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**Sleeping Beauties in International Economics and
International Business**

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Bio

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Abstract

The phenomenon of a ‘Sleeping Beauty’ or ‘Delayed Recognition’ consists in a paper that is ‘asleep’ for a certain amount of time and, suddenly, gains a lot of attention, being ‘awakened by its prince’. Although the papers about SBs are not very extensive, they have analysed the phenomenon through different perspectives: conceptual, empirical analysis and modelling. Based on the fact that no study on SBs exists in the fields of International Economics (IE) and International Business (IB), and given that such existence would allow a discussion about these fields’ characteristics and citation flows, the present study provides an investigation on the SBs in such stimulating areas of research.

The specificity of IE and IB fields required some methodological adaptations to existing methods of finding into the SB. Resorting to citation and co-citation analyses applied to a sample of 19419 papers, 12 SBs were found. This represents 0.06% of the sample which reinforces the common argument that SBs is an indeed rare phenomenon. The awakening moments of our SBs ranged from 5 years (e.g., ‘Towards a theory of international new ventures’, by Oviatt and McDougall, published in 1994 in *Journal of Business Venturing*, with 362 citations) to 20 years (‘International trade and factor mobility’, by Mundell, published in 1957 in *American Economic Review*, with 394 citations). SBs and their princes involved a total of 19 different journals, the majority of which stands in the top 30 most influential journals in their corresponding scientific area. The 12 SBs focus ten distinct sub-topics within IE (e.g., international trade theory, non-traded goods, and Trade Flow movements) and IB (e.g., firms’ internationalization process, internationalization’s theory, MNEs performance, risk management in MNEs; international strategy, and international new ventures). Differently from what has been stressed in the literature about SBs, the majority of SBs in IE and IB presented more than one ‘awakening time’ and were composed by ‘clusters’ of princes instead of a single prince. The analysis performed uncover that IE and IB do not interact much, being characterized by very low cross-citation flows.

Keywords: Sleeping Beauty; Delayed Recognition; International Business; International Economics.

JEL-Codes: F00, F10, F20, F50, J60, M20, M30.

Index of Contents

Bio.....	i
Acknowledgements.....	ii
Abstract.....	iii
Index of Contents.....	iv
Index of Tables.....	vi
Index of Figures.....	vii
1. Introduction.....	1
2. Literature on the sleeping beauties.....	4
2.1. Defining sleeping beauties.....	4
2.2. What has been researched in the literature of sleeping beauties?.....	4
2.3. An overview of the methods used to identify the sleeping beauties.....	7
2.4. The importance of identifying sleeping beauties in International Economics and International Business.....	9
3. Methodology.....	14
3.1. Procedures for identifying the Sleeping Beauty.....	14
3.2. Procedures for identifying the Prince.....	16
4. Empirical Results.....	18
4.1. Identification of the SBs.....	18
4.1.1. SBs related to the firms' internationalization process.....	20
4.1.2. SBs related to the Internationalization Theory.....	22
4.1.3. SBs related to MNEs performance.....	23
4.1.4. SBs related to the risk management in MNEs.....	23
4.1.5. SBs related to international strategy in MNEs.....	24
4.1.6. SBs related to international new ventures.....	25
4.1.7. SBs related to the exporting firms.....	25
4.1.8. SBs related to applications to the international trade theory.....	26
4.1.9. SBs related to non-traded goods.....	27
4.1.10. SBs related to trade flow movements.....	28
4.2. Identification of the Prince(s).....	28
4.2.1. SBs related to the firms' internationalization process.....	28
4.2.2. SBs related to the Internationalization Theory.....	32
4.2.3. SBs related to the MNEs performance.....	33
4.2.4. SBs related to the risk management in MNEs.....	35
4.2.5. SBs related to international strategy in MNEs.....	36
4.2.6. SBs related to the international new ventures.....	38

4.2.7. SBs related to the exporting firms.....	39
4.2.8. SBs related to applications to the international trade theory.....	41
4.2.9. SBs related to non-traded goods.....	43
4.2.10. SBs related to trade flow movements.....	45
4.3. Establishing the scientific relation between the SBs and the Princes	46
4.3.1. SBs related to the firms' internationalization process.....	46
4.3.2. SBs related to the Internationalization's Theory.....	47
4.3.3. SBs related to the MNEs performance.....	48
4.3.4. SBs related to the risk management in MNEs.....	49
4.3.5. SBs related to International Strategy.....	50
4.3.6. SBs related to the international new venture.....	51
4.3.7. SBs related to the exporting firms.....	51
4.3.8. SBs related to applications to the international trade theory.....	52
4.3.9. SBs related to non-traded goods.....	54
4.3.10. SBs related to Trade Flow movements	54
5. Conclusion	56
5.1. Main results and contribution of the study (vis a vis other similar studies).....	56
5.2. Implications for scientific knowledge in IB and IE	57
5.3. Limitations and Avenues for future research	57
References.....	59

Index of Tables

Table 1: Main groups of research to identify SB	5
Table 2: Main groups of methodologies for studying the SBs.....	8
Table 3: Bibliometric analyses on the international research fields.....	11
Table 4: Sleeping Beauties in International Business and International Economics	18

Index of Figures

Figure 1: Evolution of the published papers about Sleeping Beauties.....	5
Figure 2: Citation curve and types of papers	15
Figure 3: Mapping of journals links presented in our study	20
Figure 4: Evolution of the citations of Johanson and Wiedersheimpaul's (1975) paper	29
Figure 5: Evolution of the citations of Johanson and Vahlne's (1977) paper.....	31
Figure 6: Evolution of the citations of Welch and Luostarinen's (1988) paper.....	32
Figure 7: Evolution of the citations of Geringer et al.'s (1989) paper	34
Figure 8: Evolution of the citations of Miller's (1992) paper.....	36
Figure 9: Evolution of the citations of Kogut's (1985) paper	37
Figure 10: Evolution of the citations of Oviatt and McDougall's (1994) paper	39
Figure 11: Evolution of the citations of Cavusgil's (1984) paper.....	40
Figure 12: Evolution of the citations of Bergstrand's (1989) paper	41
Figure 13: Evolution of the citations of Mundell's (1957) paper	43
Figure 14: Evolution of the citations of Backus and Smith's (1993) paper.....	44
Figure 15: Evolution of the citations of Gould's (1994) paper.....	45

1. Introduction

The number of times a scientific paper or scientist is cited is often considered an indicator of influence/scientific quality of a work/scientist, being therefore assumed that influential scientists and important works will be cited more frequently than others (Meho, 2007).

Articles' scientific obsolescence tends to vary with the field of study. However, in a typical journal article, the mean citation increases from publication until about 3-4 years after publication and decreases thereafter (Guerrero-Bote and Moya-Anegón, 2014). Some few articles, however, challenge this citation pattern, receiving none or very few citations during several years (some even decades) after publication (Ke et al., 2015). These papers have been labeled 'Sleeping Beauties' (SBs), with the most striking example being "Concerning adsorption in solutions", by H. Freundlich, published in the *Journal of Physical Chemistry*, in 1906, and 'awaked' almost hundred years later, in 2002 (Cressey, 2015).

Despite not being a novelty since it was previously addressed by authors like Eugene Garfield, which in 1980, presented 'Premature discovery or delayed recognition-Why? Essays of an Information Scientist', a pioneer on the topic of Sleeping Beauties, the scientologist study of SBs has received increasing attention by researchers in the last decade (Baumgartner and Leydesdorff, 2014; Hu and Wu, 2014). As referred this phenomenon consists in a paper ('princess') which sleeps during a long period of time (no citations), until a 'prince' (the first article to cite the 'princess') appears and the 'princess' is awakened (van Ran, 2004). This might seem like a fairytale, but these 'delayed recognitions' happen for a multitude of reasons and the study of each one of them, as much as their prince's, may lead to interesting findings and patterns in the evolution of given scientific areas (Braun et al., 2010).

The study of SB has been considered "a rather useful and instructive model in studying the mechanisms of scientific information flow through citations" (Braun, 2010: 200), and "a very fundamental piece in the field of science" (attributed to Dashun Wang, in Cressey, 2015). The analysis of SBs is likely to contribute to the understanding of citation dynamics in general. Indeed, the study of SBs is necessary to better understand the reason for their late reconnaissance and the reason why the "information" sleeps (Wang et al., 2012). Moreover, as Ke et al. (2015: 1) underline, "the study of SBs provides empirical

evidence against the use of short-term citation metrics in the quantification of scientific impact”.

Most of the extant studies in the SBs field seek to conceptualize the phenomenon (Braun et al., 2010; Li, 2014), with a few others analyzing specific fields of science (aiming at providing a complete investigation about the information flows of the area) (van Raan, 2004; Ohba and Nakao, 2012; Kozak, 2013), or trying to adapt models and quantifying the SB phenomenon presenting new methods of computation and indicators (Baumgartner and Leydesdorff, 2014; Li, 2014). These contributions are mainly restricted to natural and formal sciences (van Raan, 2004; Ohba and Nakao, 2012; Kozak, 2013; Ke et al., 2015) with social sciences being clear neglected in this regard. Moreover, and to the best of our knowledge, none of the extant empirical studies in this domain have focused on both uncovering of the SBs and their Princes.

Thus, the purpose of the present study is twofold.

First, to find the SBs in two branches of the Social Sciences: International Business and International Economics. Research in International Business (IB) is relatively recent emerging formally by 1960s (Buckley, 2014), associated to Dunning’s (1958) and Hymers’ (1976) contributions. International business is considered to be genuinely interdisciplinary, comprising influences from geography, history, sociology, political science, anthropology and management. Important topics that this research stream has been tackled includes international flows of foreign direct investment, the nature and power of multinational enterprises (MNEs), the strategies of MNEs (notably their foreign-market entry and development strategies) and the progress of globalization (Aharoni and Brock, 2010). International Economics (IE) is a much older research area, and can be traced back to the 1700s debate over issues of free international commerce (Thompson, 2006). It describes and predicts production, trade, and investment across countries. Some key themes recur throughout the subject (Teixeira and Carvalho, 2014): the gains from trade, the pattern of trade, protectionism, the balance of payments, exchange-rate determination, international policy coordination, and the international capital market.

Second, to discuss SBs citation trajectories and reveal the corresponding Prince(s).

Summing up, the present study aims at contributing for a scientometric analysis of two important fields of research within the social sciences, International Business and International Economics. Albeit distinct, as seen above, these two areas share a myriad

of issues being their scientific borderlines somehow fuzzy (Harzing and Giroud, 2014). Given this, it is likely that a ‘princess’ of one area has a ‘prince’ in the other.

In terms of structure, this dissertation presents the first two sections with a literature review on the issue of ‘Sleeping Beauties’, including the definition of the SB concept, the state of the art in this particular field, and an overview of the methods used to identify the SBs. Then, in Section 3 the methodological underpinnings are briefly described. The empirical results are detailed in Section 4. Finally, Section 5 concludes the study highlighting the main outcomes, limitations and further avenues for future research.

2. Literature on the sleeping beauties

2.1. Defining sleeping beauties

A paper that does not attract citations for an extensive period of time will, most likely, have a low impact when it comes to evaluate its quality (Hu and Wu, 2014). Thus, when one searches for high quality papers, he/she wants to avoid a paper without citations.

It is, however, increasingly common to find papers that have been receiving very few or no citations during a period of time and, suddenly, draws a lot of attention. This phenomenon was first introduced as ‘delayed recognition’ (Glänzel et al., 2003) and later on presented as a ‘Sleeping Beauty’ by van Raan (2004). This latter author’s description, much more fairytale-like and applied to the science area, is portrayed as “a publication that goes unnoticed (‘sleeps’) for a long time and then, almost suddenly, attracts a lot of attention (‘is awakened by a prince’)” (van Raan, 2004: 461). According to van Raan (2004), the ‘prince’ is the first paper to quote the study (the SB) before the ‘citation boom’; the ‘sleeping period’ is the difference between two different periods – the publication and the first citation. The minimum length of this period in order to consider the paper as a SB varies according to distinct authors who study the phenomenon. Specifically, according to Ohba and Nakao (2012), it should be 5 years or longer, whereas for van Raan (2004) it should be 4 years at the minimum. The period after the ‘sleeping period’ is called the ‘awakening period’.

2.2. What has been researched in the literature of sleeping beauties?

Using ‘sleeping beauties’ or ‘delayed recognition’ as keywords, 24 papers were found in Scopus and 41 in ISI about the theme (reference date: November 2014).

The evolution of the papers published on the SBs is presented in Figure 1. It can be seen that even though the phenomenon firstly appear (in published form) in 1989, the number is not very large. The number of papers published evidences nevertheless a positive trend over time. In particular, a peak can be witnessed in 2010 and even after a decrease in 2011, the numbers of papers published in this issue increased afterwards. When it comes to the number of citations per paper published on SBs, the results are relatively small, evidencing the still low influence of such studies (due in partly their youth). The top cited paper has 56 citations, which compares quite favourably with the average which is around

11 in Scopus (ISI shows similar results being the maximum of citations of 76 and the average of 12).

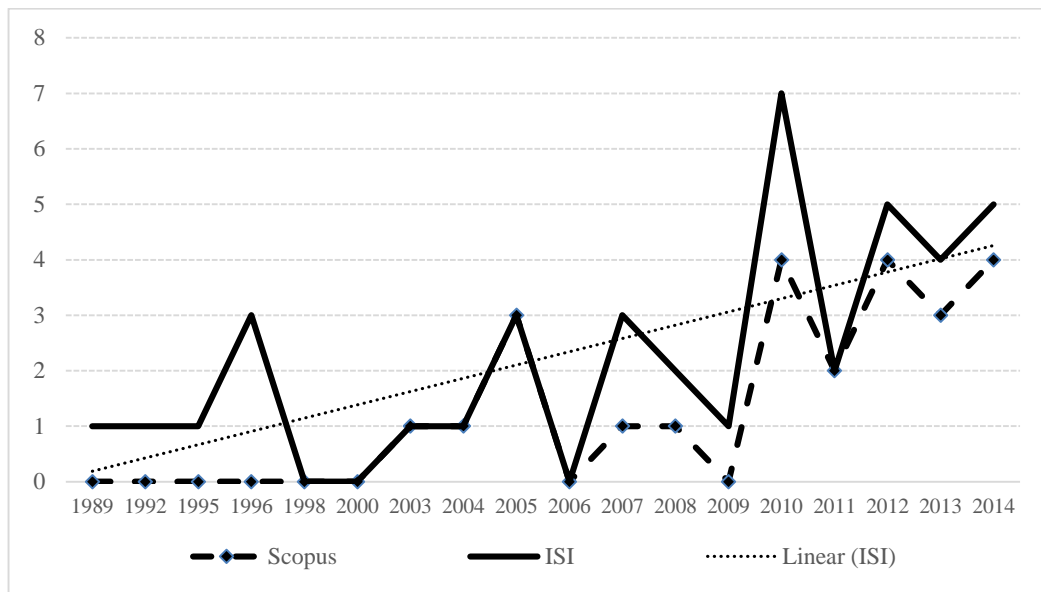


Figure 1: Evolution of the published papers about Sleeping Beauties

Source: Author based on data gathered from Scopus Sci Verse and ISI WoS (reference date: November 2014)

The sleeping beauties can be studied by many distinct perspectives. In the extant literature it is possible to identify three main groups of research (cf. Table 1): 1) Conceptual accounts of the SB; 2) Models for identifying the SB; 3) Empirical analysis/identification of the SB.

Table 1: Main groups of research to identify SB

Perspective	Paper
Conceptual accounts of SB	Braun et al. (2010); Li (2012); Li and Ye (2014)
Models concerning SB	Effectiveness of Peer Review Ma et al. (2013)
	Group-Based Trajectory Modeling Baumgartner and Leydesdorff (2014)
Empirical analysis/identification of the SB	Science van Raan (2004)
	Ophthalmology Ohba and Nakao (2012);
	Science Kozak (2013)

Source: Author's, based on the analysis of articles detailed in Table A1 in Appendix.

The papers included in the conceptual group aim for a more theoretical approach of a SB. Authors as Li (2012), Li and Ye (2014) and Braun et al. (2010) analyze the phenomenon and present new terms. They argue that further research is needed to assess the determinants of the SB phenomenon.

Li published two recent papers (Li, 2012; Li and Ye, 2014) that advise “an expansion to ‘all-elements-sleeping-beauties’ which should be composed of four parts in their citation curves” (Li and Ye, 2014: 600): “an awakening period, a sleeping period, an awakening period and a happy ending with the prince”. The conclusion is that, after displaying some examples of potential ‘all-elements-sleeping-beauties’, this phenomenon is proven to exist. The author also focuses his attention on the difficulty of identifying the ‘Princes’ (PRs).

Braun et al. (2010) on the other hand focus on a deep study of the behaviors of the SB with the aim of proving the usefulness of their study. The conclusion was that citations, “as a rule, are induced by papers published in higher impact factor journals than the original” (Braun et al., 2010: 195) and SB are a “useful and instructive model in studying the mechanisms of scientific information flow through citations.” (Braun et al., 2010: 200).

The second group of works - Models for identifying SB - defines models in order to quantify factors and create indicators to measure the phenomenon of SB. The main aim of these studies is to test the models and prove their feasibility. For instance, Ma et al. (2013: 10) present the Effectiveness of Peer Review (EPR) model which “has the ability to distinguish the peer-reviewing effectiveness of the sample journals”. Since the SBs have not been considered in the analysis of peer-reviewing, the authors define an m value to correct the gap. After the quantification of the EPR, the main conclusions withdrawn were that “a floating m value is perhaps necessary to match the different journal groups with different subjects and regions” and that “an increasing EPR should be the real mark of a quality journal that is able to achieve sustainable success” (Ma et al., 2013: 11).

Baumgartner and Leydesdorff (2014) present the Group-Based Trajectory Modeling (GBTM) aiming at analyzing citation trajectories over time. The authors were able to identify two different citation paths, the ‘sticky’ and ‘transient knowledge citation trajectory’. A ‘sticky knowledge citation trajectory’ occurs when a paper “continues to be cited throughout the years” whereas a ‘transient knowledge trajectory’ follows an “early peak in citations followed by a steep decline” (Baumgartner and Leydesdorff, 2014: 35). Even though the analysis of the model leads to a SB pattern in some of the journals used as sample, and to some useful observations concerning citation’s trajectories, the authors recognize that “citation curves are more complex and diverse than previously expected” (Baumgartner and Leydesdorff, 2014: 38), which forced them to conclude that the

proposed model was not ready yet to be used as an instrument to evaluate the effectiveness of peer reviewing.

The third group - Empirical analysis/identification of the SBs - seeks to identify and analyze the behavior of 'Sleeping Beauties' in specific fields. These studies bring a detailed analysis of the SBs in given areas of research and aims to uncover emergent areas of knowledge within established areas.

Kozak's (2013) work, although not very extensive, studied some SBs of 'current science' and concluded that SBs are actually important since "they prove that the journal publishes papers that are ahead of their time" (Kozak, 2013: 1129).

One of the most cited papers in the SBs field is that of van Raan (2004). His analysis of the SBs in the Science field is one of the first to mention the 'delayed recognition', presenting a clear cut definition and methodology of the concept. The author concluded that "the probability of awakening after a deep sleep is smaller for longer sleeping periods; for a less deep sleep, the length of the sleeping period matters less for the probability of awakening; the probability for higher awakening intensities decreases extremely rapidly in all cases (...). This probability is independent of both length as well as depth of Sleep!" (van Raan, 2004: 465).

One of the rare studies focusing on one single field of research is that from Ohba and Nakao (2012), which analyzed Ophthalmology. The authors considered the study of this field important because "the citation of a scientific article measures attention and impact given to the field of scientific community" (Ohba and Nakao, 2012: 254). They analyzed and described the field and its SB concluding that "nearly all of the SBs ... identified in the ophthalmic literature are description of new clinical diseases and innovation of medical and surgical treatments." (Ohba and Nakao, 2012: 263).

2.3. An overview of the methods used to identify the sleeping beauties

The methods used to identify the SBs are highly dependent on the aim the authors have for their studies. Even though some methods are used as a basis (e.g., that of van Raan's, 2004) for other author's papers (e.g., Ohba and Nakao, 2012; Kozak, 2013), the methods differ and bring different types of contribution to the study of the SB phenomenon. The methods used can be, in a rather simplistic manner, categorized into three main groups/types (cf. Table 2): 1) Visual/graphic approach; 2) Bibliometric/computational approach; 3) Econometric analysis.

Table 2: Main groups of methodologies for studying the SBs

Approaches	Specific method	Paper
Visual/graphic	Citation counts and graphic representations	Braun et al. (2010); Li (2012); Li and Ye (2014)
	van Raan's 'Grand Sleeping Beauty Equation'	van Raan (2004); Kozak (2013)
Bibliometric/computational	van Raan's 'Grand Sleeping Beauty Equation' with adaptations	Ohba and Nakao (2012);
	Effectiveness of Peer Review	Ma (2013)
Econometric	Goup-Based Trajectory Modeling of citations	Baumgartner and Leydesdorff (2014)

The most conceptual papers (e.g., Li, 2012; Li and Ye, 2014) resort to visual techniques and citations' descriptive analysis for the identifying of the SBs, studying the distribution of papers' annual citations. Through graphs Li (2012) and Li and Ye (2014) find examples of the 'all-elements-sleeping-beauties' showing the trajectory of the citation distribution of different papers gathered from the Web of Science (WoS).

Braun et al. (2010) used the complete WoS as a base for their citation count and present examples of SBs quantifying the citations. Since their studies were more centered in the fields and on the relationship between the 'Prince' and its 'Princess', the authors resorted to visual information (graphs) for depicting the relevant variables. It can therefore be included in the 'Visual/graphic' group.

van Raan (2004), on the other hand, defines a computational, bibliometric approach and uses three main variables to define a SB: 'depth of sleep'; 'length of the sleep'; and 'awake intensity'. Regarding the first, van Raan (2004: 462) refers that two types can be highlighted: 'deep sleep', when "the article receives at most 1 citation on average per year", and 'less deep sleep' when the article receives "between 1 to 2 citations on average per year during a specific period". The 'length of the sleep' consists on the duration of the sleeping period. The "number of citations per year, during four years following the sleeping period" (Van Raan, 2004: 462) reflects the 'awake intensity'.

The CWTS scientific publication data-system was used to study the above mentioned variables allowing van Raan to reach a 'Grand Sleeping Beauty Equation', $N = f \{s, c_s, c_w\} \sim s^{-2.7} \cdot c_s + 2.5 \cdot c_w^{-6.6}$, which provides the number of Sleeping Beauties with 'N' as the number of publications, 'cw' the awakening intensity, 'cs' the depth of sleep and 's' the sleeping period. This equation provides the "number of Sleeping Beauties for any

sleeping time, sleeping intensity and awakening intensity, and particularly the dependency on these variables” (van Raan, 2004:464). Kozak (2013) used the exact same method as van Raan (2004), but the data was gathered from the WoS instead of CWTS.

The paper by Ohba and Nakao (2012) is focused on a specific research field, ophthalmology. The authors use the WoS to get the database. Their method is very similar to that of van Raan’s (2004), but it is adapted to the field chosen. Accordingly, the ‘awake intensity’ was defined as the “number of citations per year during the first 5 years after awake” (Ohba and Nakao, 2012: 254) and considering that the article must have at least 100 citations during that time. With all the key variables defined, Ohba and Nakao (2012) identified the SBs, characterizing these latter using the 3 variables suggested by van Raan (2004), and searched for the ‘Princes’ using the strength of the co-citations “determined by the frequency with which SBs-PRs pair is cited together in the reference” (Ohba and Nakao, 2012: 256). The minimum co-citation frequency needed is 30%.

Also included in the Bibliometric/computational group stands the contribution by Ma (2013). Resorting to computation techniques, Ma (2013) assesses the Effectiveness of Peer Reviewing (EPR) and proposes a new equation which permits to take into account the SBs phenomenon in the “flawed” (Ma’s own words) peer reviewing process.

More recently, Baumgartner and Leydesdorff (2014) applied the Group-based Trajectory Modeling of Citations (GBTM) to the citation curves of papers, choosing as the basis of study 6 journals from different fields and the citations from one specific field (virology). They predict specific citations trajectories using econometric techniques, more specifically, multinomial regression analysis using WoS data on a window of 16 years (1996-2011).

2.4. The importance of identifying sleeping beauties in International Economics and International Business

Even though the SBs are considered to be rare and “a rather useful and instructive model in studying the mechanisms of scientific information flow through citations” (Braun et al., 2010: 200), Ke et al. (2015: 1) observed that “many examples of papers achieving delayed yet exceptional importance in disciplines different from those where they were originally published”.

The importance of the identification of SBs in International Economics and International Business is connected with an analysis of the citations of these two fields which is

beneficial because “the citation of a scientific article measures attention and impact given to the field of scientific community” (Ohba and Nakao, 2012: 254). From this we can also conclude that the analysis of the SBs is not only a matter of “exotic whim” (Ohba and Nakao, 2012: 254), but a matter of adding some conclusions to the field itself and perhaps have answers about the scientific behavior and evolution of a given field.

Bibliometrics and scientometrics tools have already been used in the international research field, particularly in International Business. These contributions aimed at, in general (cf. Table 3), assessing the attention devoted to particular topics within international economics (e.g., Clemenz and Neusser, 1991; Du and Teixeira, 2013; Teixeira and Carvalho, 2014) or international business (e.g., Ferreira et al., 2013; Reis et al., 2013; Ferreira et al., 2014; Pinto et al., 2014), to provide quantitative literature overviews in international business (e.g., Hazing and Giroud, 2013; Roberts and Dörrenbächer, 2014) or to analyze the impact and ranking criteria of the journals of the field (e.g., Phene and Guisinger, 1998; Knight et al., 2000; Urbancic, 2006; Cantwell et al. 2014; DuBois and Reeb, 2014).

When it comes to assessing the attention devoted to particular topics within International Economics (IE) or International Business (IB), the papers can be categorized by different sub-topics (cf. Table 3). We can find within the IB field, bibliometric approaches about different theories and its authors, such as the Dunning paradigm (Ferreira et al., 2013) and the transaction cost theory (Ferreira et al., 2014). These studies are very useful to get a better understanding of the development of the discipline and the interrelationship present between the authors, the underlying theory and the rest of the knowledge structure of the field (Ferreira et al., 2014), permitting to get a full view of the scientific network linked to the theory.

Table 3: Bibliometric analyses on the international research fields

Major topic	Detailed topic	Paper
Assessing the attention devoted to particular topics within International Business (IB)	Theories	Ferreira et al. (2013); Ferreira et al. (2014)
	Components of IB	Reis et al. (2013); Pinto et al. (2014)
	Country's impact	Lahiri (2011)
Assessing the attention devoted to particular topics within International Economics (IE)	Components of IE	Teixeira and Carvalho (2014)
	Country's impact	Clementz and Neusser (1991); Du and Teixeira (2012)
Quantitative literature overviews in international business		Dörrenbächer (2012); Harzing and Giroud (2013)
	Rankings	DuBois and Reed(2014)
Analysis of journals	Analysis of journal's impact	Phene and Guisinger (1998); Knight et al. (2000); Cantwell et al. (2014)
	New measurements of rankings	Urbancic (2006)

An analysis of specific components of IB and IE is also found in the literature. ‘Culture’ is an example to the IB field and ‘poverty’ to the IE field. The first one - ‘Culture’ -, being analyzed by Reis et al. (2013) and Pinto et al. (2014), is justified on the grounds that it is a “crucial component of the international business research context” (Pinto et al., 2014: 341). Reis et al.’s (2013) study is a literature review, with the main aim to understand the intellectual structure and impact that ‘culture’ has within the IB field. Pinto et al. (2014) relates ‘national culture’ to the IB field. Being a more specific keyword, the results are more restrict, but the aim is too to understand the evolution and impact that ‘national culture’ has in the IB field. In the IE field, ‘poverty’ and ‘poor countries’ impact on IE are considered by Teixeira and Carvalho (2014). The analysis was made based on all articles published in the *Journal of International Economics*, considered a top journal of the IE area. The aim of the study was to assess the relative importance poverty and poor countries have in IE.

Another category of contribution is the analysis of countries’ contributions to the field. This category of studies brings an important analysis of the roots and evolution of the field by country reflecting the influence that the country has in the area. Within IB, the study by Lahiri (2011) reviews Indian-focused articles over the years in leading international business journals and identifies areas that may potentially be important to the IB field in the future. Du and Teixeira’s (2012) work undertakes a similar task but this

time within IE field and focusing Chinese economics related research. The contribution of Austrian economists is described in Clemenz and Neusser's (1991) work.

All the studies summarized above provide us mappings with bindings and ties of different authors, themes, areas and journals. Such analyses allow an "insight into past trends and evolution of the literature" (Pinto et al., 2014: 342). In this vein, they offer us a consistent and adequate basis to frame and justify the existence of SBs in international business and economics area.

Given that international business is a functional discipline (Urbancic, 2006), some authors explored a more general analysis undertaken quantitative literature overviews, studying the field in itself. In Harzing and Giroud (2013) a comparative analysis, offering an insight of the reality of various countries, is provided. The authors propose a model "to interpret country's research profiles and academic output" (Harzing and Giroud, 2013: 1). In this way they seek to understand how different nations 'compete' when it comes to academic disciplines, and for that, they resort to bibliometric studies and frameworks from the international economics and business area. Taking recent reflections on the IB field into account, Roberts and Dörrenbächer (2014) using bibliometric tools, elaborate on the possible trajectories about the future of the scientific area.

The last group of bibliometric studies in IB/IE involves the analysis of journals' impact. This group can be divided into three types. A first type includes papers that rank journals (e.g., Dubois and Reeb, 2014). Such studies assume that ranks are important because they describe the influence and quality of journals, providing the academic community a better understanding at what are the most reliable and influential journals in the discipline (Dubois and Reeb, 2014). A second type of studies aim at analyzing journals' impact (e.g., Phene and Guisinger, 1998; Knight et al., 2000; Cantwell et al., 2014). These studies scrutinize the cross-disciplinary connections of the different journals, most notably the *Journal of International Business Studies* (JIBS) (Phene and Guisinger, 1998; Cantwell et al., 2014) or the *Journal of Business Research* (Knight et al., 2000). They provide information about connections, network and bridges between distinct journals, and ultimately inform on what journals influence the international field and their authors, supplying an overview of the journals' interconnections in the given field.

Some conclusions taken from the above studies are particularly useful for our SBs analysis. Cantwell et al. (2014: 797) assert that JIBS acts "both as an integrator as well as

a source of knowledge in its network of journals”. The interdisciplinary nature of the journal, which the idea that the questions analyzed in the journal cannot be fully answered by a single discipline itself but by a multitude of them, is what justifies, according to the authors, the low number of citation counts and patterns in comparison with disciplinary journals, since JIBS attention is focused on more than one field. This disadvantage is, however, compensated by an increasing number of cross-citations which enhance the journal’s scientific influence.

The third type of studies is devoted to propose new measures of ranking journals. One of such examples is the study by Urbancic (2006). Considering IB a cross-functional discipline, the author considers that the traditional rankings might be improved by taking the interdisciplinary nature of the field into account. The interdisciplinarity of the IB field is clearly an interesting reason to (further) explore the area, its citations and cross-citations. As reviewed earlier, citations are one of the most important variables in the study of the SBs.

Thus, although not directly assessing SBs, the mapping and analysis gathered in the studies reviewed above constitute a critical element for understanding the field, its main authors, themes and areas, which ultimately help to frame and explain how the emergence of SBs impacted on the field’s development. As Hofer et al. (2010: 846) states, “a close look at studies on an international level helps to understand the current profile in international business”, giving us a way of understanding how theories interrelate and how important those are in the field.

3. Methodology

3.1. Procedures for identifying the Sleeping Beauty

The method by van Raan's (2004) to quantify the SBs has been the most extensively used (e.g., Ohba and Nakao, 2012; Kozak, 2013) (cf. Section 2.3). With some adaptations, detailed below, we follow, in the present study, this author's type of method (bibliometric/computational), complementing it with the visual's approach by Li (2014).

The underline dataset that we use was gathered from the WoS. The 'international business' and 'international economics' are general keywords and the results collected, when we use these two keywords, were quite reduced to enable a solid analysis. Thus, resorting to a previous introspect of the major handbooks and papers in these fields of research (cf. Table A2, in Appendix), we obtained 25 distinct keywords relevant for identifying 'international business' and 'international economics' related articles. As final outcome, we gathered a database with 138945 articles. Similarly to Ohba and Nakao (2012), the citation history of each paper was retrieved using the 'citation report search' in the WoS, which permitted a year-by-year analysis of citations from 1900 to 2015.¹

Papers with residual total citations (less than 20) were discarded as there is a minimum number of citations for a paper to be considered a potential SB. Indeed, Ohba and Nakao (2012) considered a minimum of 100 citations. However, we decided for a more conservative threshold (20) to account for the field specificity citation patterns – Tang (2008) shows that the so-called 'soft' sciences, such as economics or history, receive much lower citations than 'hard' sciences, such as math and physics. Despite the lower threshold such procedure entailed a significant reduction in the dataset: 19419 articles remained.

If we took van Raan's (2004) procedure directly, the next step would be to consider the three main variables- the depth of sleep, the length of sleep, and the awakening intensity of the paper -, and using the 'Grand Sleeping Beauty Equation' to identify the SBs.

Given the computational complexity involved in identifying the thousands of articles we have using van Raan's formula directly, we established a two stage procedure: 1) find the

¹ This dataset was gathered in the WoS (on the 6th and 7th December 2014). The process was very time consuming as WoS do not permit to download more than 500 articles each time. We undertook this task saving each 500 set of articles to an excel sheet which was then used to perform the SBs analysis.

‘potential’ SBs using a formula that includes the dispersion of the citations; and 2) critically inspect each potential SBs to decide whether it is an effective SB and, lastly, to identify its ‘Prince’.

As we can observe in Figure 1, the dispersion of the citations is what distinguishes a SB from a ‘flash in the pan’ (cf. Li’s (2014) arguments). In the case the dispersion of a paper’s citations are close to its year of publication, that paper would be a ‘flash in the pan’ and not a SB.

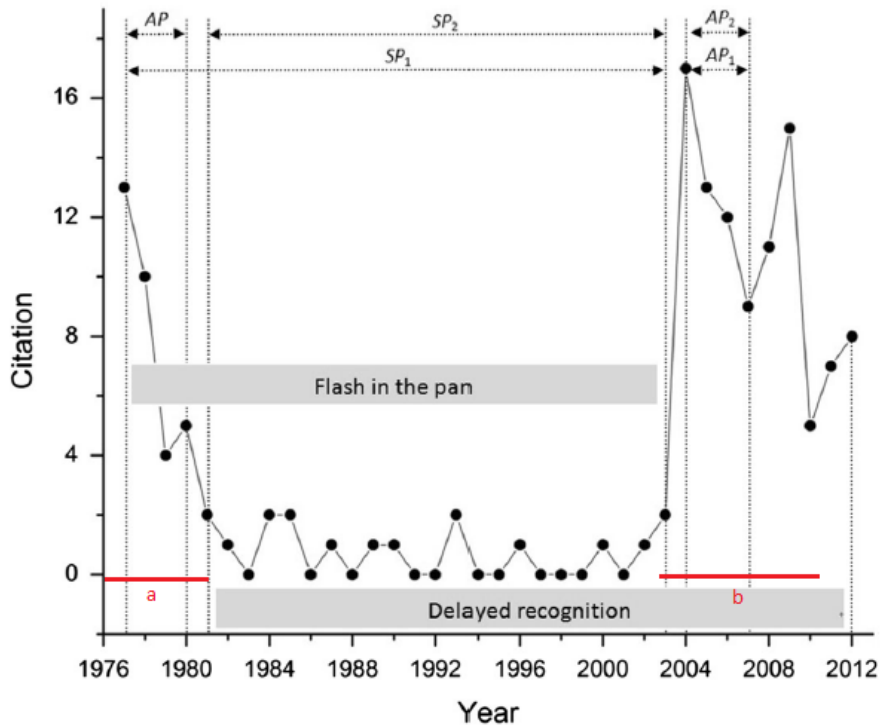


Figure 2: Citation curve and types of papers

Legend: AP - first awakening period of a ‘flash in the pan’; AP1 - Awakening period of a SB; AP2 - Second awakening period of a ‘flash in the pan’; SP1 - Sleeping period of a SB; SP2 - Seeping period of a ‘flash in the pan’; *a* - location of the dispersion of citations if ‘flash in the pan’; *b* - location of the dispersion of citations if SB.

Source: Adapted from Li (2014).

There are many ways of measuring the dispersion described, but the most common measure used is the standard deviation, which shows how much “dispersion” there is from the average value. To identify a potential SB a similar measurement was adopted. Our measure will be a ‘second moment order for the year of publication’ which defines the probability that a random variable float away from its mean. In this method, about 2/3 of the citations are gathered between the year of publication and the considered value. For each paper, we applied (1):

$$x = cit \times (cy - py)^2 \quad (1)$$

Being x the ‘second moment year for the publication’ for each current year of the papers, cit the number of citations in that year, cy the current year and py the publication year. Using a 20 years period span, we summed up the outcome of (1) for all the years and standardized (by dividing by 20), obtaining (2) which ranges from 0 to 1.

$$X = \frac{\sum \sqrt{\frac{x}{totcit}}}{20} \quad (2)$$

The results closer to 0 represent that the dispersion of citations is very close to the publication year (represented by (a) in Figure 1), reflecting a type of paper closer to a ‘flash in the pan’. When the standardized sum is closer to 1, the paper is a potential SB, as the dispersion of the citations is far away from the publication year (represented by (b) in Figure 1).

Selecting those papers whose “second order moment” are close to 1, in a second stage we analyze those with a large number of citations (over 100 citations, in line with Ohba and Nakao (2012)). Even if a SB with 20 citations exists, we opted to look for the most influential SB of the field in analysis, assuming the number of citations as the key criterion.

Such procedure yielded to 18 potential SBs with an average of 365.5 citations per paper. Assuring that a minimum of 5 years of sleep was observed, we resort to an in depth content analysis, which permitted to exclude 6 potential SBs as they lied outside of the International Economics or International Business fields.

3.2. Procedures for identifying the Prince

The identification of the Prince (PR) requires some clarifications about its definition. Even if the Prince ends up being specified in almost all the SB papers (Van Raan, 2004; Braun et al., 2010; Li and Ye, 2012, Ohba and Nakao, 2012; Kozak, 2013; Li, 2014), Van Raan’s (2004) definition of a SB does not give us a precise description of the Prince itself. Since there was a gap in this area, Braun et al. (2010) focused its work in “performing a detailed citation analysis of a set of Sleeping Beauties together with that of the corresponding Princes” (Braun et al., 2010: 195), giving some useful conclusions to the criteria for a Prince. The general terms of a Prince based on Braun et al. work were used in several papers over the years (Ohba and Nakao, 2012; Kozak, 2013; Li, 2014), which establish that a potential Prince should be “among the first citing articles,...be highly or

at least fairly cited and have a considerable number of co-citations with the Sleeping Beauty.” (Braun et al., 2010: 196). The same authors also argued that there can be more than one prince and that self-citation is actually “an essential part of scientific communication” (Braun et al., 2010: 199).

Relying our criteria to choose a potential Prince on Braun et al.’s (2010) work, we seek papers with a considerable amount of citations and co-citations with the SB. However, as it can exist more than one Prince per SB, we need to analyze not only the first citing papers, but all the papers that are published in ‘potential awakening times’, which are identified through the analysis of the (co)citation distribution. We further analyze the co-citation patterns of each Prince and compare them with the corresponding SB’s citation distribution.

The first step in this procedure was to list the citations of the SBs and select the potential princes. For that, and since the ‘Prince’ itself must have some relevance citation-wise in order to influence its SB, our criterion of selection was the SB citing papers which had more than 50 citations. Since the SB’s criterion was more than 100 citations, we agreed that, in order to be relevant and impact on the SB itself, the Prince should have at least half of that number, thus the limit of 50 citations.

The next step consisted in the download of the articles citing the potential Prince in order to proceed to our co-citation analysis. An excel file was created with columns with the name of the SB and potential Prince, the respective title, the year of publication and the number of citations of each paper. This excel was then uploaded to Access where we used queries to intercept the citations of the SB with its potential Prince and, through this procedure, finding out the co-citation pattern between them. With this information, an in depth analysis was made, comparing not only the Prince’s citations and co-citations with the respective SB, but also considering the authors and the timeline of the potential awakening.

4. Empirical Results

4.1. Identification of the SBs

The 12 Sleeping Beauties (SBs) founded are associated to 10 main specific topics, grouped into the two main fields considered: International Business (IB) and International Economics (IE) (Table 4).

Table 4: Sleeping Beauties in International Business and International Economics

Topic	Specific theme	Sleeping Beauty	2014 IF (WoS)*	Length of Sleep (years)	Depth of Sleep (citations/year)	Total citations [citations/year]	Awakening intensity (citations/year)**
IB	Internationalization processes of Firms	Johanson, J.; Wiedersheim-Paul, F. (1975), 'The internationalization of the firm - four Swedish cases', <i>Journal of Management Studies</i>	3.763; 8/115 (Business); 15/185 (Management)	17	Deep sleep (0.4)	673 [16.7]	1 st : 6.4 2 nd : 11.2
		Johanson, J.; Vahlne, J.-E. (1977), 'The internationalization process of the firm – a model of knowledge development and increasing foreign market commitments', <i>Journal of International Business Studies</i>	3.563; 10/115 (Business); 17/185 (Management)	7	Deep sleep (1)	1959 [51.4]	1 st : 2.6 2 nd : 22.8 3 rd : 51.6
	Internationalization Theory	Welch, L.S.; Luostarinen, R. (1988), 'Internationalization: Evolution of a concept', <i>Journal of General Management</i>	Not indexed***	5	Less deep sleep (1.9)	215 [7.9]	1 st : 3.2 2 nd : 7.4
	MNEs performance	Geringer, J.M.; Beamish, P.W.; Dacosta, R.C. (1989), 'Diversification strategy and internationalization: Implications for MNE performance', <i>Strategic Management Journal</i>	3.341, 13/115 (Business); 20/185 (Management)	7	Less deep sleep (1.9)	230 [8.8]	1 st : 7.2 2 nd : 17.4
	Risk Management in MNE	Miller, K.D. (1992), 'A framework for integrated risk management in international business', <i>Journal of International Business Studies</i>	3.563; 10/115 (Business); 17/185 (Management)	8	Less deep sleep (2)	189 [8.1]	5.4/year
	International Strategy in MNEs	Kogut, B. (1985), 'Designing global strategies profiting from operational flexibility', <i>Sloan Management Review</i>	1.346; 13/115 (Business); 73/185 (Management)	18	Less deep sleep (1.3)	193 [6.4]	15.6
	International New Ventures	Oviatt, B.M.; McDougall, P.P. (1994), 'Towards a theory of international new ventures', <i>Journal of Business Venturing</i>	3.678; 9/115 (Business)	5	Deep sleep (1)	362 [17.1]	15.6
IE	Exporting Firms	Cavusgi, S.T. (1984) 'Differences among exporting firms based on their degree of internationalization', <i>Journal of Business Research</i>	1.480; 55/115 (Business)	10	Less deep sleep (1.5)	163 [5.2]	5.6
	International Trade and Factor mobility	Mundell, R.A. (1957) 'International trade and factor mobility', <i>American Economic Review</i>	3.673; 9/332 (Economics)	20	Less deep sleep (1.9)	394 [6.7]	1 st : 3.8 2 nd : 7.2
		Bergstrand, J.H. (1989) 'The generalized gravity equation, monopolistic competition, and the factor-proportions theory in international trade', <i>Review of Economics and Statistics</i>	2.749; 22/332 (Economics)	7	Less deep sleep (2.7)	377 [15]	1 st : 9.2 2 nd : 22.8
	Non-traded goods and its accountability in international macroeconomics data	Backus, D.K.; Smith, G.W. (1993), 'Consumption and real exchange rates in dynamic economies with non-traded goods', <i>Journal of International Economics</i>	2.368; 35/332 (Economics)	9	Less deep sleep (1.6)	118 [5.3]	1 st : 3.6 2 nd : 8.8
Immigrants and their trade flows	Gould, D.M. (1994), 'Immigrant links to the home country: empirical implications for U.S. Bilateral Trade Flows', <i>Review of Economics and Statistics</i>	2.749; 22/332 (Economics)	8	Less deep sleep (1.5)	196 [14.5]	8.8	

Note: The date of reference for the gathering of citations is December 2014. * 2014 Impact Factor according to Web of Science (WoS)'s Journal Citation Report; **Average of citations (citations per year) in the following 5 years; *** Its SCImago Journal Ranking (SJR) in 2014 is 0.151, which is well below that of Journal of Management Studies, 4.047.

From Table 4 we observe that SBs are rare (12 out of 19419 articles with 20 or more citations, that is, 0.06%) but more common in International Business than in International Economics.

Three of the SBs, Mundell [1957, 'International trade and factor mobility'], Kogut [1985, 'Designing global strategies profiting from operational flexibility'] and Johanson and Wiedersheim-Paul [1975, 'The internationalization of the firm - four Swedish cases'], slept over a quite long time span, 20, 18 and 17 years, respectively. The latter, together with Johanson and Vahlne [1977, 'The internationalization process of the firm – a model of knowledge development and increasing foreign market commitments'] and Oviatt and McDougall [1994, 'Towards a theory of international new ventures'], was in a deep sleep, receiving only 1 citation per year before being awaked. The awakening intensity of Oviatt and McDougall, as well as that of Kogut, is noticeable gathering almost 16 citations per year in the following 5 years after the awakening.

Some SBs were awaked not one time but two – Johanson and Wiedersheim-Paul (1975); Welch and Luostarinen (1988); Geringer, Beamish and Dacosta (1989); Bergstrand (1989); and Backus and Smith (1993) -, or even three times, as in the case of Johanson and Vahlne (1977).

The overall analysis of the SBs and their Princes (PRs), which is detailed in the next sections, involves a total of 19 different, well renowned journals from Economics, Business and Management, including, for instance, the *Journal of Monetary Economics*, the *Journal of International Marketing* or the *Journal of Business Venturing*. Excluding the SB Welch and Luostarinen [1988, 'Internationalization: Evolution of a concept'], which was published in a non WoS indexed journal, the *Journal of General Management*, all the remaining SBs were published in high impact journals from the field of Business/Management and Economics – the majority of them within the top-30 of their corresponding study areas.

Figure 4 provides a map with the journals associated with the SBs (larger and darker boxes) and the connections/citation links with the journals where the corresponding Princes were published (smaller and lighter colored boxes).

One major outcome can be drawn from Figure 4: even though links are established between different subjects, most business/management journals keep their citations links within the business/management fields and the same applies to those journals in the

economics field. Thus, albeit we conjectured previously that the scientific frontiers of International Business and International Economics fields were fuzzy and that SBs from one field could be awakened by a Prince from the other field, such conjecture did not materialized. The fields are quite distinctive in this regard.

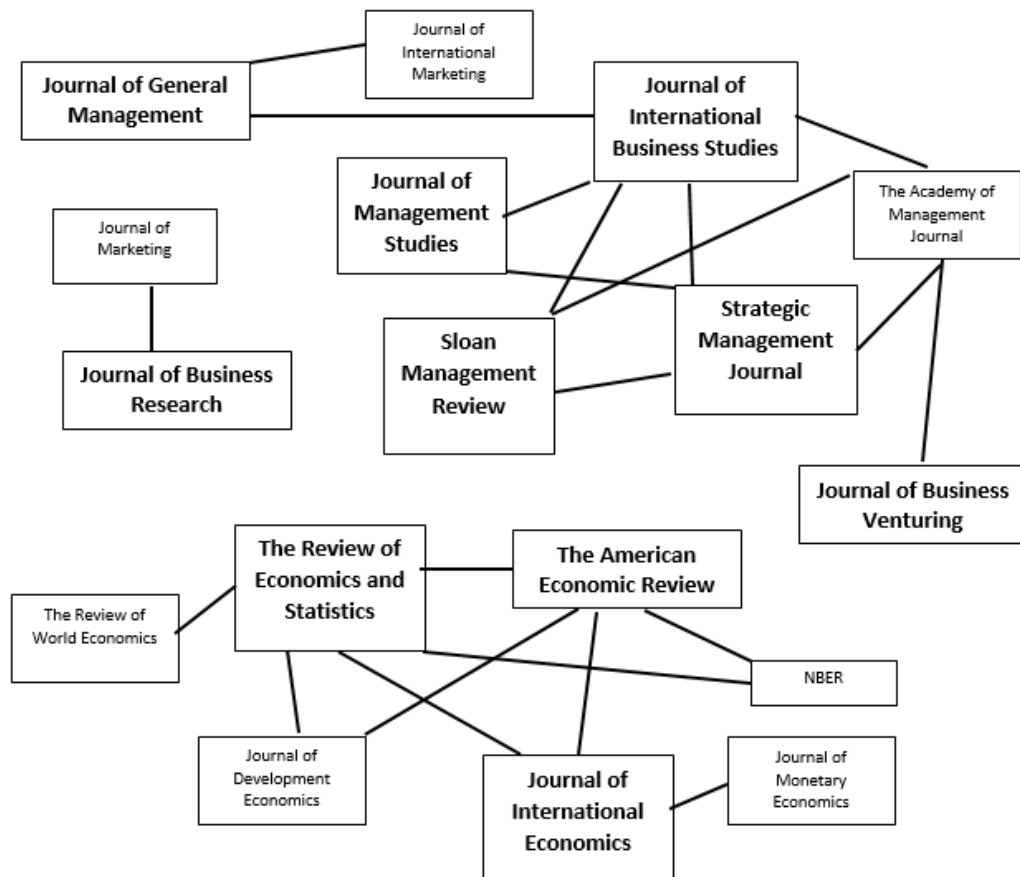


Figure 3: Mapping of journals links presented in our study

Source: Own composition.

4.1.1. SBs related to the firms' internationalization process

The first topic is the 'Internationalization of Firms', where we include two studies that are often considered together, since both developed and analyzed the process of internationalization of firms: *'The Internationalization of the firm – four Swedish cases'* by Johanson and Wiedersheim-Paul (1975) and *'The Internationalization process of the firm – a model of knowledge development and increasing foreign market commitments'*, by Johanson and Vahlne (1977).

As main proponents of the Uppsala Internationalization Model, the authors of these papers – Jan Johanson, Finn Wiedersheim-Paul and Jan-Erik Vahlne -, based on practical

examples and a theoretical framework, described a pattern among firms linking the internationalization to a gradual process of market discovery and organizational learning. The paper '*The Internationalization of the Firm – Four Swedish cases*', by Johanson and Wiedersheimpaul, published in the *Journal of Management Studies*, in 1975, argues that the research on the international strategies of firms lacked solid analysis about firms that start their internationalization gradually. Based on the description and analysis of the internationalization process of four Swedish firms, the authors included in their analysis an establishment chain. This establishment chain consists in four different stages of internationalization: "1. no regular activities; 2. export via independent representatives (agent); 3. sales subsidiary; and 4. Production/ manufacturing" (Johanson and Wiedersheimpaul, 1975: 306). The authors defend that the more knowledge about a market the firms get, the less they think about risk and therefore, the larger is their resource commitment, which is why throughout the establishment chain, each step commits gradually more their resources towards the international market. The paper's argument develops around the gradual internationalization of four manufacturing firms and its relationship with issues as the psychic distance and the size of the potential market, assessing whether the firms' internationalization process was "in accordance with the incremental internationalization view" (Johanson and Wiedersheimpaul, 1975: 322)

This paper is a SB that went in a deep sleep (with an average of 0.4 citation per year) for 17 years. This slow beginning is followed by two awakening moments. The first one happened in 1992, which reflected in the following 5 years in an average of 6.4 citations per year. The second awakening moment occurred 4 years later (in 1996), when we observe an increase in the average citations (11.2 citations/ year in the following 5 years). From then on (cf. Table 4) it was observed a steep rise of citations, with a large agglomeration of citations in the most recent years.

The second SB ('*The internationalization process of the firm – a model of knowledge development and increasing foreign market commitments* ') was published two years after the first (in 1977) in *Journal of International Business Studies*. Johanson and Vahlne extended Johanson and Wiedersheimpaul's (1975) proposal and created a theoretical framework according to which the internationalization of firms involves "a gradual acquisition, integration, and use of knowledge about foreign markets and operations, and on its successively increasing commitment to foreign markets" (Johanson and Vahlne; 1977: 23).

This SB has a sleeping period of 16 years, having its first awakening in 1993. In order to adapt van Raan's (2004) method to our data, we will consider papers with until 1 citation per year during their period of sleep, in a 'Deep Sleep' like the author (Van Raan, 2004 :462), but extend its 'Less deep Sleep' to paper with more than 1 citation per year during that period. The depth of sleep of this SB during these years is a 'Less deep sleep' since its average of citation during its sleeping years was 2.6 citations per year. Even though the SB had more than 4 citations some years before the awakening, we were not able to find papers (the 'princes'), before 1993, that had enough citations and co-citations to be considered significant and, therefore, a prince. The 'first awakening moment' happened in 1993, when citations start to increase at a high rate, reaching an average of 22.8 citations per year the following 5 years. This awakening is composed by four Princes who, from 1993 to 1994, form a 'cluster of PRs' and cause rise in citations. This rise was reinforced by a 'second awakening moment', 7 years (2000) after the first prince, with 51.6 citations/year (in the following 5 years) (see Table 4).

4.1.2. SBs related to the Internationalization Theory

Welch and Luostarinen published, in 1988, in the *Journal of General Management*, '*Internationalization: Evolution of a concept*', received a total of 215 citations. This paper consists in a review of works about different directions taken to analyze the causes of internationalization. Due to the growing interest in the internationalization subject, allied with the fact that the "academic activity in the area has both stimulated and been stimulated by the many strands of concern" (Welch and Luostarinen, 1988: 34), the authors find it pertinent to review and analyze the development of the subject.

The authors start by listing different dimensions considered within the internationalization such as operation methods, sales objects and target markets among others. And proceed by defining patterns of internationalization where we can find a distinct highlight toward the Nordic researchers (which include Johanson and Wiedersheimpaul (1975) and Johanson and Vahlne (1977), two of our SBs). Ultimately, Welch and Luostarinen (1988) define the different patterns that can be witnessed within the internationalization theory to explain the reason why enterprises internationalize, which are defined as 'pattern explanatory factors'. Being a review, the ultimate aim of Welch and Luostarinen (1988) was to give us an overall idea of the internationalization concept until that date. Some ideas were indeed reached but, regardless of their development, the authors state that the concept has yet to be clearly developed, declaring

also that even though the progress and literature on the subject by then was already quite extensive, there still had a lot to be completed.

Regarding the citation pattern of this SB, we can witness that Welch and Luostarinen (1988) was asleep in a ‘Less deep sleep’, with an average of 1.9 citations per year for 11 year, until 1999, when it was awakened. The first awakening moment caused the average of citations to rise to 7.4 citations per year the following 5 years, which is significant taking into account the fact that the SB has an average of 8.2 per year (see Table 4).

4.1.3. SBs related to MNEs performance

MNEs performance topic regards the different strategies and explanations for MNEs performances. The SB included in this topic is Geringer et al. (1989), with ‘*Diversification strategy and internationalization: Implications for MNE performance*’, which was published in the *Strategic Management Journal*, a general, high impact factor journal in the area studies of Management.

Geringer et al.’s (1989) main propose was to enhance the common knowledge about the performance of different MNEs. For that, the authors used the concept of firm-specific advantages and attempted to identify variables associated with the firm’s performance, namely the ‘diversification of products’ and the ‘diversification of operations’. The data supported that diversification strategy and degree of internationalization actually influenced the performance of MNEs even though the explanatory power of these variables was not very high. This conclusion evidences that although the authors were successful in their aim of identifying variables, there is still space to improve.

This SB was asleep for 7 years, with an average of 1.9 citations per year during that period of time, being in a ‘less deep sleep’ until the awakening in 1996. Geringer et al.’s (1989) paper witnessed 2 awakening moments, with both awakenings lasting 2 years and involving more than one Prince as we detail in Section 4.2.

4.1.4. SBs related to the risk management in MNEs

In ‘Risk Management in MNEs’ we can find Miller’s (1992) work, ‘*A framework for integrated risk management in international business*’, published in the *Journal of International Business Studies*.

This SB presents a framework that assesses and identify different sorts of uncertainties that might be relevant in strategic decisions of a MNE. Miller (1992) defends that the

strategic management field need a better risk definition since any since any firm operating internationally needs to know how to manage the risk of the internationalization itself. In this framework, the author categorizes and defines uncertainties separating them in three different groups: general environmental uncertainties, industry uncertainties, and firm-specific uncertainties.

Perceiving this SB's citation pattern, we can find Miller's (1992) work in a 'less deep sleep', with an average of 2 citations per year during its first 8 years of life until, in 2000, its Prince, Shrader et al. (2000) causes its awakening. This awakening moment provided a rise of citations from an average of 2 citations per year to 5.4 citations per year in the following 5 years. Apart from this awakening, and even though no other Princes were found, we could clearly observe another steep rise of citations in 2007 (see Figure 8).

4.1.5. SBs related to international strategy in MNEs

Still related to risk but on a more strategic approach of the international business, Kogut published in 1985, in the *Sloan Management Review*, 'Designing Global Strategies Profiting from Operational Flexibility', second of a two-article series on designing global strategies. This article has a total of 193 citations.

In this paper, the author decided to explore how a multinational enterprise can benefit from being global, not by setting a long term international strategy, but by preparing this step through the creation of 'operational stability' itself and therefore, be prepared to achieve global advantages.

According to Kogut (1985), there are several ways of attaining this flexibility and advantages through strategies such as "new product entries, new governmental policies, or new international competitor, to which firms can respond and exploit to their advantage" (Kogut, 1985:15). In spite of these several options available, the author's main focus was solely on exchange rates fluctuations, and on the specific way they could help reduce risk. With that, the author focused on three, of many possible types of strategy, which concerned exchange rates and influenced risk (speculative, hedged and flexible). The author expects the use of these strategies to cause the MNEs to profit from volatility and therefore gain competitive advantages toward its opponents.

As a SB, Kogut was in a 'Less deep sleep', with an average of 1 citation per year until its awakening, in 2000, which caused a rise on the average of citations from 1 to 3.6 citations per year for the following 5 years. Despite the rise of citations, this awakening was not

the only one; 3 years later, we could witness a second awakening moment that caused an even larger effect with an awakening intensity of 12.4 citations per year the following 5 years. These awakenings caused a very obvious boost of citations, which can be witnessed by a consistent rise of citations presented in Figure 9.

4.1.6. SBs related to international new ventures

The international new ventures topic is composed by one SB, *'Towards a theory of International new ventures'* by Oviatt and McDougall (1994), published in the *Journal of Business Venturing*.

The authors integrate international business with entrepreneurship and strategic management through a framework that aims to describe the needed elements to the existence of international new ventures. Oviatt and McDougall (1994) were able to identify 4 elements needed including the internalization of some transactions of the firm, an healthy dependence with the governance structure to assure resources, location advantages and the uniqueness of their resources. The main idea of these authors was to describe and define new ventures and fit its reality to the extant MNE theories as they argued that the technological innovations and the increase of internationalization "have established new foundation for MNEs" (Oviatt and McDougall, 1994: 45-46).

This SB was in a deep sleep for 5 years, with an average of 1 citation per year during that period of time (1994 to 1998). The citations of that period of time represent 1% of the overall citation pattern. The awakening moment occurred over 2 consecutive years (1999 and 2000) and includes a cluster of 4 Princes. The average citations grew from 1 to 15.6 citations per year for the next 5 years after the awakening.

4.1.7. SBs related to the exporting firms

The topic of exporting firms comprises Cavusgil's (1984) *'Differences among exporting firms based on their degree of internationalization'*, published in the *Journal of Business Research* in 1984.

Cavusgil's (1984) work analyses a set of export firms categorized in distinct groups, reflecting different degrees of internationalization: 'experimental exporters', 'active exporters' and 'committed exporters'. This disaggregation allowed not only a better insight of the export practices of firms (the author gives a special focus on marketing) but also provided a support to the internationalization framework. Differences in areas like

“domestic market environment, the nature of international business involvement, policy aspects of international marketing, and foreign market research practices” (Cavusgil, 1984: 207) were considered significant, which proves that the aggregation of these firms into groups was relevant.

This paper was asleep for 10 years (1984 to 1994), in a ‘less deep sleep’ where it received an average of 1.5 citations per year. The awakening moment happened in 1994 with Cavusgil and Zou (1994). This awakening caused an increase from an average of 1.5 to 5.6 citations per year during the following 5 years. Notwithstanding the fact that it seems a low rise, taking into account that the average of citations per year of this SB is 5.3, this constituted a very significant rise.

4.1.8. SBs related to applications to the international trade theory

Mundell’s (1957) *‘International Trade and Factor Mobility’*, is published in *The American Economic Review*, and currently counts with 394 citations. This SB is, as its title suggests, an analysis of the relationship between international trade and factor mobility. The economic theory had in 1957 two ways of dealing with this relationship, the first one consisted in the combination of a perfect factor mobility with no commodity movement and the second one considered factor immobility with unrestricted trade, being the latter, according to Mundell (1957), the most commonly studied. In Mundell’s (1957) work we can witness a more ‘relaxed’ version on this latter assumption which allowed some commodity movement as well as some factor mobility, which allowed the author to study the different effects that new approach had on the economy. On an overall, its analysis brought two major conclusions: “trade impediments stimulate factor movements” (Mundell, 1957: 321) and “increased impediments to factor movements stimulate trade” (Mundell, 1957: 330).

Mundell’s SB observed two awakening moments. The first one happened in 1977, 20 years after it was first published where it was kept in a ‘less deep sleep’ with an average of 1.9 citations per year. The awakening intensity caused a rise to an average of 3.8 citations per year the following 5 years, which can seem insignificant but it is quite high since the total average of citations of this SB is 6.7 citations per year.

The second awakening moment takes place in 1983, with an awakening intensity of an average of 7.2 citations per year the following 5 years, which is higher than the total average.

Still in the international trade topic, we have Bergstrand's '*The Generalized Gravity Equation, Monopolistic Competition, and the Factor-Proportions Theory in International Trade*' which was published in *Review of Economics and Statistics*, in 1989.

The author based his work on three already existing theories, the Heckscher-Ohlin model of intra-industry trade, which defended that a country decides to export based on its competitive advantages, the Helpman-Krugman-Markusen models of intra industry, which consists in the trade of similar goods being traded between countries, and Bergstrand's (1985) previous work. The author provided "an explicit theoretical foundation for exporter and importer incomes and capita incomes" (Bergstrand, 1989: 143) that are consistent with the works he analyzed, which reinforced the theories above mentioned.

As a SB, Bergstrand's (1989) work was asleep for 6 years in a 'less deep sleep' (with an average of 2.6 citations per year). The awakening happened in 1995 and, in the following 5 years, its citations grew to an average of 5.6 citations per year. The second awakening happened in 2003 being associated to an awakening intensity of 22.8 citations per year, much higher than the total average of citations of the SB (15.1 citations per year).

4.1.9. SBs related to non-traded goods

Backus and Smith published, in 1993, '*Consumption and real exchange rates in dynamic economies with non-traded goods*' in the *Journal of International Economics*, with a current total of 118 citations

Movements in the purchasing power parity are a popular topic in international macroeconomics (Backus and Smith, 1993), especially to understand international macroeconomic data. This SB established a relation between real exchange rates and relative consumption, based on non-traded goods dynamics in a competitive world economy. The authors specifically considered, non-traded goods as a theoretical device in order to study the "general equilibrium interconnections between real exchange rates and cross-country consumption rates" (Backus and Smith, 1993: 300). Which was led by simultaneously deriving implications of non-traded goods and trace out the relationships between them. Overall, the authors could not find observable changes in endowment of non-traded goods but, despite that's conclusion, Backus and Smith where able to contribute to the field by finding "several observable proprieties of prices and quantities" (Backus and Smith, 1993: 313).

This SB was in a ‘less deep sleep’, with an average of citations of 1.6 per year, for 9 years (1993-2002) before its awakening. This awakening caused a rise in the SB’s citations from an average of 1.6 per year up to 3.6 per year in the following 5 years. This awakening was not the last boost in the citations of Backus and Smith (1993). In 2006 the SB had a second awakening with an awakening intensity of an average of 8.8 citations per year the following 5 years.

4.1.10. SBs related to trade flow movements

The SB Gould (1994), ‘*Immigrant links to the home country: empirical implications for U.S. Bilateral Trade Flows*’ was published in *Review of Economics and Statistics* and focused on the role that immigrants’ ties to their country has in fostering bilateral trade linkage in the U.S. The author argued that, topics as knowledge spillovers, home-country markets, preferences and business contracts could contribute to countries’ import and exports (Gould, 1994). Up to that date, most economic models of labor migration did not considered immigrants in the bilateral trade flows. The general assumption was that their role for the stock of labor was exactly the same as any current resident. He concluded that the immigrants’ ties to their home country had indeed an impact on the imports and exports, with a bigger impact in exports, having the potential to decrease trading transaction costs. Thus Gould’s (1994) work gave the immigrants a role in the bilateral trade flows.

As a SB, Gould’s work (1994) was in a ‘Less deep sleep’, with an average of 1.5 citations per year during 8 years, when in 2002, a ‘cluster of PRs’ caused an awakening that caused a rise of citations to an average 8.8 citations per year the following 5 years.

4.2. Identification of the Prince(s)

4.2.1. SBs related to the firms’ internationalization process

Starting with Johanson and Wiedersheim-Paul’s SB, ‘*The Internationalization of the firm – Four Swedish cases*’, we identified two awakening moments.

The first one happened in 1992 and 1993, when Benito and Gripsrud’s (1992) paper (‘*The expansion of FDI: discrete rational location choices or a cultural learning process*’) and Andersen’s (1993) paper (‘*On the internationalization process of firms: a critical analysis*’) cited the SB. After a deep sleep, in 1992-1993, the SB starts drawing attention, with the average citations going from 0.4/year to 6.4/year after the following 5 years.

Both Princes (PRs) were published in the *Journal of International Business Studies* and presented a lot of citations and co-citations: Benito and Gripsrud (1992) had 130 citations and 54 co-citations whereas Andersen (1993) had 273 citations and 96 co-citations (cf. Figure 4).

Benito and Gripsrud's (1992) paper tests two hypothesis associated with the internationalization process framework, which involves cultural proximity by itself (firms start internationalizing culturally closer), and intermediated with international experience (firms internationalize culturally further according to their experience). Andersen (1993) explores the weaknesses of the different theories related to the internationalization process of firms. This study gathers the theories of the Uppsala International model, which is developed by the SB, and the Innovation-Related Internationalization Model. One might claim that Andersen (1993) is the 'meaningful prince' since its purpose was to "illuminate the inherent weaknesses of the models, in order to stimulate further development and refinement" (Andersen, 1993: 227).

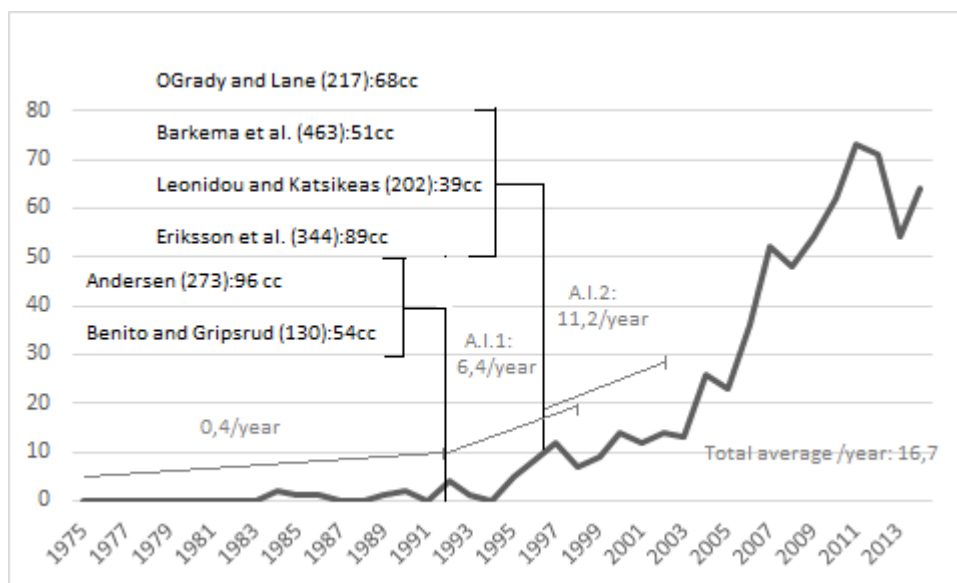


Figure 4: Evolution of the citations of Johanson and Wiedersheim Paul's (1975) paper

Legend: A.I.1 - Awakening intensity of the first awakening moment for the 5 following years; A.I.2 - Awakening intensity of the second awakening moment for the 5 following years.

The second awakening moment of the SB is made by a 'princes cluster' which encompasses four papers: 'The psychic distance paradox' by OGrady and Lane (1996), 'Foreign entry, cultural barriers and Learning' by Barkema et al. (1996), 'The export development process: an Integrative review of empirical models', by Leonidou and

Katsikeas (1996), and 'Experimental knowledge and cost in the Internationalization process' by Eriksson et al. (1997).

All princes were published in well renowned journals from management and international business areas: Barkema et al. (1996) was published in the *Strategic Management Journal*, whereas the other papers were published in *Journal of International Business Studies*. As we can observe in Figure 3, all these princes have a high number of citations and co-citations, producing a significant impact on SB's scientific influence, which went from an average of 6.4 citations per year up to 11.2/year the following 5 years.

As we reviewed previously in section 4.1.1., Johanson and Wiedersheim-Paul's (1975) work defend that the internationalization process is gradual and related the cultural distance and internationalization knowledge with that gradual involvement. Thus, we have in this awakening wave, Princes that chose to review the theoretical literature of the internationalization processes, like Leonidou and Katsikeas (1996) whose work consists in a review of the main empirical models that analyze the export behavior of firms. These authors identify main characteristics, assess the different methodologies and analyze the potential issues of some models that exist in the literature including Johanson and Wiedersheim-Paul's (1975) work. Others try to deepen the understanding of the relation between internationalization and the cultural distance, namely that of OGrady and Lane's (1996), whose work presented the 'Psychic distance paradox' as a critic to Johanson and Wiedersheim-Paul's (1975) argument that the psychic distance is an important factor for the international operations; and Barkema et al. (1996) who linked the mode and ownership structure with the cultural distance.

At last, we have Eriksson et al.'s (1997) work, which focuses on the knowledge about the internationalization process. They were able to prove that the internationalization knowledge had an impact on business and institutional knowledge and that these could influence the costs of internationalization, even though the internationalization knowledge did not have a direct effect on the latter.

The second SB of this topic, the firms' internationalization process, has 2 awakening moments: the first one started in 1993 until 1997 and is represented by a 'cluster' of four PRs, this awakening caused a marked rise in the citations of the SB, from an average of 2.6 citations /year up to 11 citations /year (cf. Figure 4). Even though the first awakening moment caused some changes in the citations of the SB, the third awakening moment is

more impressive, since it caused the average of citations of Johanson and Vahlne's (1977) paper to go from 11/year to 125/year (cf. Figure 4).

The first awakening moment happened in 1993 and 1994 with two papers, both published in the *Journal of International Business Studies*: Andersen (1993) and 'On the internationalization process of firms: a critical analysis', which is a common PR with Johanson and Wiedersheim-Paul (1975), described previously; and Oviatt and McDougall (1994), with 'Toward a theory of international new ventures', which links the entrepreneurship/new ventures literature with the literature concerned with multinational enterprises and processes. This paper represents therefore a bridge between international business, entrepreneurship and strategic management literatures.

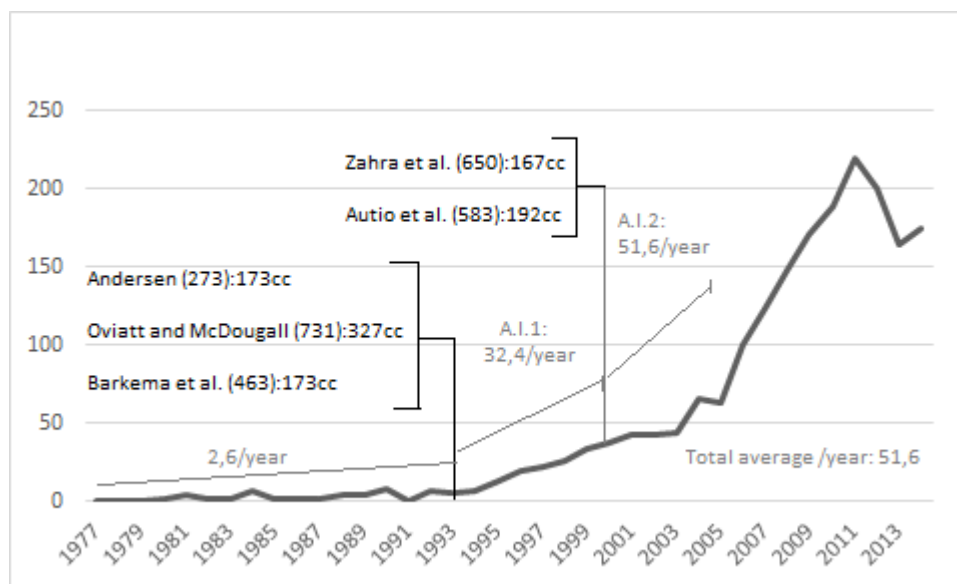


Figure 5: Evolution of the citations of Johanson and Vahlne's (1977) paper

Legend: A.I.1 - Awakening intensity of the first awakening moment for the 5 following years; A.I.2 - Awakening intensity of the second awakening moment for the 5 following years.

The second awakening moment, occurred in 2000 with the papers 'Effects of age of entry, knowledge intensity, and Imitability on International growth' by Autio et al. (2000), and 'International expansion by new venture firms: international diversity, mode of market entry, technological learning and performance', by Zahra et al.'s (2000), both published in *The academy of Management Journal*.

Autio et al. (2000) investigate the international growth of entrepreneurial firms. Since these International New Ventures seemed to challenge the existing theories, the authors developed this concept. And Zahra et al. (2000), similarly to Autio et al. (2000), noticing a rise in the importance of international new venture's firms, explored the effect of this

expansion “measured by international diversity and mode entry, on a firm’s technological learning and the effect of this learning on the firm’s financial performance” (Zahra et al., 2000: 925). These Princes established a link between Johanson and Vahlne’s (1977) contribution and the then emergent field of entrepreneurship, which produced an impressive increase in citations for the SB (Johanson and Vahlne, 1977).

4.2.2. SBs related to the Internationalization Theory

The review on the internationalization topic published by Welch and Luostarinen (1988), being a general overview of the area ended up only being awakened 11 years after its publishing. The SB was awoken by two PRs, the first one was Jones (1999) with ‘*the internationalization of small high-technology firms*’, which was published in the *Journal of International Marketing* (145 citations and 20 co-citations with the SB). The second PR was ‘*Cultural distance revised: towards a more rigorous conceptualization and measurement of cultural differences*’ published in 2001 by Shankar in the *Journal of International Business Studies* with 431 citations and 6 co-citations with the SB.

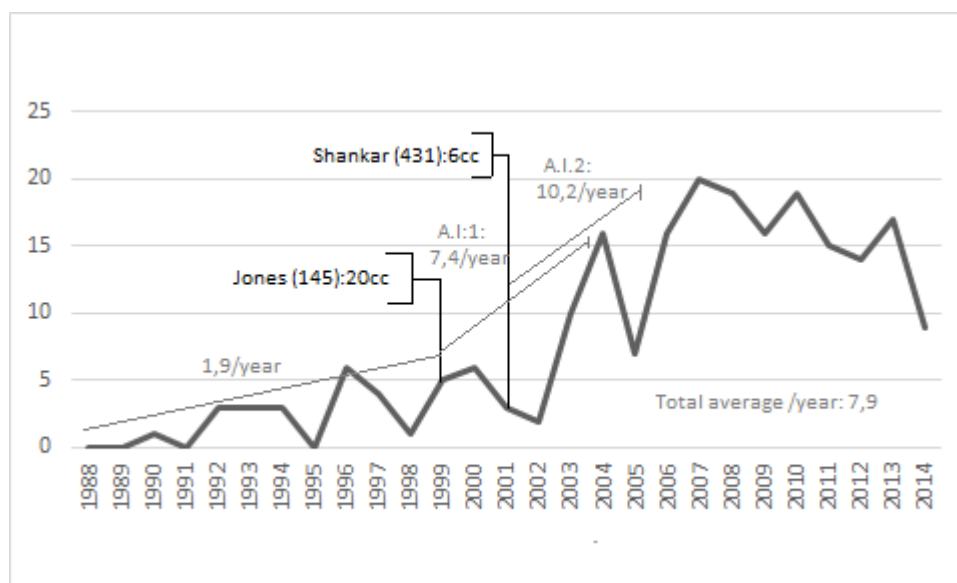


Figure 6: Evolution of the citations of Welch and Luostarinen's (1988) paper

Legend: A.I.1 - Awakening intensity of the first awakening moment for the 5 following years; A.I.2 - Awakening intensity of the second awakening moment for the 5 following years.

Jones (1999), being the first PR consists on a description and analysis of the international expansion process of small technology-based firms in a holistic perspective. Given that the analysis of internationalization of small firms was not vast and most of the former studies focused on internationalization processes regardless the size and its relation with

technology intensity, Jones' contribution relied on the emphasis on small technology based enterprises and its internationalization processes.

Two years after Jones's work, Shenkar (2001), the second Prince (PR) was published focusing on the issue of cultural distance. Similarly to Welch and Luostarinen's (1988) work, Shankar (2001) also reviews the existing literature, but analysing the way cultural distance is included in the internationalization theory. The main link of this PR with our SB is the fact that most works reviewed by Welch and Luostarinen's (1988) are highly related to cultural distance.

4.2.3. SBs related to the MNEs performance

The MNEs performance topic's SB is Geringer et al.'s (1989) *'Diversification strategy and internationalization: Implications for MNE performance'*, published in the *Strategic Management Journal*.

This SB has two awakening moments, the first one starts in 1996, when Tallman and Li (1996) published the *'Effects of international diversity and product diversity on the performance of multinational firms'* in *The Academy of Management Journal* (139 citations and 110 co-citations with the SB), and Hill et al. (1997) published *'International diversification: effects on innovation firm performance in product diversified firms'*, also in *The Academy of Management Journal* and presently (June 2015) with 668 citations and 125 co-citations with the SB – see Figure 7.

The second awakening moment happened 6 years later with, in 2003, four Princes: Contractor et al.'s (2003) *'A three-stage theory of international expansion: the link between multinationality and performance in the service sector'* (219 citations and 48 co-citations with the SB); Goerzen and Beamish (2003) with *'Geographic scope and multinational enterprise performance'* (124 citations and 25 co-citations with the SB); Capar and Kotabe's (2003) *'The relationship between international diversification and performance in service firms'* (121 citations and 34 co-citations with the SB); and Lu and Beamish (2004), *'International diversification and Firm Performance: the S-curve hypothesis'* (202 citations and 60 co-citations).

This cluster of PRs was published in *The Academy of Management Journal* and in the *Journal of International Business Studies*.

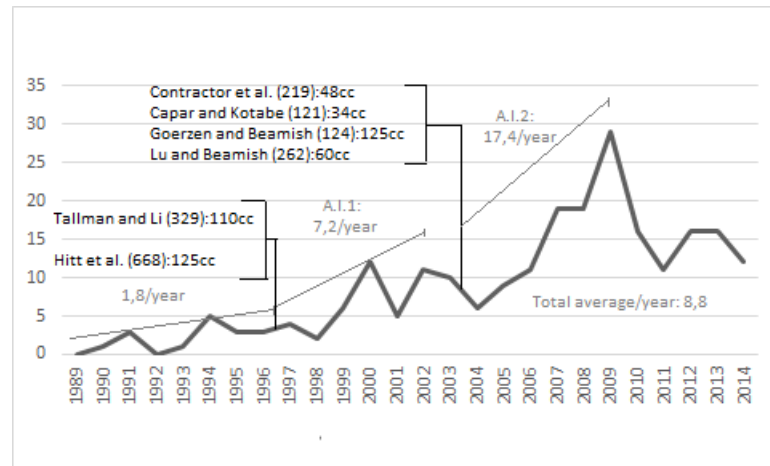


Figure 7: Evolution of the citations of Geringer et al.'s (1989) paper

Legend: A.I.1 - Awakening intensity of the first awakening moment for the 5 following years; A.I.2 - Awakening intensity of the second awakening moment for the 5 following years.

Analyzing more specifically each one of these moments, we start with the first awakening moment, which started with two papers from *The Academy of Management Journal*, both representing a sort of enforcement and review of the SB's topic. Both Tallman and Li (1996) and Hill et al. (1997) consider the links between international diversity and various subjects. In Tallman and Li's (1996) case, a relationship between international diversity, product discovery and firm performance is conceived. In Hill et al.'s paper we can find a link between international diversity, innovation and firm performance. Even though the authors show that diversification literature exists, Tallman and Li (1996: 181) draw attention to the fact that “[a] small number of existing studies examine the combined effects of product and geographical diversification”. Since Geringer et al. (1989) was one of those few studies, the relationship of these PRs with their SB is straightforward. In addition, the topic of international diversification, according to Hitt et al. (1997), has brought inconclusive and mixed results justifying the need to develop the topic even further.

The second awakening moment happens in 2003, associated to a ‘cluster of PRs’ which encompasses mainly new theories meant to develop the topic or mend the flaws found. Contractor et al. (2003), Goerzen and Beamish (2003) and Lu and Beamish (2004) all propose different approaches in the MNEs performance literature.

Due to the theoretical inconsistency about the relationship between multinationality and performance of the firms, Contractor et al. (2003) proposes a ‘new unified three-stage theory of international expansion’, whereas Lu and Beamish (2004) proposes a theoretical framework about the relationship between these two elements, considering both the benefits and the costs of geographic expansion over time. These authors decided to

propose these theories because the empirical studies about multinationality and performance were split between the U-shaped and the inverted-U-shaped relationship theory. Both papers concluded that the relationship between multinationality and performance was S-shaped, thus giving the literature that considers this relationship to be U-shaped and inverted-U-shaped a ‘reconciliation’ opportunity.

In turn, based on the theory of internalization, Goerzen and Beamish (2003), suggested a change on the concept of geographic scope, which consists on splitting it in two different elements, more precisely international asset dispersion and country environment. The authors found this relevant because research on multinationality had brought a lot of mixed conclusions and their study could, in their perspective, contribute to the literature by ‘disentangling’ those different opinions. The authors’ conclusion was that the relationship between economic performance and international asset dispersion was positive, while the relationship between economic performance and environmental diversity as a negative association, leading to the conclusion that the ‘split’ suggested by the authors make sense.

At last, in 2003, we find Capar and Kotabe (2003), who instead of trying to optimize the MNEs Performance literature, founds a gap in it and analyzed the effect of international diversification on performance in services firms. The topic, at the time, was non-existent as extant studies were based on manufacturing firms. The study concluded that in the case of services firms, the international diversification had a U-shaped curvilinear relationship with firms’ performance.

4.2.4. SBs related to the risk management in MNEs

The risk management in MNEs topic comprises Miller’s (1992) work *‘A Framework for integrates risk management in International Business’*, whose awakening happened in 2000 with Shrader et al.’s (2000) *‘How new Ventures exploit trade-offs among international risk factors: lessons for the accelerated internationalization of the 21st century’* published in the *Academy of Management Journal*.

This awakening is not only sustained by the fact that the Prince (PR) has 154 citations and 12 co-citations with the SB, but also because we can witness in Figure 8, that the average of citations of the SB sharply increases after 2000 from 2 up to 12 citations / year.

Shrader et al.’s work analyze how new ventures should manage the risk of accelerated internationalization. Going through an entrepreneurial approach, the authors focused on

small firms and new ventures which was sustained by the fact that “an era of accelerated firm internationalization has begun and will make its effects felt even more” (Shrader et al., 2000: 1227), causing more risk to come with it. The main purpose of this paper was to understand how new ventures could successfully manage, not only the risks coming from the small size and the newness of the firm, but also from the strategic risks of entering in a new market. This PR has a clear link with its SB, which can directly be noticed when the authors defend that “ the work reported here responds directly to Miller’s (1992) call for research that explicitly recognizes trade-offs among various international uncertainties” (Shrader et al, 2000: 1228).

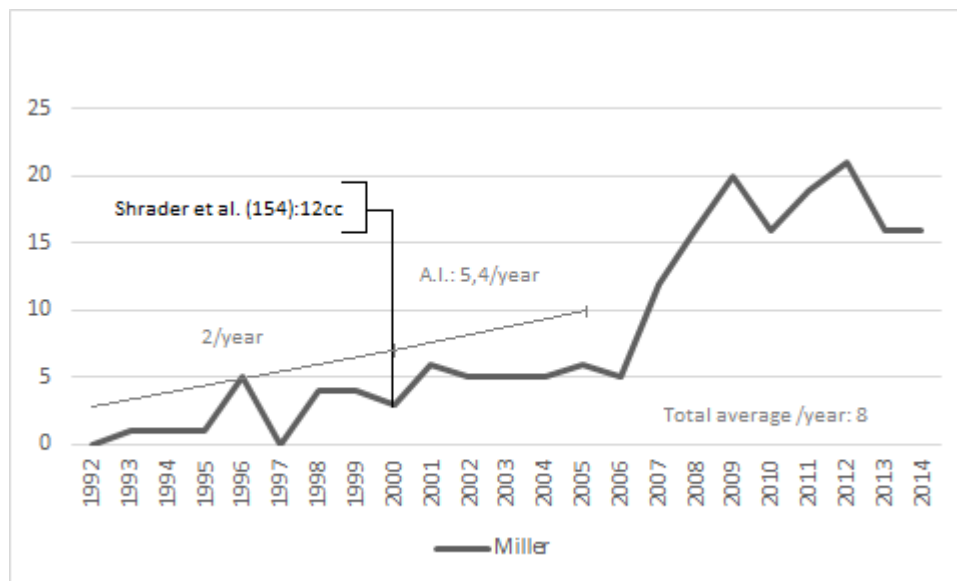


Figure 8: Evolution of the citations of Miller’s (1992) paper

Legend: A.I.1 - Awakening intensity of the awakening moment for the 5 following years.

4.2.5. SBs related to international strategy in MNEs

Kogut’s (1985) work was firstly awakened in 2000, where we found Reuer and Leiblein’s (2000) work as one of its first PRs. These authors published ‘*Downside Risk implications of multinationality and international joint ventures*’ in the *Academy of Management Journal*, which has 113 citations and 19 co-citations.

Reuer and Leiblein (2000), going through the corporate flexibility’s literature, reached the conclusion that the subject was starting to get considered as a ‘key concern’ for management research and, therefore, decided to explore it through the idea shared along the literature defending that firms can flexibly manage uncertainties (Reuer and Leiblein, 2000:203). Even though the literature existent is quite empirical and opinions on the effects caused by corporate risk of multinationality differ; Contrarily to their SB, the

authors decided to explore international investments and corporate flexibility, not though the advantages that the firms can get from them, but using a ‘downside conceptualization of risk’ (Reuer and Leiblein, 2000:203).

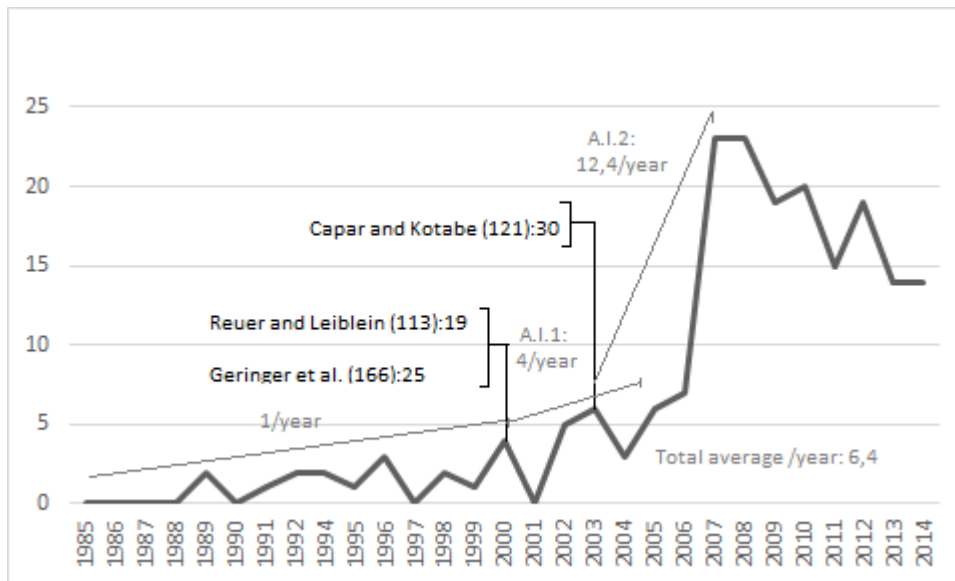


Figure 9: Evolution of the citations of Kogut's (1985) paper

Legend: A.I.1 - Awakening intensity of the first awakening moment for the 5 following years; A.I.2 - Awakening intensity of the second awakening moment for the 5 following years.

The next two PRs are presented together since, despite being from different years since Geringer et al. (2000) is published earlier, they encompass very similar subjects. Geringer et al.'s (2000) *'Product and International diversification among Japanese Multinational Firms'*, published in *the Strategic Management Journal* in 2000, has now 166 citations and 25 co-citations with the SB while Capar and Kotabe (2003), three years later, published *'The relationship between international diversification and performance in service firms'*. This work was published in the *Journal of International Business Studies* with 121 citations and 30 co-citations.

Geringer et al.'s (2000) work consists on an analysis of the effect different levels of product diversity and international geographical diversity have on multinational manufacturing Japanese firms while Capar and Kotabe (2003) focus on the relationship between international diversification strategy and the performance of firms, specifically in the service firms. Even though their conclusions each bring new input to the literature since Geringer et al.'s main conclusion is that “across time periods, performance varies considerably, but strategies are less variable” (Geringer et al., 2000: 51) and Capar and Kotabe (2003), defend a U-shaped curvilinear relationship between international

diversification and performance in service based firms; they both bring Kogut (1985) to the diversification theory's field, linking this theory to Kogut's (1985) assumption that firms can exploit advantages through internationalization.

4.2.6. SBs related to the international new ventures

In Oviatt and McDougall's (1994) work, we can witness the first awakening time in 1999-2000. Dividing this 'cluster of PRs' in two groups, the first one, composed by Jones (1999) and Preece et al. (1999), focused their work on the internationalization of technology-based firms, whereas the second group, encompassing Autio et al. (2000) and Zahra et al. (2000) - the princes of another SB, Johanson and Vahlne (1977)-, which constitute a bridge between the internationalization process of firms and entrepreneurship.

In the first group, in 1999, we have two Princes (PRs) that focus on the internationalization of technology-based firms. Jones (1999), with '*The Internationalization of small-technology firms*', published in the *Journal of International Marketing* with 145 citations and 51 co-citations with the SB, and Preece et al. (1999), with '*Explaining the international intensity and global diversity of early-stage technology-based firms*', published in the *Journal of Business Venturing* with 114 citations and 42 co-citations with the SB.

Jones' (1999) approach represents more of an holistic view of the internationalization process and scrutinizes the internationalization of small high-technology firms, as well as the cross-border links and patterns they possess. Linking small high-technology firms to International Business theories, the author contributed to the topic by concluding that firm's operations will "extend to cross border linkage and arrangements" (Jones, 1999: 38) even though they do not have a precise strategy to internationalize.

Preece et al. (1999) on another hand, involves a more empirical led study, where the aim is to link the existing theory of internationalization of firms – the central issue of our SB -, with the early stage technology-based firm's behaviors by analyzing factors associated with their internationalization's efforts. The authors concluded that resources that need to sell internationally have an important impact in the foreign market diversity and intensity, and that these two factors are very important decision makers when it comes to internationalization process.

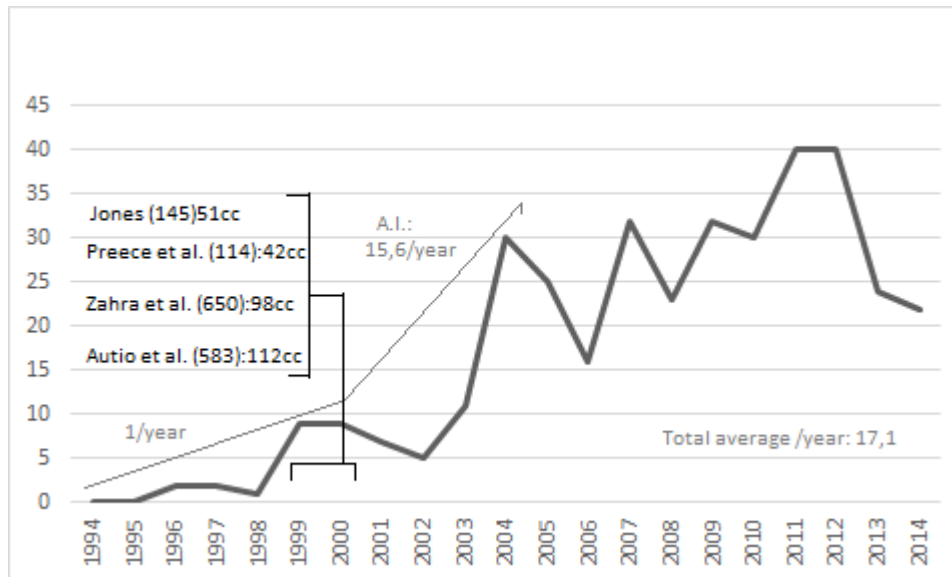


Figure 10: Evolution of the citations of Oviatt and McDougall's (1994) paper

Legend: A.I. - Awakening intensity of the awakening moment for the 5 following years.

Our second group is composed by a cluster of two PRs, both published in *Academy of Management Journal*: Autio et al. (2000), with “*Effects of age at entry. Knowledge intensity, and imitability on International growth*”, and 583 citations and 112 co-citation with the SB and Zahra et al. (2000) with “*International expansion by new venture firms: International diversity, mode of market entry, technological learning, and performance*” with 650 citations and 98 co-citation with the SB. These PRs constitute a bridge between the internationalization process of firms and entrepreneurship being also the princes of another SB, Johanson and Vahlne (1977) (see Section 4.1.1/ 4.2.1).

Autio et al. (2000: 909) considered that “new ventures internationalization has challenged existing theories of internationalization” focused on the way knowledge-related factors influences the internationalization of high technology firms. In turn, Zahra et al.’s (2000) analysis focused on the effects international diversity and entry modes, as well as knowledge integration and technological learning have on new venture firms. These Princes, clustered with Jones’ (1999) and Preece et al.’s (1999) contributions, represent the “emerging phenomenon of ‘born global’ firms” (Autio et al., 2000: 909) which caused the awakening of Oviatt and McDougall’s (1994) study.

4.2.7. SBs related to the exporting firms

Cavusgil (1984) is quite an interesting SB since its PR is co-authored by Cavusgil himself with: “*Marketing strategy-performance relationship: an investigation of the empirical*

link in export market ventures”, by Cavusgil and Zou, which was published 10 years after our SB (in 1994) in the *Journal of Marketing*.

The PR has 457 citations and 35 co-citations with the SB (cf. Figure 11) and consists in an investigation about the relationship between marketing strategy and performance in an export ventures context. This investigation can be considered pertinent since the topics concerned have been addressed quite often, but both have been handled separately, which brings the authors to say that “their results are fragmented and the relationship between export marketing strategy and export performance remains an unresolved issue” (Cavusgil and Zou, 1994: 1).

It was concluded that “export marketing strategy, firm’s international competence, and managerial commitment” (Cavusgil and Zou, 1994: 1) are the most important determinants of export performance and could serve as a foundation for further research in the field of International Marketing or Exports. Despite the fact that we could not find direct reasons for the steep rise of citations of this SB, the fact that Cavusgil (1994) opened up the field for others to research could be a reason why researchers started citing the SB.

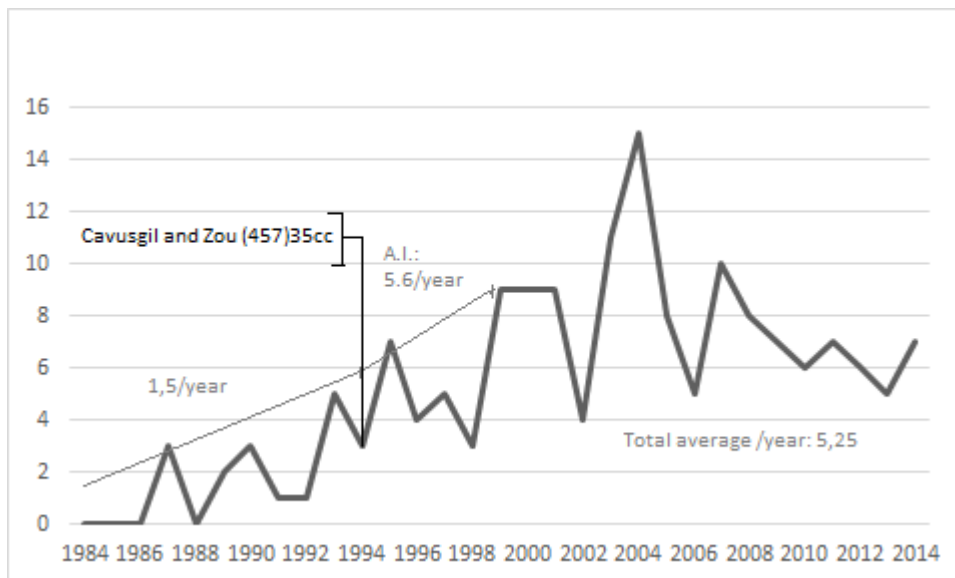


Figure 11: Evolution of the citations of Cavusgil's (1984) paper

Legend: A.I. - Awakening intensity of the awakening moment for the 5 following years.

4.2.8. SBs related to applications to the international trade theory

Bergstrand's (1989) '*The Generalized Gravity Equation, Monopolistic Competition, and the Factor-Proportions Theory in International trade*', as a SB witnessed two awakening moments.

The first, is composed by two papers, Frankel et al.'s (1995) '*Trading block and the Americas: the natural, the unnatural, and the super-natural*', published in *the Journal of Development Economics*, with 158 citations and 37 co-citations with the SB, and Markus and Penubarti's (1995) '*How trade-related are intellectual property rights?*', published in *the Journal of International Economics*, with 126 citations and 12 co-citations with the SB.

Analyzing the PRs, we can conclude that both deviate slightly from the SB's subject, which is the generalized gravity equation and its applicability in International trade. Frankel et al.'s work (1995), do account the gravity equation on its methodology in order to analyze bilateral trade patterns through the world, but its main focus is not the methodology. The authors focus on trading blocks in America and try to discover the "extent to which regionalization is actually taking place ..."(Frankel et al., 1995: 66). The fact that free trade areas were becoming quite developed at the time created a concern on the authors, which lead to a deep analysis on trading blocks and their features.

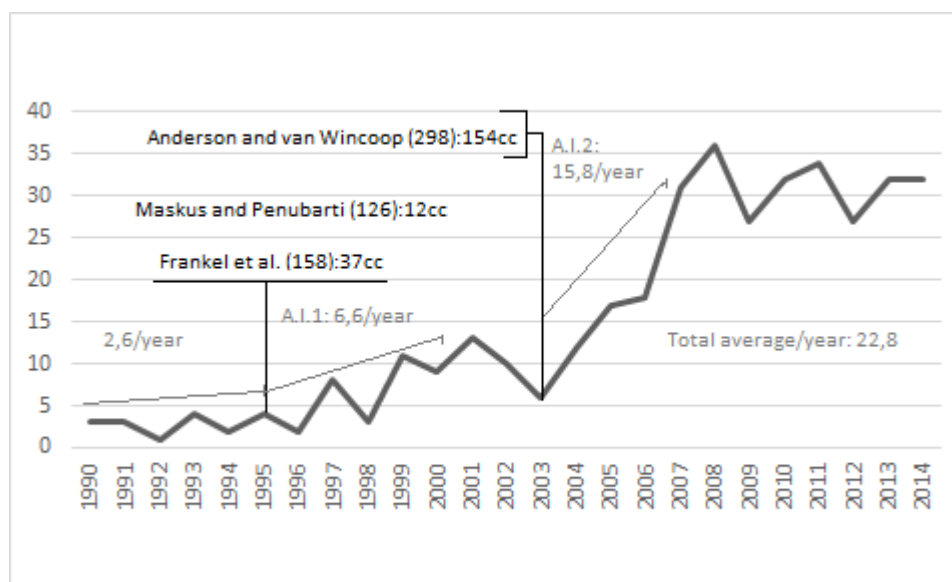


Figure 12: Evolution of the citations of Bergstrand's (1989) paper

Legend: A.I.1 - Awakening intensity of the first awakening moment for the 5 following years; A.I.2 - Awakening intensity of the second awakening moment for the 5 following years.

Maskus and Penubarti's (1995) work deviates highly from its SB, since they base their work on an econometric approach to study trade flows instead of the gravity equation.

Despite that the focus on international trade remains intact since this PR consists on a link between International trade and intellectual property rights. The authors focus on this link with the aim to “provide the first systematic evidence on whether differential patent laws influence international trade” (Maskus and Penibarti, 1995:228). This subject is considered relevant by the authors since they address to it as a gap in the literature thus contributing for the SB’s notoriety with a bridge to the intellectual property rights.

The second awakening moment takes place in 2003, when Anderson and Wincoop publish ‘*Gravity with gravitas: a solution to the border puzzle*’ in the *NBER* working paper series, which has 928 citations and 154 co-citations with the SB.

James E. Anderson was a clear PR since, between 2002 and 2004, during our analysis, we were able to find 3 potential PRs (all with more than 100 citations) from the author for our SB. Even though Anderson and Wincoop (2003) was clearly the strongest influence in the development of our SB, Anderson and Marcoullier (2002), which consisted in the study of the relation between trade and insecurity, and Anderson and Wincoop (2004) who focus on the measurement of trade costs, can be considered as important for the rise in citations of the SB, since they help developing the subject.

Anderson and Wincoop’s (2003) work consist in a brief review of the gravity model. Encompassing the main topic present in Bergstrand’s (1989) work , the authors ends up rewriting this model so that they can present a “simple symmetric form, relating bilateral trade to size , bilateral barriers and multilateral resistance variables” (Anderson and Wincoop, 2003: 3).

Going through another SB regarding applications to the international trade theory, Mundell’s (1957) ‘*Factor movements and Commodity trade as complements*’ is one of the SBs with the longest sleeping period, since its first awakening moment takes place in 1977, when Brecher and Alejandro (1977) published ‘ *Tariffs, Foreign Capital and Immiserating Growth* ’ in the *Journal of International Economics*, with 175 citations and 18 co-citations.

This PR, just like its SB, is a theoretical paper. Brecher and Alejandro (1977) focus on the effect that capital inflows and tariffs have in the host country’s welfare, focusing mainly on a macroeconomic analysis. Different problems, like tariff distortions or foreign profits, are specified to explain the theory that tariff-induced inflows of capital cause a downturn in a countries welfare (Brecher and Alejandro, 1977: 317).to reach these

conclusions, the authors resort to Mundell's theory throughout their analysis in order to develop it, which explains its link to the SB.

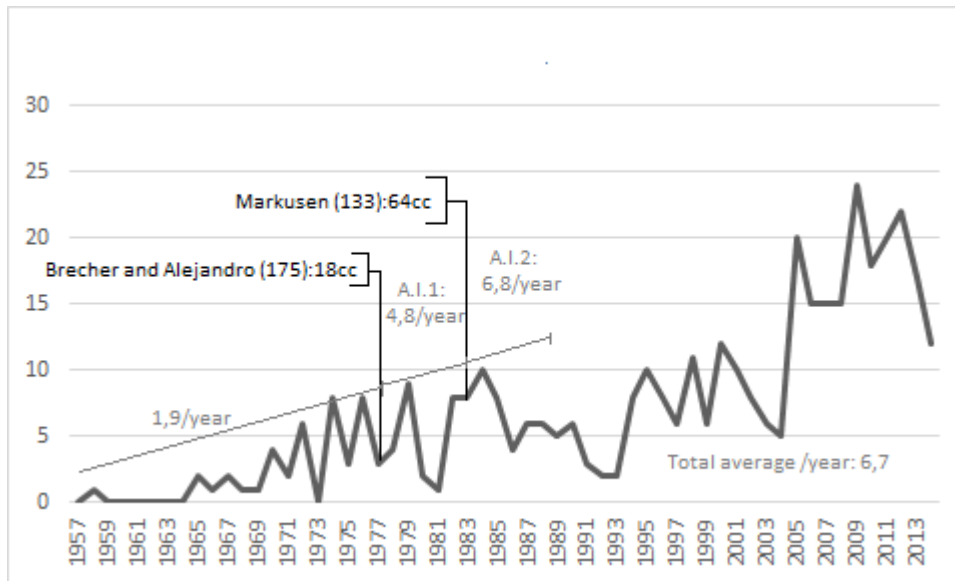


Figure 13: Evolution of the citations of Mundell's (1957) paper

Legend: A.I.1 - Awakening intensity of the first awakening moment for the 5 following years; A.I.2 - Awakening intensity of the second awakening moment for the 5 following years.

The second awakening moment of Mundell's (1957) work occurs in 1983, with Markusen's (1983) '*Factor Movements and Commodity Trade as Complements*', published in the *Journal of International Economics*, with a total of 133 citations and 64 co-citations with the SB. This paper considers the fact that trade in commodity and factor movements have been considered mostly substitutes throughout the literature. In order to prove these theories wrong, the author inspects a series of simple models where factor movements and trade in commodities are complements. This leads to the conclusion that, instead of causing a decrease in commodity trade, like many theories defended, factor movements between countries would stimulate the volume of commodity trade. Thus, Markusen's (1983) work represents an overview of models that prove that factor movements and commodity trade are complements, which contradicts directly Mundell's (1957) work since it is even referred by the author as the first "formal exposition" (Markusen, 1983:341) of the idea that these factors are substitutes.

4.2.9. SBs related to non-traded goods

The development of Backus and Smith's (1993) paper consisted in two awakening moments, the first one happened in 2002 when Chari et al's (2002) '*Can sticky price models generate volatile and persistent real exchange rates?*', was published in *The Review of Economic Studies*, with 263 citations and 36 co-citations with the SB, while

the second awakening moment happened in 2006 with Brandt et al.'s (1006) 'International risk sharing is better than you think, or exchange rates are too smooth', published in the *Journal of Monetary Economics* with 38 citations and 12 co-citations with the PR.

The first awakening moment takes place in 2002. Chari et al.'s (2002) work consists in an attempt to create a 'Sticky Price Model' that can generate persistent and volatile real exchange rates. Even though the relationship between this PR and our SB is not direct, being almost solely related through exchange rates, Chari et al. (2002) scrutinize, just like our SB, the relationship between real exchange rate and relative consumption. The authors additionally refer Backus and Smith's (1993) work as "an early paper" (Chari et al., 2002: 535), which leads us to think that these are indeed pioneers in their subject (consumption and real exchange rates in dynamic economies). In conclusion, this awakening links Backus and Smith's (1993) work to the literature of sticky prices (Chari et al., 2002).

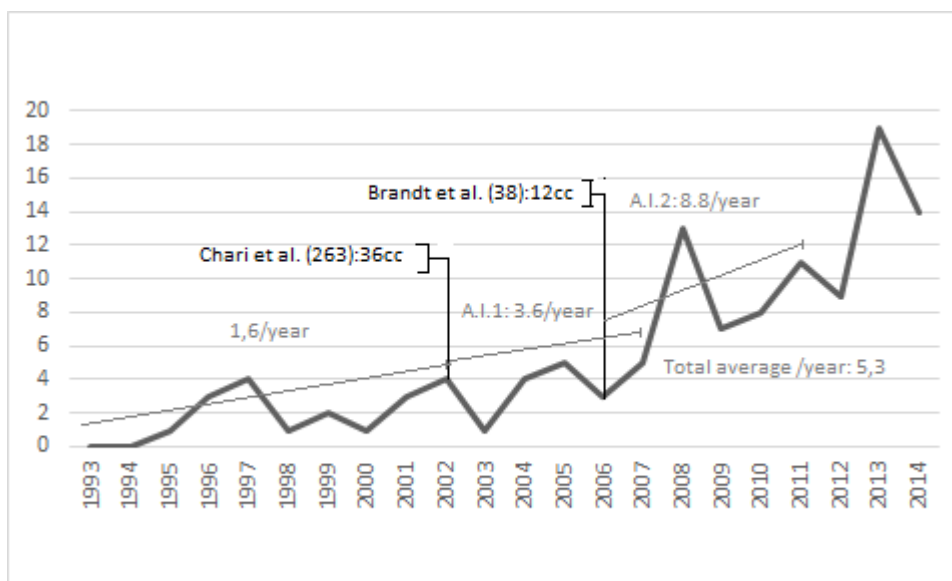


Figure 14: Evolution of the citations of Backus and Smith's (1993) paper

Legend: A.I.1 - Awakening intensity of the first awakening moment for the 5 following years; A.I.2 - Awakening intensity of the second awakening moment for the 5 following years.

The second awakening moment happens in 2006, with Brandt et al. (2006) whose work consists in "the calculation of international risk sharing based on asset market data" (Brandt et al., 2006: 694). This calculation is considered with the aim to study how international risk is shared and the effect this has on the variation of exchange rates. The relation of the SB with its PR is apparently very low, since Brandt et al. (2006) only mentions Backus and Smith's (1993) work to clarify some of its choices for his

mathematical formula. Despite that, the relationship between them is sustained when David Backus, one of the authors of the SB, is mentioned and acknowledged as an important part of the paper since he made some suggestions and comments during the preparation of the paper. This might have led to some interest in this author's works, thus explaining its rise of citations.

4.2.10. SBs related to trade flow movements

The link between immigrants and trade found in Gould's (1994) work only received a significant awakening 8 years after its publishing. In 2002, this SB was awakened by a 'cluster of PRs' composed by Girma and Zu's (2002) '*The link between Immigration and Trade. Evidence from the United Kingdom*' published in *The Review of world Economics* with 265 citations and 61 co-citations with the SB; Wagner et al.'s (2002) '*Immigration and the Trade of Provinces*', published in *the Scottish Journal of Political economy*, with 74 citations and 43 co-citations with the SB and Rauch and Trindade's (2002) '*Ethnic Chinese networks in International Trade*', published in *The Review of Economics and Statistics* with 55 citations and 45 co-citations with the SB.

The first impact we get from the presentation of the PRs is that they take account of different nationalities in their studies since, in this assortment of PRs, we have studies analyzing data from the U.K. (Girma and Yu, 2002), Canada (Wagner et al., 2002) and China (Rauch and Trindade, 2002).

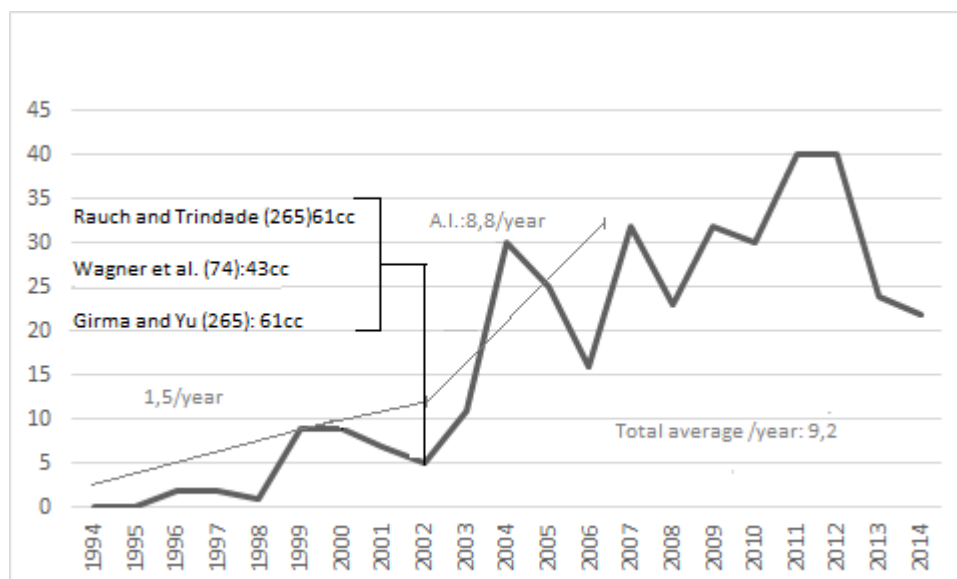


Figure 15: Evolution of the citations of Gould's (1994) paper

Legend: A.I. - Awakening intensity of the awakening moment for the 5 following years.

Both Wagner et al. (2002) and Girma and Yu's (2002) studies stay true to their SB and investigate the effect immigrants have in international trade. Wagner et al. (2002) uses data from Canada and a cross-province variation in their study and additionally contributes with a review of former studies about the topic, whereas Girma and Yu (2002) uses data from the UK and focuses on two different immigrant types (the ones from commonwealth countries which are countries from UK colonies and non-commonwealth countries) and try to differentiate them. Both conclude that immigrants possess information that could be useful to international trade and, while Wagner et al. (2002) contribute with the conclusion that one of the problems of this topic is that "the estimated magnitude of immigration effect...differs greatly across studies" (Wagner et al., 2002: 507) and incites further investigation on the topic, Girma and Yu (2002) emphasizes the importance of the knowledge spillovers immigrants' might provide by defending that the difference between commonwealth and non-commonwealth countries' immigrant is the new information the non-commonwealth countries can convey to the country itself.

Rauch and Trindade's (2002) work focuses on yet another country, investigating the Chinese ethnicity and the fact that its networks, proxied by its products, increase bilateral trade. Contrarily to the previously presented PRs, this study focuses less on the immigrants and more on the importance of differentiated products - specifically to product adapted to the Chinese ethnicity - instead of homogeneous products. At the end of the study, the results lead to a confirmation of the strength of the ethnic Chinese networks and their influence on bilateral trade. Despite having a divergent topic towards the other PRs, Rauch and Trindade's (2002) relates to its SB since Gould's (1994) mentions and analyzes co-ethnic networks in its work.

4.3. Establishing the scientific relation between the SBs and the Princes

4.3.1. SBs related to the firms' internationalization process

Even though the SBs Johanson and Wiedersheim-Paul (1995) and Johanson and Vahlne (1997) had different awakenings, it is adequate to separate the awakenings in three main moments.

The first one in 1992, where we start having critical analysis (Andersen, 1993) and tests to the validity of the Model (Benito and Gripsrud, 1992). An explanation for the lateness of this awakening can be found in Andersen's (1993) work, who argued that "the academics have been too preoccupied with describing international marketing problems"

(Andersen, 1993: 209) and as a result the theory construction and evaluation of what already existed had been forgotten. This is specified for international marketing but the author also added that this also happens in sciences that “have not reached the level of maturity in their theory development” (Andersen, 1993: 209), being therefore applied to International Business.

The second awakening moment, which occurs in 1996, coincides with a deeper analysis of the internationalization of firms (Barkema et al, 1996; Eriksson et al., 1997) and suggestions for modifications (O’Grady and Lane, 1996), which contributed to strength the theory on this topic (Internationalization of Firms).

The third awakening moment happens in the 2000s. This is the period when the concept of ‘Born Global’ observe a wide diffusion (Autio et al., 2000), and authors such as Erkkko Autio, Shaker Zahra, Michael Hitt and Duane Ireland (who co-authored the Princes) contribute to the emergence of a new field - Entrepreneurship. These authors were key for establishing a bridge between that entrepreneurship and international business fields. In particular, they resorted to the IB approaches to foster and characterize the entrepreneurship field. This contribution is clearly the reason why such a rise of citations can be witnessed in the SBs figures and why a large number of citations came not only from international business specialized journals (e.g., *Journal of International Business Studies*), but also from other well renowned and more general journals such as the *Strategic Management Journal* or the *Academy of Management Journal*.

4.3.2. SBs related to the Internationalization’s Theory

Welch and Luostarinen’s (1988) work, a review of the internationalization topic, despite having residual citations throughout the years, being in a ‘less deep sleep’, was firstly awakened in 1999. During that period, we can witness that its two PRs are quite distinct since one focuses on a more entrepreneurial field (Jones, 1999) while the other on a theoretical view of internationalization (Shenkar, 2001).

Jones’ (1999) work represents a bridge that allows our SB to be linked, not only to the *Journal of International Marketing*, thus allowing the area of influence of the SB to expand, but also to the entrepreneurial and the technology based firm subjects which, as we could witness in other SB’s analysis throughout this study, is a subject that triggered a few of our SBs.

Shenkar's (2001) work represents, in turn, a link between this SB and the *Journal of International Business*, which is a prestigious Journal of the International Business field, expanding Luostarinen's (1988) work to yet another Journal. Despite this link, Shenkar's (2001) work have a less direct link to our SB as most PRs since it mainly uses Welch and Luostarinen (1988) for the papers analyzed in their work, instead of its actual content. These papers (e.g. Johanson and Wiedersheimpaul, 1975; Johanson and Vahlne, 1977) that link our SB to our PR are the main reason why Shenkar (2001) was chosen as a PR. Even though we used Johanson and Wiedersheimpaul (1975) and Johanson and Vahlne (1977) as examples, mainly because they were also analyzed as SBs, we were able to reach an interesting conclusion which is that the awakening of Welch and Luostarinen (1988), being a review, might be related to the awakening of these two papers since we can witness some similarities between their evolution of citations (See Figure 4, 5 and 6).

4.3.3. SBs related to the MNEs performance

The topic of MNEs performance is presented by Geringer et al. (1989), published in the *Strategic Management Journal*, this paper links the MNEs performance with the diversification strategy. Geringer et al.'s (1989) PRs, being published in journals like the *Journal of International Business Studies* and the *Academy of Management Journal*, can lead us to conclude that, contrarily to other SBs, this topic was able to developed itself, not needing another subject (e.g., Marketing, entrepreneurship etc.) to awaken the topic of MNEs performance.

Hitt et al. (1997) refers that the product diversification strategy was popular and unquestioned for several decades - mentioning works from 1975 to 1980 as examples - but that posteriorly to those years, evidences that this theory's implications were inconclusive were discovered. The fact that the topic was popular could be a reason why it was less questionable during those years, until the evidence of inconclusion of the theory arrives, and the topic is analyzed again. This could be a good reason to sustain our SB's 7 years of sleep.

Even though up to that date the topic was common, and the diversification literature was one of the largest bodies of study regarding business strategy (Tallman and Li, 1996: 180), the analysis of a relationship between international diversity and performance constituted, by 1989, a gap in the literature (Geringer et al., 1989). It is possible that since

it was not frequently analyzed, the paper passed time in a low profile, thus its low citation rate.

The first awakening moment of this SB happened with Tallman and Li (1996) and then, one year later, with Hill et al. (1997), tried to complete and test the relationship between international diversity and its components (geographical components, innovation, and product diversity) and MNEs performance. This awakening's purpose was mainly to supplement the existing studies about the topic and critically examine or review what already existed, since most of the conclusions made in the area were mixed and inconclusive.

The second awakening moment involved a 'cluster of PRs' that consisted mainly on propositions of theories to 'mend' the disagreements existing in the topic, and 'gap fillers' of what had still not been analyzed. Princes like Contractor et al. (2003), Goerzen and Beamish (2003) and Lu and Beamish (2004) represent propositions of theories and frameworks arising from the first awakening. They contributed to the field of International Business because they completed and mended the disagreements that existed in the subject. Capar and Kotabe's (2003) study, in turn, is more of a 'gap filler' since it analyses the topic adapted to services firms, an application not yet done.

4.3.4. SBs related to the risk management in MNEs

The awakening of Miller's (1992) work happened in 2000, where the Prince explicitly addressed the SB mentioning that its work "responds directly to Miller's (1992) call" (Shrader et al., 2000: 1228). Even though the PR is published in the *Academy of Management Journal*, its link to new ventures and entrepreneurship is clear, which lead us to the possibility that this awakening moment happens when risk management become linked with the entrepreneurship literature.

Such link is very important for the risk management topic since 2000 is, as we can confront in Shrader et al.'s (2000) work, the year when an era of 'accelerated internationalization' happened and when it is predicted that the rise of internationalization will become progressively frequent in the 'new millennium', turning the study of new ventures and entrepreneurship increasingly important. Along these lines, the reason for the awakening is clearly associated to this relationship between new ventures and entrepreneurship created by the PR and the development of the entrepreneurial field.

Even though we were not able to find in 2006/2007 papers with significant citations and co-citations with the SB to be potential PRs, the inspection of Figure 8 evidences a steep rise of the SB's citations those years. Finding a reason for such increase was not easy since, according to Manuj and Mentzer (2008: 192), "risk management was relegated to the background until recently when several researchers... revived an interest in risk management..." giving us no concrete reason for this increased scientific interest. We conjecture, nevertheless, that a possible reason might be related to the 'great depression' from 2007-2009, which upheave the issues related to risk and risk management in general and is in the context of international business.

4.3.5. SBs related to International Strategy

Presenting Kotabe's (1985) PRs, we can witness that all of them expand the SB's reach since all of them can be found in a different journal (*Academy of Management Journal*, *Strategic Management Journal* and *Journal of International Business Studies*).

The links our PRs build with our SB is also quite important. In Reuer and Leibelein's (2000) work, our authors develop Kotabe's (1985) assumptions in a completely different way, since they follow the downside of risk but do not contradict our SB's work, thus completing the literature instead of differing with our SB and encouraging further development of the subject.

In turn, Geringer et al. (2000) and Capar and Kotabe (2003) also contribute to the development of Kotabe's (1985) work since one of the PRs defends that "the most accepted argument for international diversification has been grounded on the theoretical assumption that firms exploit the benefits of internationalization in international markets" (Capar and Kotabe, 2003: 346). This assumption, being primarily defended by our SB years before, reinforces the link between the corporate flexibility analyzed in our SB's work, as well as its assumptions on its effect in MNEs, with the diversification strategy developed in the PRs work. Additionally, the fact that international diversification has a very extensive but contradictory literature, could mean that this subject could need further research and has not reached its maturity level, thus inciting further development on the topic.

4.3.6. SBs related to the international new venture

Oviatt and McDougall's (1994) work has one clear awakening moment in 1999. This SB is clearly a case of early publishing, since the author's topic of new ventures would only become popular years later.

The SB, published in the *Journal of Business Venturing*, influenced its PRs, most notably Jones (1999), Preece et al. (1999), Autio et al. (2000) and Zahra et al. (2000), which were published in well renowned journals like, the *Journal of International Marketing* (Jones, 1999) and the *Academy of Management Journal* (Autio et al., 2000; Zahra et al., 2000), contributing clearly to an increase in SB's range of scientific influence, and permitting the topic of 'international new venture' to expand out to other subjects such as Marketing and Entrepreneurship.

As the international new venture phenomenon started to become increasingly common, some researchers became aware that extant research was not only limited/restricted (Preece et al., 1999; Shrader et al., 2000; Zahra et al., 2000), but also that the existing literature had a relatively negative view of these new firms that internationalized at an early stage (Reuber and Fisher, 1997; Autio et al, 2000). Until that date, the existing internationalization processes like to ones presented by Johanson and Wiedersheimpaul (1975) and Johanson and Vahlne (1977) where widely accepted and the early stage internationalization was rarely discussed. This led to an interest in understanding and completing the process of internationalization of new ventures.

Rodney Shrader, Benjamin Oviatt and Patricia McDougall claim that "[a] recent study of small and medium-sized firms in 26 developed and developing countries make the case that an era of accelerated firm internationalization has begun and will make its effect felt even more in the 21st century" (Shrader et al, 2000: 1227), this forecast predicted a big development of the international new ventures which is likely to constitute an explanation for the increased interest in international new ventures.

4.3.7. SBs related to the exporting firms

Apart from the obvious link of sharing an author, the SB Cavusgil (1984) and its PR, Cavusgil and Zou (1994), attempted to address the link between exports and international marketing.

The SB was published in the *Journal of Business Research* whereas the PR was published in the *Journal of Marketing*, which proves that, even though these papers share an author, the topic was extended to another field, Marketing.

Both topics - Exports and International Marketing - have a vast literature, but the relationship between them was fragmented. Such fragmentation justified Cavusgil's (1984) attempt to provide a "further insight into the export marketing behavior of firms" (Cavusgil, 1984: 195) as well as Cavusgil and Zou's (1994) work on the relationship of marketing strategy-performance with export ventures. The main aim of both of them is to link these two topics.

This fragmentation is important because, even though both topics (Export and International Marketing) were discussed academically, the junction of both was not yet developed. Cavusgil's (1984) work only woke up when Cavusgil and Zou (1994) published their work in the *Journal of Marketing* and reinforced the importance of such combination of topics.

Another possible reason for the awakening of the SB could be likely related to the fact that "globalization of markets and competition, foreign markets have become increasingly viable and natural opportunities for growth-oriented domestic firms" (Cavusgil and Zou, 1994: 1). This argument defended by the PR could have created the need to study new strategies, such as the marketing strategy performance, in order to fight the increasing competition brought by the globalization.

4.3.8. SBs related to applications to the international trade theory

Bergstrand's (1989) Generalized Gravity Equation, despite its 6 years of sleep, with a total of 377 citations, clearly caught attention. While the international trade subject developed itself, in 1995 this paper's first awakening moment happened. Maskus and Penubarti (1995) and Frankel et al. (1995) contributed to the SB's awakening by linking international trade with international levels of patent protection, (Maskus and Penubarti, 1995), and by analyzing regional trading arrangements across the world (Frankel et al., 1995). These PRs might not be the most direct link with our SB, but they contributed for the development of the subject and diversified the area by linking international trading to different economical subjects, as well as different journals (*Journal of Development Economics* and *Journal of International Economics*). The fact that these papers took

Bertrand's (1989) work as a reference for Gravity models might be a reason for its awakening.

The second awakening moment happens 8 years after the first one, when Anderson and Wincoop (2003) focused on the gravity models and tried to rearrange it. By that time, according to Anderson and Wincoop (2003) the gravity model had been largely used to analyze trade flows and the literature on trade costs had been increasing widely, causing an upsurge of interest on the subject. Despite this development on the trade costs subject, the quality of the different measurement methods was considered low (Anderson and Wincoop, 2004: 1), which leads us to think that the recent developments on the subject, combined with these authors "call to action" on developing it, could be the reason why our SB's citations started to rise as steeply.

Another SB to be analyzed presents a link between international trade and factor mobility developed in Mundell's (1957) work. Despite quite inconsistent when it comes to citations, since it was difficult to define concrete rises and potential awakening moments, we were able to identify two awakening moments. The first one occurred 20 years after the SB's publishing while the second awakening moment happened 26 years after. Despite being a very impressive length of sleep, the specific reason to why it was awoken by was difficult to identify.

The first awakening was caused by Brecher and Alejandro's (1977) work. Even though its link to the SB did not cause a huge rise of citations on Mundell's (1957) work, it is a complementary work on the international trade subject, which might have caused the rise of interest in the field. The fact that it was published in the *Journal of International Economics* instead on in a specific American journal (Mundell was published in the *American Economic Review*) might have also led to a new kind of notoriety.

Six years after, another awakening moment happened with Markusen's (1983) work, which consisted in an actual review of theories that contradict Mundell's (1957) idea that trade in goods and factors are substitutes. Mundell's (1957) work, even having a contrary idea of the subject, has quite a notoriety in this PR's work since it is referred as "the first formal exposition of this idea" (Markusen, 1983: 341). Being a review, this PR might have not only started a discussion (are trade in goods and factors substitutes or complimentary?), but also identified Mundell as a pioneer in the subject, thus its importance as a PR and the rise in citations that happened after that year.

4.3.9. SBs related to non-traded goods

The SB Backus and Smith (1993) focused on “probably the most striking feature of international macroeconomic data” (Backus and Smith, 1993: 297), namely the deviations of purchasing power parity and the movements in exchange rates.

The first awakening occurred in 2002 with Chari et al. (2002). Even though the subject of this latter paper focused more on the real exchange rate and less on their relationship with relative consumption, Chari et al. (2002) presented the SB as an “an early paper on consumption-real exchange rate anomaly” (Chari et al., 2002: 535). This notoriety positioned our SB as a pioneer in the subject which could be a reason why Backus and Smith’s (1993) citations increased. However, on the overall, the relationship of the SB with its PR is less focused on the non-traded goods and more focused on the real exchange rates. Thus the PR ended up leading the SB to another subject.

The second Prince appears in 2006 and once again, its link to the SB is not on the non-traded goods but on the methodology used in Backus and Smith’s (1993), which is applied to the real exchange rates. We can also witness a particular link between this PR and David Backus due to its participation on the review of the paper which is even acknowledged by the authors.

In conclusion, relationship between Backus and Smith (1993) and its PRs is not as direct as what we have been witnessing in other SBs of the field. In addition to the fact that PRs were very hard to find and in this case, the main link associated with their work is specifically the real exchange rates instead of non-traded goods, since both PR’s relate to them through that topic. Contrarily to what we were expecting to find, Backus and Smith (1993) were more renowned in the subject of exchange rates than in the subject of non-traded goods.

4.3.10. SBs related to Trade Flow movements

The effect of immigrants’ ties to their home country in the international trade presented by Gould (1994) was still considered ‘recent’ (Head and Ries, 1998: 48) until in 2002, a boost of citations made this SB get some attention, when it was awakened by 3 PRs, all of them encompassing highly related topics, but completely different samples of investigation.

Despite the popularity of this topic, which was discussed by other authors before the awakening moment, conclusions about the magnitude of the effect immigrants can have in International Trade were very different across studies (Wagner et al., 2002:507). This could have created an incentive of further analysis of the topic since the conclusions were mixed.

In 2002, the ‘cluster of PRs’ that rouse Gould’s (1994) work, was not only composed by papers published in different Journals, but it was also composed by studies about different countries (Canada, UK and China). This combination is interesting since it could have led to an expansion of our SB’s reach, not only in the field, but geographically. The importance of this topic grew by then, not only in terms of economic impact, but as Girma and Yu (2002) explain, it might ” have relevant policy implications, especially for host countries” (Girma and Yu, 2002:115). Even though we cannot prove that this theory can be applied with success in different countries, the incentive of that possibility could also be a reason for further research.

5. Conclusions

5.1. Main results and contribution

The study of Sleeping Beauties, despite not being very extensive as we were able to verify in the literature review, has been analyzed from different perspectives and areas throughout the years. We witnessed authors like van Raan (2004), Ohba and Nakao (2012) and Kozak (2013), among others, who's main goals ranged from the conceptualization of the phenomenon itself to attempts to adapt and quantify the theory of the SBs to their own field. Throughout the years, analysis of journal impacts and cross disciplinary connections were made in order to get a long term view of the different fields, but the social science field has yet to be considered in the Sleeping Beauty theory, thus the pertinence of our study, which pioneeringly encompasses the topic in the field of the SBs.

Notwithstanding the fact that our study was based on some of the already existing studies on SBs, some changes had to be done in order to adapt to the fields of International Economics and International Business. One of the main differences between our fields and the ones already studied was the extent of the literature. Science related fields are much more developed than ours, and due to the size of our sample, some methodological adaptations had to be done. The scope of our sample made it extremely difficult to find SBs with van Raan's (2004) methodology, which led us to adapt some of its methods to our field in order to reach conclusions. Another adaptation made was our definition of PR, which unlike the previously mentioned authors, were considered to be, not the first one to cite the SBs, but the papers with simultaneously more citations, more co-citations with the SB and the ones that could adapt to the citation behavior of the SB. We also considered more than one awakening moment as well as 'clusters of PRs' since we concluded that the papers of our fields and the interdisciplinarity present causes a very easy adaptation of one paper to more than one subject, linking our SBs not only to their PRs but to other fields and Journals.

Despite the adaptations, we were successful in adjusting the SB subject to the International Economic and International Business fields and reached some interesting conclusions.

5.2. Implications for scientific knowledge in IB and IE

Through an adaptation of van Raan's (2004) methodology, a formula was created, as well as a co-citation and citation analysis of its results in order to find potential SBs and their PRs. From that point, we were not only able to find twelve SBs in our fields as well as their PRs, but also witnessed how some subjects established themselves through the years and were able to find several links, bridges and bindings between subjects.

Those results lead us to an analysis of the content of each SB and each PR, in order to understand the reasons of the awakenings and the field itself. A total of 10 different sub-fields were observed within our SBs and, we not only were able to find the SBs and their PRs, but ended up doing a sort of review of the International Economics and International Business fields since a lot of different fields and journals were linked to each other.

A mapping of several journals was also reached allowing us to better understand the links between them. The International Economics and International Business proved to be very flexible fields since most of the relationships between SB and PR we analysed were from different journals as well as from different subjects being very easy to merge subjects between themselves.

5.3. Limitations and avenues for future research

The fact that SBs were not yet studied in our field might give us the advantage of innovation, but the fact that we did not have other papers of our field to base our research on was definitely a limitation since we not only couldn't compare our work with others, but because we didn't know if our field could apply due to its differences with scientific topics.

Even though we could reach our main point, which was not only to find SB in International Economics and Business, but also be able to better understand the evolution of this field as well as its links, there is still a lot that can be improved. The methodology is one of them since the one we resorted to in order to find PRs lacks precision and can definitely be improved.

Additionally, the fact that so many SB's were found led to a restriction of the depth of the analysis made for each one of them. Some general conclusions were reached about the field itself like the fact that most subjects need a certain maturity to be taken seriously; that a lot of our SBs were awakened by reviews or critics on their work; how easy it is

to link a subject to another or even to contradict a theory whose results do not apply to our reality anymore. Despite that, and even though our main objectives were reached, we are conscious that we could have been able to reach a lot more if we had deepen the analysis of the field of each one of our SBs.

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Appendix

Table A1: Key studies on the issue of the SBs

Study	Type of paper	Main topic	Aim of the paper	Methodology	Main conclusions
Li (2014)	Theoretical		Conceptual accounts of SBs ('all-elements-sleeping-beauties')		<ul style="list-style-type: none"> - "all-elements-sleeping-beauties" is presented as an expansion of Sleeping Beauties. - "all-elements-sleeping-beauties" are composed by a total of four stages, being the first an "awakening period" followed by a "sleeping period", another "awakening period" and a "happy ending" with a prince. - The prince should be taken more into consideration.
Li & Ye (2012)	Theoretical	Conceptualization of the SB phenomenon	Conceptual accounts of SBs ('all-element-sleeping-beauties')		<ul style="list-style-type: none"> - "all-element-sleeping-beauties" should be taken into consideration since they could belong to important literatures
Braun, Glanzel, & Schubert (2010)	Theoretical		Conceptual account of SBs		<ul style="list-style-type: none"> - SBs are useful because they allow an extensive analysis of scientific information flows. - The princes are not always a review paper. - It is possible to draw a "sketchy typology" of the behaviors of the SBs and their Princes.
Kozak (2013)	Empirical		Empirical analysis of SBs in Current Science		<ul style="list-style-type: none"> - The SBs are a way to prove that some papers are published ahead of their time.
Ohba & Nakao (2012)	Empirical	Empirical analysis/identification of the SB	Empirical analysis of SBs in ophthalmology	Bibliometric model using the 'Grand Sleeping Beauty Equation'	<ul style="list-style-type: none"> - Almost all the SBs identified in the field consisted in new clinical diseases and innovation of medical and surgical treatments.
Van Raan (2004)	Empirical		Empirical analysis of SBs in science		<ul style="list-style-type: none"> - When a SB is in a deep sleep, the longer the sleeping period is, the lesser is the probability of awakening. - When the SB is in a less deep sleep, the length of sleep is less important for the probability of awakening.
Baumgartner & Leydesdorff (2014)	Empirical	Modelling SBs	Model to identify citation patterns taking the SBs into account (Group-Based Trajectory Modeling of Citations)	Econometrics estimations	<ul style="list-style-type: none"> - The method has some limitations and cannot yet be used. - Despite the limitations, the model presented some interesting trajectories of citation on a long-run term.
Ma et al. (2013)	Empirical		Model that includes SBs in the evaluation of peer reviewing	Quality analysis of peer reviewing	<ul style="list-style-type: none"> - The m value (used to correct the lack of account on the SBs) should consider different groups of papers with different groups of subjects and regions. - A growth in the EPR should disclose quality and success of the journal.

Table A2: The bunch of relevant keywords used for building the dataset from the WoS, by alphabetic order of the reference study

Keyword	Title
International commercial law	
International competition law	Guzman, A. T. and Sykes, A. O. (2007). "Research Handbook in International Economic Law", Northampton: Edward Elgar Publishing.
International investment	
Foreign Direct Investment	Hofer, K.M.; Smejkal, A.E.; Bilgin, F.Z.; Wuehrer, G.A. (2010). "Conference proceedings as a matter of bibliometric studies: The Academy of International Business 2006-2008", <i>Scientometrics</i> , 84 (3), pp. 845-862.
Emerging economies	
Global financial integration	
Global information economy	Johnson, D. and Turner, C (2003). "International Business: Themes and Issues in the Modern Global Economy", New York: Routledge.
International marketing	
Exchange-rate dynamics	
International factor movements	
International finance	
International monetary arrangements	Jones, R. W. and Grossman, G. M. (1997). "Handbook of International Economics", vol.3, Philadelphia, Pa: Elsevier.
International trade	
Macroeconomic theory	
Open economy macroeconomics	
Foreign-entry mode	
International human-resource practices	Pinto, C.F.; Serra, F.R.; Ferreira, M.P. (2014). "A bibliometric study on culture research in international business", <i>BAR - Brazilian Administration Review</i> , 11 (3), pp. 340-363.
Internationalization	
Multinational enterprise	Rugman, A. M., and Collinson, S. (2009). "International Business", 5 th ed., England: Pearson Education Limited.
Global strategy	
International business strategies	
Strategies of multinational enterprises	Rugman, A.M.; (2009). "The Oxford Handbook of International Business", 2nd ed., New York: Oxford University Press.
Transitional economies	