cluster number	Number of firms in each cluster	Mean	Minimum	Maximum	Median
Cluster 1	52	32.08	1	750	10
Cluster 2	2	128.80	7	250	128
Cluster 3	9	232.60	18	1,000	56

Table 4

Cluster analysis: Number of employees versus revenue (n = 63)

Cluster number	Number of firms in each cluster	Mean number of employees per firm	Mean of firms' total annual revenue
Cluster 1	52	32	\$2.6 million
Cluster 2	2	128	\$5.2 million
Cluster 3	9	232	\$7.0 million

opportunities arise at the level of three markets (local, legally integrated countries such as regional markets, and global). Based on the cluster analysis results, we introduce the CPP model for the internationalization of a firm with the aim to contribute to the theoretical literature with the notion of distinction between predictable and pacemaker markets and firms grounded in the theory of legal integration. This new model provides a theoretical lens or platform to analyze the growth path, process, pattern, and pace of internationalization, and could be used as a research framework across industries worldwide.

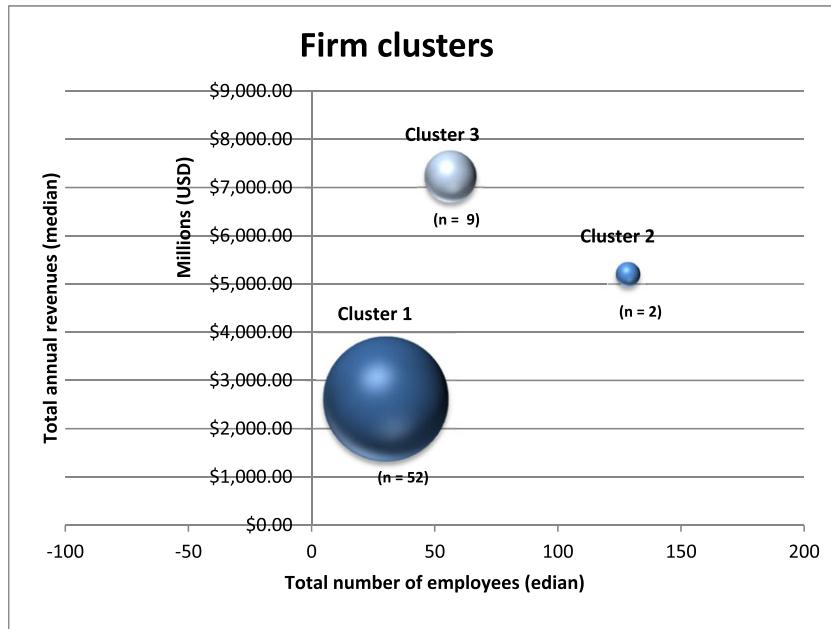
Blending the ideas of Teece (2014) with insights from our literature review, we defined growth path within the context of the basic questions of who and what and elaborated on this idea within the context of IT firms. Subsequently, we conducted a radiography analysis to understand the growth and demographic characteristics of the firms. The average age of firms in the predictable (US) market was four years, and the corresponding figure for firms in global markets was three years. These two elements implied that most of the firms in our sample are international new ventures (INVs).

In order to analyze the speed at which firms internationalize, based on Research Objective 3 (RO 3) as specified above, we propose the CPP theoretical model of Conservative, Predictable, and Pacemaker markets for carrying out real-life industry analysis and academic research dealing with the internationalization phenomenon. We discuss and develop the meaning and implications of the CPP model in the following sub-sections, based on the cluster analysis findings.

Conservatives (C)

We define conservative firms as those that remain within their domestic boundaries, lacking the vision or the means to take their business into foreign markets. Conservative firms follow a very slow approach to internationalization as they are concerned about Cultural, Administrative, Geographic, and Economic distance (CAGE) between countries (Ghemawat, 2001). We argue that because conservatives are very concerned about psychic distance and the liability of foreignness (Johanson & Vahlne, 2009), they do not go beyond local or sub-national areas, and have a

Figure 3. Cluster analysis results. Note. Bubble size represents the number of firms in each cluster [Colour figure can be viewed at wileyonlinelibrary.com]



Note. Bubble size represents the number of firms in each cluster.

negligible presence even in neighbouring countries. They operate and generate more than 50% of their revenue from the local market (country). This concept is similar to the line of research (Chan, Makino, & Isobe, 2010; Lorenzen & Mudambi, 2013; Ma, Tong, & Fitz, 2013) that has begun to zoom in and use a new geographic unit, sub-national region, suggesting that the sub-national region is significant in explaining performance after internationalization.

IT firms belonging to the first cluster (52 out of 63 firms belong to the category of conservatives) also follow the tenets of the born-local theory (Acs & Terjesen, 2013), which states that most firms need support in the form of intermediated internationalization, as they are typically born-local without global exposure.

Predictables (P)

We define firms as predictables in legal terms; for example, firms can be called predictables if they mostly serve the domestic market plus legally integrated countries or markets, including countries that are part of legally integrated free trade blocks, such as for instance regional trade blocks, customs unions, common markets or markets with bilateral agreements, and territories or markets with legal agreements for international business without tariff or non-tariff barriers. Refer to Table 5 for major predictable markets in the world.

Table 5
Major predictable markets in the world

Market Name
European Union (28 countries, including Germany, France, Spain, UK, Italy, Sweden, Denmark, Poland, Latvia, Lithuania, Estonia, Hungary, Czech Republic, etc.)
NAFTA Region (USA, Canada, & Mexico)
ASEAN Region (Indonesia, Philippines, Thailand, Singapore, Malaysia, etc.)
Gulf Cooperation Council (Bahrain, Kuwait, Qatar, Oman, Saudi Arabia, & UAE)
Brazil, Argentina, Chile, Paraguay, Uruguay
Countries with Bilateral Free Trade Agreements
Territories of the US & mainland (e.g., Puerto Rico & US), France & its territories

We argue that psychic distance and CAGE distance factors do not matter beyond a certain extent, once a market is established or formed as a predictable market. Since there are neither legal nor financial restrictions for undertaking business between firms in predictable markets—for instance, business between firms within EU member countries or Association of South East Asian Nations (ASEAN) or Gulf Cooperation Council (GCC), or bilateral predictable markets

such as Puerto Rico and the US—we highlight the need for an analysis of firm internationalization into predictable markets in legal terms, rather than exaggerating psychic distance. The conceptualization of distance between countries focused in different models of internationalization is demonstrated in Table 6. It is worth noting that, despite the attempts to measure psychic distance between countries, it still remains qualitative as there is no consensus on the measure development.

The strategy of a predictable firm is consistent with the pattern of internationalization; such firms are not actively seeking non-predictable market environments to operate (Kuivalainen, Sundqvist, & Servais, 2007). The concept of a predictable market is also similar to the regionalization argument, that MNEs use supra-national regions to define their primary geographical scope of business (Qian, Li, Li, & Qian, 2008; Qian, Li, & Rugman, 2013). However, we are going one step further to distinguish predictability formally in terms of legal agreements. Nevertheless, it would be prudent to have more predictable firms than conservative firms in an industry. Thus, we propose:

P2: The higher the ratio of predictable versus conservatives firms in a particular industry of a country, the greater the likelihood of success for that industry in the era of globalization.

In this study, firms belonging to the second cluster are identified as predictables since they have served primarily in the predictable market of mainland US (but not globally), for three decades. Since Puerto Ricans are US citizens, it is easy legally for firms to do business in the US and therefore the tendency to expand into the mainland US is predictable despite the large psychic and geographic distance between these two countries, with Puerto Rico being a Spanish-speaking (more cultural distance) territory, but not having legal distance from the American mainland market. This may be one of the reasons why so few firms were classified as predictables in this study. Nevertheless, it may be worth noting that this is not a common situation in the context of other countries. In general, in the majority of industries and countries, the number of predictable firms would be higher than the pacemaker firms, based on real-life situations and intuition.

Pacemakers (P)

The choice to become international and how to accomplish that goal are strategic decisions (Acs & Terjesen, 2013). The pacemakers are firms operating in global markets at a high pace, such as multinational enterprises. Pacemakers expand into the global market (beyond predictable markets) within a few years, much like born-global firms, stringing along the Knight et al. (2004) born-global firm framework. They emulate a global orientation by partnerships, as Zucchella and Kabbara (2013) proposed. Pacemakers heed Jenssen and Nybakk's (2013) and Kärreman's (2010) explanation that innovation by knowledge skills is a competitive advantage and a key to success. Acting upon the research by Vasilchenko and Morrish (2011), pacemakers have a well-educated workforce and tend to employ more people compared to other type of firms, and thereby tend to attract the highest number of customers. Pacemakers act upon the findings of Ruiner et al., (2013) and are flexible organizations that respond well to market dynamics. They have the same pace in terms of post-entry internationalization speed, focusing on two measures: country scope speed and international commitment speed, as shown by Prashantham and Young (2011). Hence, we posit:

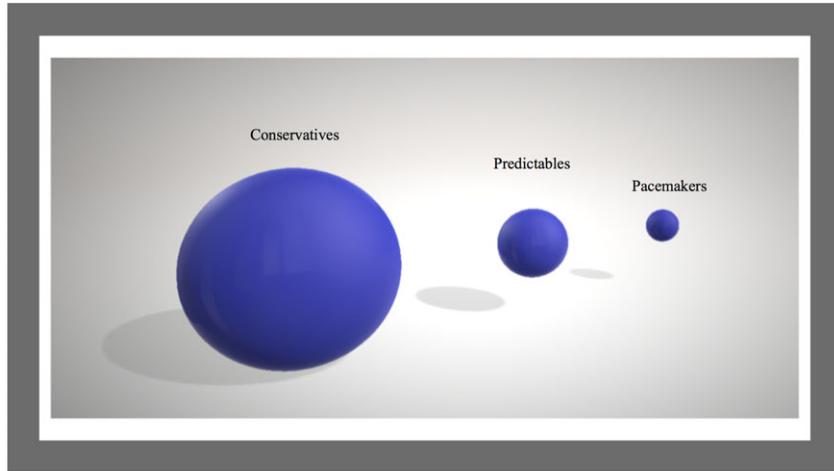
P3: A higher ratio of pacemaker versus conservatives firms in an industry leads to a greater probability of global competitiveness in that industry.

Based on the aforementioned facts and information, Figure 4 illustrates the overall theoretical proposition/CPP model. The bubble size in this figure reflects the number of firms that would be expected to belong to conservatives, predictables, and pacemakers in line with extant theory as well as with intuitive sense, and differs from the findings presented earlier in the relative size of the predictable cluster, whose sample in this study included only a very small number of firms. In the sample used for the cluster analysis, firms from Cluster 3 are defined as pacemakers for two reasons: they are truly global players; and they generate more average revenue than firms belonging to the group of predictables and, in turn, the conservatives. As a generalized model, therefore, the size of firms belonging to the conservatives should be larger than predictables (normally medium size), which in turn should be larger than the pacemakers (normally, the smallest).

Table 6
Concept of distance between countries in internationalization models

Original Uppsala (1977)	Revised Uppsala (2009)	Born Global/INV	CAGE	CPP Model
Psychic distance in terms of liability of foreignness	Distance in terms of liability of outsidership	Distance does not matter	Cultural, administrative, geographic, & economic distance	Focuses on legal distance (institutional)

Figure 4. Generalized CPP model for internationalization: Conservative, predictable, and pacemaker firms in an industry [Colour figure can be viewed at wileyonlinelibrary.com]



Directions for Future Research

The development of the CPP model is the main contribution of this paper. Future studies may focus on using the CPP model to conduct industry analysis and internationalization studies across industries and countries, selecting an interesting sector or firms from different industries. The main advantage of the CPP model is that it can be used as a benchmark framework in the case of an SME or an MNE. There are opportunities for empirical analysis testing the propositions as well as qualitative studies using four or five or more case studies together analyzing the operations of firms in predictable and pacemaker markets. For example, the internationalization phenomenon of small firms can be analyzed using the CPP model as a theoretical lens with reference to path, process, pattern, and pace. It is also possible to analyze the potential, problems, and performance of SMEs in a specific industry or a specific country, applying the tenets of the theoretical model as a platform. Similarly, there are opportunities for developing questionnaires for studies to understand why many firms choose to remain as conservatives, and their challenges. The model may also be useful for MNEs undertaking FDI operations such as Greenfield investment as well as cross-border acquisitions, particularly in the context of MNEs from emerging countries, to analyze the antecedents, decision characteristics, and the outcome of their outward FDI, as per prior research calls for new models (Paul & Benito, 2018). Researchers can apply the CPP model to classify the pattern, pace, and problems of MNEs in predictable and pacemaker markets, which will help them derive generalized insights for decision-making.

Researchers can use the CPP framework to analyze the likely success of an industry in a country using our testable propositions. They can also extend the regional characteristic feature-based model of a firm within the context of the CPP framework while doing research. For instance, the CPP Model can be used in a European, ASEAN, Gulf, or North American country context, taking into account the legal integration of those countries. Firms operating only in their home country (for example, only in France) can be considered conservative (C) firms. French firms that generate more than 50% of their revenue from other EU countries can be considered predictables (P), with the EU as a predictable market. Accordingly, French firms operating globally (beyond EU territories) can be classified as pacemakers (P). Similarly, countries with bilateral and multilateral free trade agreements can be considered predictable markets (for example, NAFTA—the US, Mexico, and Canada are predictable markets for US firms). Another example is the case of a firm from New Zealand generating substantial revenue from the predictable foreign market of Australia. The CPP model is useful for conducting firm-level as well as industry-level analysis anywhere in the world. For instance, if a Canadian firm earns more than half of its revenue from the US (a predictable market for that country), it falls in the category of a predictable firm, while if it succeeds in generating more than 50% of revenue from markets beyond the NAFTA region, it would exhibit the characteristic features of a pacemaker firm.

There is potential to test the propositions from our model as hypotheses in future studies to examine whether firms in a given industry have succeeded in creating sustainable competitive advantage as outlined in prior research

(Huang, Dyerson, Wu, & Harindranath, 2015). Similarly, researchers and consultants would find it useful to use the CPP model in any industry considering recent developments such as regional trade agreements, which have created predictable markets such as EU, NAFTA, ASEAN, GCC, and so on. In a nutshell, this framework would be useful for deriving intelligent insights for classifying firms as conservatives, predictable, and pacemakers.

Our concept of predictable markets is not just based on regional free trade agreements or territories, but also on bilateral legal agreements between two countries, including preferential trade agreements. For example, if there is bilateral free trade between two countries located in different continents (for instance, the US and Singapore), we identify them as predictable markets. Last, our third proposition—that is, the more pacemaker firms in an industry, the higher the global competitiveness of that industry—can also be tested in future studies as a hypothesis across industries and cross-nationally. Researchers can empirically analyze the statistics in terms of ratio calculation and compare with data from different industries within a country or the same industry in different countries as outlined above.

Limitations

Although we propose the CPP model be used while performing industry analysis by business analysts as well as in academic research dealing with the internationalization phenomenon, the scope of the study is limited if the extent of internationalization in an industry is low. A major constraint is that the CPP model may not be useful in industries that are not internationalized. Since the sample used was obtained from the Puerto Rico IT Cluster, an apex organization coordinating the firms in the IT sector of Puerto Rico, some tiny firms, which are not members of this cluster, are not part of this study. Another limitation is that this model is based on the assumption that we made while developing the concept of predictable market, that is, we assumed that territories of a country, regional economic groups, bilateral free trade areas and so on constitute predictable markets.

Conclusions

This paper discussed important factors that described IT firms in Puerto Rico with a focus on internationalization into predictable (legally integrated) and pacemaker markets. Radiography of IT firms was analyzed to study recent trends, path, and progress. The pattern and process of internationalization was examined based on the clustering method. The ratio of conservative firms to pacemakers is lower (meaning there are more conservative firms) and therefore we concluded that the IT industry in Puerto Rico is not globally competitive. We also found that IT firms in Puerto Rico

are not competitive in the predictable market; they are primarily catering to the needs of the local market. This could be because most of them are relatively small. Finally, the CPP model was developed to extend theoretical development and take international business research beyond the Uppsala, Born Global, and Rugman-Verbeke regional MNE models. We call for researchers to use the CPP framework to carry out industry analysis as well as analyzing the pace of internationalization. In a nutshell, we find that industry analysis helps firms take intelligent entry and exit decisions in international as well as domestic markets.

JEL Classifications: F02, F15, F23

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