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Review of International Business and Strategy

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Journal:	*Review of International Business and Strategy*
Manuscript ID	RIBS-07-2017-0056.R2
Manuscript Type:	Empirical Research Paper
Keywords:	export, de-internationalization, mature firms, random walk

INTERCONNECTING EXPORTER TYPES WITH EXPORT GROWTH AND DECLINE PATTERNS: EVIDENCE FROM MATCHED MATURE ESTONIAN AND SPANISH FIRMS

Abstract

Purpose: This paper aims to find out if different exporter types dominate among matched mature Spanish and Estonian firms and whether these types are associated with specific export growth/decline patterns.

Design: This study is based on firm-level data from the Estonian Business Register's database of annual financial reports and SEPI Foundation's survey on Spanish firms' business strategies. From both countries, 242 firms were included and the period 2009-2013 was chosen.

Findings: Committed exporters (with 75% or higher export shares) dominated in Estonia and experimental exporters (with export shares mostly below 10%) in Spain. While in Estonia the most frequent export growth/decline pattern encompassed four consecutive growth years, in Spain it had two consecutive growth years and then two decline years. Spanish firms' export growth/decline patterns were more random: 12 patterns out of 16 fell within the range of a random walk assumption while in Estonia only 5 patterns were within the range. Contingency existed between exporter types and export growth/decline patterns only for the whole sample.

Originality/value: This paper studies if committed/aggressive/active exporters experience more export fluctuations than passive/experimental exporters and how random export growth/decline patterns are.

Keywords: export; de-internationalization; mature firms; random walk

Introduction

Exporting has received considerable research attention already. For instance, several studies have focused on export barriers (Kahiya, 2017; Leonidou, 2004), foreign entry methods (Ciravegna et al., 2014; Johanson and Vahlne, 1990), factors affecting market selection and/or subsequent export intensity/share (Bianchi and Wickramasekera, 2016; Schlegelmilch and Crook, 1988) and export performance (Berthou and Vicard, 2015; Schwens et al., 2017).

Despite a large number of studies on various export topics, some under-researched areas still exist. First, firms starting exporting in any particular way – for example, in terms of achieving a certain export share by a specific year – could follow a variety of different growth/decline patterns (Baum et al., 2011; Morgan-Thomas and Jones, 2009; Nummela et al., 2016; Vissak and Masso, 2015), but it has not been studied enough if committed/aggressive/active exporters experience more export fluctuations than passive/experimental exporters. Second, more attention should be paid to mature exporters (Cavusgil and Knight, 2015; Hagen and Zucchella, 2014; Schueffel et al., 2014) and their de-internationalization: exiting some or all foreign markets fully or experiencing export decline (Dominguez and Mayrhofer, 2017; Nummela et al., 2016; Trąpczyński, 2016). Third, there is a lack of comparative studies in internationalization research (Baum et al., 2011; Buckley, 2016; Schwens et al., 2017), but country-specific results could be ungeneralizable to different countries (Terjesen et al., 2016). The lack of knowledge on which exporter types and growth/decline patterns dominate in particular countries and if certain exporter types have similar long-term growth potential everywhere reduces business people's options to make optimal management and investment decisions and policy-makers' understanding whether copying relatively similar countries' successful export support measures would be advisable.

Taking into account the need to fill the above-mentioned research gaps, this paper aims to find out if different exporter types dominate among matched mature Spanish and Estonian

firms and whether these types are associated with specific export growth/decline patterns. Estonia was selected due to its smallness as Schwens et al. (2017) recommended studying smaller countries and Spain as Baum et al. (2011) and Terjesen et al. (2016) stressed the importance of studying different national and/or cultural contexts: this increases the generalizability of the findings.

The paper starts from a literature review on exporter types, export and firm growth dynamics and proceeds with the description of the data and methods. After analyzing the results, some managerial, policy and research implications will be provided.

Literature review

Exporter types

Several authors have classified exporters based on their export share/intensity but also some additional characteristics. Three groups can be described (see Table 1).

1. *Experimental exporters.* These firms respond to unsolicited export orders or try exporting to a few nearby countries, but their export share is minor: usually below 5-10%.

2. *Committed exporters*. They are considerably involved in exporting: their export share is high (depending on the studies, at least 40-50% or more) and managers are actively searching for international orders.

3. *Active exporters.* This firm group is located in between the two above-mentioned groups. Agreement on their export shares is missing.

Table 1

Based on the above, it is evident that although several scholars have identified and described different exporter types, no consensus exists on how exactly they should be distinguished. Consequently, the following research question can be developed:

RQ1: How many different exporter types can be detected based on firms' export shares in a specific time period?

Different exporter types' export dynamics

No consensus exists on how different exporters mature. In the 1970s and 1980s, several authors stated that firms follow certain stages from experimental/passive to committed/experienced/aggressive exports (Andersen, 1993; Morgan and Katsikeas, 1997; Samiee and Walters, 1991). According to Cavusgil (1980), experimental exporters usually become active and, thereafter, committed exporters. Bilkey and Tesar (1977) and Vozikis and Mescon (1985) stated that firms first fill unsolicited export orders, then export more regularly to a few closest markets, and thereafter enter additional (usually more distant) markets. Reid (1983) stated that initially, firms engage in occasional exporting only if they receive unsolicited export orders, then try indirect exporting via agents/distributors, later export directly and establish a formal export department. Finally, they establish foreign sales subsidiaries and manufacturing units and engage in licensing.

The above-mentioned "stage" models have been criticized considerably. For instance, Chetty (1999) found no considerable empirical support to Bilkey and Tesar (1977) and Vozikis and Mescon (1985). Andersen (1993) stated that the classification of firms into stages has been based too much on intuition and classification criteria are too unclear. Crick (1995) added that due to considerable overlaps in defining different stages it is only reasonable to differentiate between passive and active exporters. Samiee and Walters (1991) stressed that many mature firms still only engage in sporadic exporting with very low export shares. Morgan and Katsikeas (1997) argued that most models ignore reverse developments. Also, according to several other studies (Baum et al., 2011; Coviello, 2015; Knight and Cavusgil, 1996; Oviatt and McDougall, 1994; Rialp et al., 2005; Zander et al., 2015), some

firms – especially, born globals and other international new ventures – can be very committed/experienced/aggressive almost since foundation: they skip some or all "stages" identified in earlier literature.

No consensus exists on whether firms' age, size, internationalization speed or other characteristics affect experiencing export fluctuations. For example, Sleuwaegen and Onkelinx (2014) found that born globals failed more frequently than other internationalizers while Schwens et al. (2017) found no relationship between internationalization speed and performance. Berthou and Vicard (2015), Figueira-de-Lemos et al. (2011) and Vannoorenberghe et al. (2016) stated that de-internationalization is more probable if firms' commitment is lower: mature and larger exporters "experiment" with foreign markets – enter and soon thereafter exit them – and experience market-specific shocks less. On the other hand, according to Buch et al. (2009), firms that export more face potentially larger foreign shocks. Finally, Vissak and Masso (2015) indicated that most firms – irrespective of age, size and foreign market commitment – experienced significant export fluctuations or even stopped exporting once or several times.

As according to the current literature, no consensus exists on whether firms belonging to different exporter types have dissimilar average export growth and/or decline rates during a certain time period, the following research question can be developed:

RQ2: Are there any differences between exporter types regarding export growth and/or decline?

Random walk assumption and firm (export) growth

Although several factors affecting firm growth have been identified (Becchetti and Trovato, 2002; Ipinnaiye et al., 2017; Krasniqi and Mustafa, 2016), in terms of firm growth rates and patterns, in general, consensus is still lacking. Several authors have studied if Gibrat's Law is

valid – if firm growth rates are random and if they are uncorrelated over time (see Stam, 2010) – but results have varied. Levinthal (1991) stated that firm age and mortality lack a direct relationship and Geroski (1999: 5) argued that "corporate growth rates are random". On the other hand, Fotopoulos and Giotopoulos (2010) found that in Greece, only medium-sized, large and old firms' growth patterns were random, while Becchetti and Trovato (2002) stated the same only about larger Italian firms and Lotti et al. (2009) about mature Italian firms. According to Daunfeldt and Elert (2013), in Sweden random growth was more frequent in mature industries that had considerable group ownership and high market concentration. Finally, Cowling et al. (2015) found that in UK sales growth was distributed relatively randomly across all industries and firm types only when the economy was growing and/or stable.

Coad et al. (2013) proposed that firm growth could follow a random walk: an assumption that all growth patterns – either above-median growth or below-median growth that they called decline – have equal occurrence probabilities among a sample of 2184 UK start-ups. As they studied a four-year period, they could identify 16 different sales growth patterns (for instance, growth-growth-decline-growth and decline-growth-decline-growth), each with a 6.25% theoretical occurrence share. As the respective patterns' actual shares varied between 5.31-7.55%, they rejected the random walk hypothesis but still mentioned (Ibid.: 626) that "growth rates appear to be close to random" and (Ibid.: 628) "firms experience every possible combination of growth and decline". Moreover, in a later study (Coad et al., 2016) they stated that researchers' ability to predict firms' growth rates decreases over time: with every following year, growth and decline become more random. Their work has been criticized (see Derbyshire and Garnsey, 2014), but due to the lack of consensus in international business studies regarding mature exporters' growth/decline patterns, some issues still need investigation.

As it has not been studied if firms' export growth/decline patterns follow a random walk or not, the following research question can be developed:

RQ3: What is the frequency of different export growth/decline patterns and do they follow a random walk?

Due to the lack of studies on whether any interconnections exist between exporter types and export patterns – for instance, if some exporter types usually experience a certain growth/decline pattern – the following research question can be asked:

RQ4: Are a) exporter types based on export share and b) export growth/decline patterns interconnected?

Data and methods

This study is based on firm-level data from the Estonian Business Register's database of annual financial reports and SEPI Foundation's survey on Spanish firms' business strategies. Both datasets encompass data of all firms' total and export turnovers, but also information about their foundation year and industry. The choice of the period 2009-13 was motivated by the following aspects: 1) a four-year[1] period was selected to follow the method of Coad et al. (2013)[2], 2) this was the only available period encompassing four consecutive years as in Estonia, annual reports became available in digitalized format in 2009 and as data from 2014 were not fully available yet at the time of writing the article. Only manufacturing firms were analyzed, as such firms are the most active exporters (Lejárraga and Oberhofer, 2015).

First, Spanish data were procured. Then, the Estonian whole population data were used to find an exact match to each Spanish firm based on its manufacturing sub-sector and size. Based on median turnover in 2009-13, they were classified as micro-, small or medium-

[1] For calculating EXG for any year, data from the preceding year were also necessary.
[2] Differently from Coad et al. (2013), in this study, decline was defined as a growth rate <0%, not a below-median growth rate, as in international business studies, decline is usually perceived as a lack of growth. In this sample, the rate was never exactly 0%.

sized[3]. All included firms were at least 10 years old in 2009 following the suggestions of Baum et al. (2011), Burgel and Murray (2000) and Coad et al. (2016), but their ages were not matched in more detail.

Table 2 documents the frequencies of observations from specific manufacturing sub-sectors. From both countries, 242 firms were analyzed. It was impossible to use more observations due to the lack of suitable matches.

Table 2

Two types of variables were calculated for each firm:

1. export share (EXS; %) as (Export turnover$_t$/Total turnover$_t$)×100;

2. export growth (EXG; %) as ((Export turnover$_t$ – Export turnover$_{t-1}$)/Export turnover$_{t-1}$)×100.

The former was necessary to identify exporter types and the latter to distinguish between export growth/decline patterns. To avoid outliers, the maximum positive EXG was set to 500%. Moreover, firms that had completely exited all foreign markets were excluded because their export growth rate after re-internationalization would equal to infinity.

Exporter types were determined with k-means cluster analysis (Chiang and Mirkin 2010) by using the values of EXS from 2010-2013. The best solution was chosen based on the first local maximum of the Caliński and Harabasz (1974) pseudo-F statistic: the ratio of between-cluster and within-cluster variance. All observations were considered together (n=484) in the cluster analysis, as this enabled comparing the frequency of the same types through countries. A chi-square contingency test was conducted to find out whether exporter types were differently associated with the studied firms' country of origin. Also, exporter types were compared in respect to their export growth by applying a k-sample median test.

[3] Median turnover (MT) ≤2, 2< MT ≤10 or 10< MT ≤50 million EUR, respectively, according to the EU recommendation 2003/361.

Export growth/decline patterns (EGPs) were determined manually by accounting whether export growth occurred (EXG>0) in each specific year during the studied period. The combinations of growth (EXG>0) and decline (EXG<0) situations from a consecutive four-year period can result in 2^4=16 different patterns, each with a theoretical 1/16=6.25% share based on the random walk assumption (Coad et al., 2013). It was compared which patterns followed random walk: for that, their actual share had to fall in the binomial proportion 95% confidence interval of 6.25±2.16%: a range of 4.09-8.41% for the whole sample[4]. Finally, a chi-square contingency test was conducted to investigate whether exporter types and EGPs were associated. The study designs were also summarized in Appendix 1.

Results and discussion

Exporter types detected based on their export share

The k-means cluster analysis resulted in the first local maximum of pseudo-F=1790 at k=3. Three very highly distinguishable clusters existed (see Table 3). 43.6% of the whole sample (Type 3) exported mostly less than 10% of their annual revenue, so they could be called "experimental exporters" (Cavusgil, 1980, 1984; Czinkota, 1982; Czinkota and Johnston, 1981; Gankema et al., 2000), "sporadic exporters" (Samiee and Walters, 1991), "passive exporters" (Pavord and Bogart, 1975) or "reluctant internationalizers" (Morgan-Thomas and Jones, 2009).

Table 3

The second largest group's (31.8%; Type 1) export shares exceeded 75% for all years. So, they had some characteristics of "committed exporters" (Cavusgil, 1980, 1984; Gankema et al., 2000) although their export shares were even higher. Moreover, they could be called "experienced exporters" (Czinkota, 1982; Czinkota and Johnston, 1981), "aggressive

[4] For each country's subsample, the range was 3.2-9.3% as decreasing the number of observations widens the interval.

exporters" (Pavord and Bogart, 1975) or, in some cases, "rapid internationalizers" (Morgan-Thomas and Jones, 2009).

The smallest group's (24.6%, Type 2) export shares were around 39-48%. These firms could be called "active exporters"[5] (Cavusgil, 1984; Gankema et al., 2000), "minor exporters" (Pavord and Bogart, 1975), "semi-experienced exporters" (Czinkota, 1982; Czinkota and Johnston, 1981) or "regular internationalizers" (Morgan-Thomas and Jones, 2009).

While in Spain, 59.5% of firms belonged to Type 3 (experimental exporters) and only 14.5% to Type 1 (committed exporters), in Estonia, 49.2% of firms belonged to Type 1 and only 27.7% to Type 3. Only the shares of active exporters were relatively similar in Estonia and Spain: 23.1% and 26.0% respectively. Such differences could have been caused by differences in country sizes, as the Estonian domestic market is very small compared to the Spanish market (in terms of domestic population, 1.3 and 46.1 million, respectively) and thus, Estonian firms need to become more international if they wish to grow and survive.[6]

Differences between exporter types regarding export growth and/or decline

In 2010-2011, all exporter types' export growth was much higher in both countries than in 2012-2013 (see Table 4). This is normal due to the recovery from the Great Recession (2008-2009) as economic shocks tend to result in export decline (Berthou and Vicard, 2015; Buch et al., 2009). An important finding is that based on the 3-sample median test, no significant differences existed between these exporter types' median export growth rates for any of the

[5] Cavusgil (1980) and Gankema et al. (2000) set such firms' maximum export share to 39% but according to Cavusgil (1984), firms with higher export shares could be also called active exporters. Moreover, Morgan-Thomas and Jones (2009) stated that regular exporters' export share should be 10-50%.

[6] These countries' export shares of goods per GDP also differed: according to IMD (2017), in 2016 they were 56.93% (in Estonia) and 23.33% (in Spain). Moreover, in Estonia exports per capita were higher than in Spain: 10008 and 6185 USD, respectively. In absolute terms, Spain exported more: its exports of goods were 287.42 billion USD but in Estonia only 13.17 billion.

studied years (also in case of studying the two countries separately). Thus, export growth and decline did not vary through these exporter types.

Table 4

The frequency of different export growth/decline patterns and a comparison with a random walk assumption

Sixteen theoretical export growth/decline patterns (EGPs) are outlined in Table 5. Based on the random walk assumption (Coad et al., 2013) each of them should have had the same 6.25% share. According to the findings, the actual share was 4.1-8.4% for only 8 EGPs in the whole sample. In Estonia and Spain separately, respectively, 5 and 12 of patterns fell within the range of 3.2-9.3%. In Spain, 3 EGPs even had a share of 6.2%. Thus, export growth was not explained by the random walk assumption, although Spanish firms' results were quite close to being random similarly to the assumption of Geroski (1999).

Table 5

In the whole population, the most frequent pattern was EGP1 – serial growth during all four years – followed by EGP6: two growth years and then two decline years. EGP1 was the most frequent in Estonia and EGP6 in Spain. In Estonia, the standard deviation of EGPs' shares was much higher than in Spain, offering additional proof that Estonian firms' export growth was less random than in Spain. According to the evidence, export fluctuations were frequent (Vissak and Masso, 2015): only 16.1% of Estonian and 8.3% of Spanish firms experienced positive export growth for all four years (see Table 5).

Interconnections between exporter types based on export share and export patterns based on export growth and/or decline

Contingency existed between exporter types and export growth/decline patterns for the whole sample, but not for Estonia and Spain separately (see Table 6). Type 1 – committed exporters – were mainly characterized by EGPs 1, 2, 3 and 6 in Estonia and 1, 3, 5 and 6 in Spain. Most of these patterns were characterized by at least three growth years, only EGP6 encompassed two growth years. In case of Type 2 (active exporters), a similar tendency existed: EGPs 1, 2, 6 and 16 dominated in Estonia and 1, 3, 5, 6, 9 and 14 in Spain. Both EGP14 and EGP16 encompassed two growth years while EGP9 had only one growth year. Type 3 (experimental exporters) was characterized by a much more even distribution of EGPs. Thus, if a firm's international commitment is very low, its exporting is relatively sporadic/occasional (Berthou and Vicard, 2015; Vannoorenberghe et al., 2016): it witnesses high fluctuations of export revenues from total revenue.

Table 6

Conclusions

The results showed that Spain and Estonia differed in terms of the share of different exporter types: while in the former, most firms were experimental exporters while committed exporters were relatively rare, in the latter, the situation was the reverse. Only active exporters had relatively similar shares in both countries. Export growth rates differed in Estonia and Spain, but no statistically significant differences existed between committed, active, and experimental exporters' median export growth rates.

Policy-makers should take into account that smaller countries could have a much higher share of committed exporters than larger countries. Thus, they should not simply try to copy larger countries' export policies and vice versa as committed and experimental exporters could differ in terms of other export characteristics (for instance, in terms of geography). Also, the high share of committed exporters in Estonia could mean that export support measures could increase their survival as they have higher export shares. As in Spain,

internationally less committed firms dominate, such policy measures might affect their survival possibilities less, but could still help them to achieve (sustainable) export growth.

De-internationalization was frequent in both countries: only 16.1% of Estonian and 8.3% of Spanish firms experienced positive export growth for all four years. In terms of 16 theoretically possible export growth/decline patterns, 5 followed random walk in Estonia and 12 is Spain. Also, differences existed in terms of the frequency of particular patterns. The most frequent pattern in Estonia was EGP1 – serial growth during all four years – while in Spain, EGP6 (two growth years and then two decline years). Contingency existed between exporter types and export growth/decline patterns for the whole sample, but not for Estonia and Spain separately. Still, in general, committed exporters mostly had at least three growth years out of four; quite many active exporters had at least two growth years while experimental exporters had a much more even distribution of EGPs.

Managers and policy-makers should understand that firms experiencing constant export growth are very rare: export fluctuations are normal. Moreover, while this paper studied only fluctuations in terms of exports in general, many more fluctuations could exist in terms of exports to each particular market or by each specific product separately. Thus, firms' main focus should be rather on achieving overall export growth during a longer time period, not growth by each particular market and product during each year separately. Also, due to considerable randomness in export growth/decline rates, state budget's tax revenue forecasts should never rely on the assumption of exporting industries' continuous growth. Moreover, due to this randomness, it is hard to determine which firms should receive state support: supporting some currently growing exporters does not guarantee that their growth will continue in all the following years.

In the future, it could be studied if the results differ for firms from other countries: for instance, which industries and exporter types dominate there, how much they export on

average, or if certain exporter types are mainly following specific export growth/decline patterns. Moreover, it is important to determine if any additional differences exist between samples dominated by larger or smaller, younger or older, locally-owned or foreign-owned firms, or if there are any differences between firms exporting only to a few closest countries and those having more diverse export portfolios. Finally, longer time periods could be studied.

References

Andersen, O. (1993), "On the internationalization process of firms: a critical analysis", *Journal of International Business Studies*, Vol. 24 No. 2, pp. 209–231.

Baum, M., Schwens, C. and Kabst, R. (2011), "A typology of international new ventures: Empirical evidence from high-technology industries", *Journal of Small Business Management*, Vol. 49 No. 3, pp. 305–330.

Becchetti, L. and Trovato, G. (2002), "The determinants of growth for small and medium sized firms. The role of the availability of external finance", *Small Business Economics*, Vol. 19 No. 4, pp. 291–306.

Berthou, A. and Vicard, V. (2015), "Firms' export dynamics: Experience versus size", *World Economy*, Vol. 38 No. 7, pp. 1130-1158.

Bianchi, C. and Wickramasekera, R. (2016), "Antecedents of SME export intensity in a Latin American market", *Journal of Business Research*, Vol. 69 No. 10, pp. 4368–4376.

Bilkey, W.J. and Tesar, G. (1977), "The export behavior of smaller Wisconsin manufacturing firms", *Journal of International Business Studies*, Vol. 8 No. 1, pp. 93–98.

Buch, C.M., Döpke, J. and Strotmann, H. (2009), "Does export openness increase firm-level output volatility?" *World Economy*, Vol. 32 No. 4, pp. 531–551.

Buckley, P.J. (2016), "Historical research approaches to the analysis of internationalization", *Management International Review*, Vol. 56 No. 6, pp. 879–900.

Burgel, O. and Murray, G. C. (2000), "The international market entry choices of start-up companies in high-technology industries", *Journal of International Marketing*, Vol. 8 No. 2, pp. 33–62.

Caliński, T. and Harabasz, J. (1974). A dendrite method for cluster analysis. *Communications in Statistics*, Vol. 3 No. 1, pp. 1–27.

Cavusgil, S.T. (1980), "On the internationalization process of firms", *European Research*, Vol. 8 No. 6, pp. 273–281.

Cavusgil, S.T. (1984), "Differences among exporting firms based on their degree of internationalization", *Journal of Business Research*, Vol. 12 No. 2, pp. 195–208.

Cavusgil, S.T. and Knight, G. (2015), "The born global firm: An entrepreneurial and capabilities perspective on early and rapid internationalization", *Journal of International Business Studies*, Vol. 46 No. 1, pp. 3–16.

Chetty, S. (1999), "Dimensions of internationalisation of manufacturing firms in the apparel industry", *European Journal of Marketing*, Vol. 33 No. 1/2, pp. 121–142.

Chiang, M.M.T. and Mirkin, B. (2010), "Intelligent choice of the number of clusters in k-means clustering: An experimental study with different cluster spreads", *Journal of Classification*, Vol. 27 No. 1, pp. 3–40.

Ciravegna, L., Majano, S.B. and Zhan, G. (2014), "The inception of internationalization of small and medium enterprises: The role of activeness and networks", *Journal of Business Research*, Vol. 67 No. 6, pp. 1081–1089.

Coad, A., Frankish, J., Roberts, R.G. and Storey, D.J. (2013), "Growth paths and survival chances: An application of Gambler's Ruin theory", *Journal of Business Venturing*, Vol. 28 No. 5, pp. 615–632.

Coad, A., Frankish, J.S., Roberts, R.G. and Storey, D.J. (2016), "Predicting new venture survival and growth: Does the fog lift?" *Small Business Economics*, Vol. 47 No. 1, pp. 217–241.

Coviello, N.E. (2015), "Re-thinking research on born globals", *Journal of International Business Studies*, Vol. 46 No. 1, pp. 17–26.

Cowling, M., Liu, W., Ledger, A. and Zhang, N. (2015), "What really happens to small and medium-sized enterprises in a global economic recession? UK evidence on sales and job dynamics", *International Small Business Journal*, Vol. 33 No. 5, pp. 488–513.

Crick, D. (1995), "An investigation into the targeting of U.K. export assistance", *European Journal of Marketing*, Vol. 29 No. 8, pp. 76–94.

Czinkota, M.R. (1982), "*Export development strategies: US promotion policies*", London: Praeger Publishers.

Czinkota, M.R. and Johnston, W.J. (1981), "Segmenting U.S. firms for export development", *Journal of Business Research*, Vol. 9 No. 4, pp. 353–365.

Daunfeldt, S.O. and Elert, N. (2013), "When is Gibrat's law a law?" *Small Business Economics*, Vol. 41 No. 1, pp. 133–147.

Derbyshire, J. and Garnsey, E. (2014), "Firm growth and the illusion of randomness", *Journal of Business Venturing Insights*, Vol. 1 No. 1-2, pp. 8–11.

Dominguez, N. and Mayrhofer, U. (2017), "Internationalization stages of traditional SMEs: Increasing, decreasing and reincreasing commitment to foreign markets", *International Business Review*, Vol. 26 No. 6, pp. 1051–1063.

Figueira-de-Lemos, F., Johanson, J. and Vahlne, J. E. (2011), "Risk management in the internationalization process of the firm: A note on the Uppsala model", *Journal of World Business*, Vol. 46 No. 2, pp. 143–153.

Fotopoulos, G. and Giotopoulos, I. (2010), "Gibrat's law and persistence of growth in Greek manufacturing", *Small Business Economics*, Vol. 35 No. 2, pp. 191–202.

Gankema, H.G.J., Snuff, H.R. and Zwart, P.S. (2000), "The internationalization process of small and medium-sized enterprises: an evaluation of stage theory", *Journal of Small Business Management*, Vol. 38 No. 4, pp. 15–27.

Geroski, P. (1999), "*The growth of firms in theory and in practice*", London: Center for Economic Policy Research, Working Paper No. 2092. http://math.unife.it/economia/ls.applicata-politica/insegnamenti/economia-e-politica-industriale-avanzato/materiale-didattico/materiali-prof.ssa-labory-a.a.-2010-2011/geroski%20growth%20of%20firms%201999%20cepr.pdf

Hagen, B. and Zucchella, A. (2014), "Born global or born to run? The long-term growth of born global firms", *Management International Review*, Vol. 54 No. 4, pp. 497–525.

IMD (2017), IMD World Competitiveness Online, http://www.worldcompetitiveness.com/OnLine/App/Index.htm

Ipinnaiye, O., Dineen, D. and Lenihan, H. (2017), "Drivers of SME performance: a holistic and multivariate approach", *Small Business Economics*, Vol. 48 No. 4, pp. 883–911.

Johanson, J. and Vahlne, J.-E. (1990), "The mechanism of internationalization", *International Marketing Review*, Vol. 7 No. 4, pp. 11–24.

Kahiya, E.T. (2017), "Export barriers as liabilities: near perfect substitutes", *European Business Review*, Vol. 29 No. 1, pp. 61–102.

Knight, G.A. and Cavusgil, S.T. (1996), "The born global firm: A challenge to traditional internationalization theory", In S.T. Cavusgil, & T. Madsen (Eds.). *Advances in International Marketing* 8 (pp. 11–26). Greenwich: JAI Press.

Krasniqi, B.A., Mustafa, M. (2016), "Small firm growth in a post-conflict environment: the role of human capital, institutional quality, and managerial capacities", *International Entrepreneurship and Management Journal*, Vol. 12 No. 4, pp. 1165–1207.

Lejárraga, I. and Oberhofer, H. (2015), "Performance of small- and medium-sized enterprises in services trade: evidence from French firms", *Small Business Economics*, Vol. 45 No. 3, pp. 673–702.

Leonidou, L.C. (2004), "An analysis of the barriers hindering small business export development", *Journal of Small Business Management*, Vol. 42 No. 3, pp. 279–302.

Levinthal, D. (1991), "Random walks and organizational mortality", *Administrative Science Quarterly*, Vol. 36 No. 3, pp. 397–420.

Lotti, F., Santarelli, E. and Vivarelli, M. (2009), "Defending Gibrat's law as a long-run regularity", *Small Business Economics*, Vol. 32 No. 1, pp. 31–44.

Lukason, O. and Vissak, T. (2017), "Failure processes of exporting firms: evidence from France", *Review of International Business and Strategy*, Vol. 27 No. 3, pp. 322–334.

Morgan, R.E. and Katsikeas, C. (1997), "Theories of international trade, foreign direct investment and firm internationalization: a critique", *Management Decision*, Vol. 35 No. 1, pp. 68–78.

Morgan-Thomas, A. and Jones, M.V. (2009), "Post-entry internationalization dynamics: differences between SMEs in the development speed of their international sales", *International Small Business Journal*, Vol. 27 No. 1, pp. 71–97.

Nummela, N, Saarenketo, S. and Loane, S. (2016), "The dynamics of failure in international new ventures: A case study of Finnish and Irish software companies", *International Small Business Journal*, Vol. 34 No. 1, pp. 16–33.

Oviatt, B. and McDougall, P. (1994), "Toward a theory of international new ventures", *Journal of International Business Studies*, Vol. 25 No. 1, pp. 45–64.

Pavord, W.C. and Bogart, R.G. (1975), "The dynamics of the decision to export", *Akron Business and Economic Review*, Vol. 6 No. 1, pp. 6–11.

Reid, S.D. (1983), "Firm internationalization, transaction costs, and strategic behaviour", *International Marketing Review*, Vol. 1 No. 2, pp. 45–56.

Rialp, A., Rialp, J. and Knight, G. (2005), "The phenomenon of early internationalizing firms: What do we know after a decade (1993–2003) of scientific inquiry?" *International Business Review*, Vol. 14 No. 2, pp. 147–166.

Samiee, S. and Walters, P.G.P. (1991), "Segmenting corporate exporting activities: sporadic versus regular exporters", *Journal of the Academy of Marketing Science*, Vol. 19 No. 2, pp. 93–104.

Schlegelmilch, B.B. and Crook, J.N. (1988), "Firm-level determinants of export intensity", *Managerial and Decision Economics*, Vol. 9 No. 4, pp. 291–300.

Schueffel, P., Baldegger, R. and Amann, W. (2014), "Behavioral patterns in born-again global firms: Towards a conceptual framework of the internationalization activities of mature SMEs", *Multinational Business Review*, Vol. 22 No. 4, pp. 418–441.

Schwens, C., Zapkau, F.B., Bierwerth, M., Isidor, R., Knight, G. and Kabst, R. (2017), "International entrepreneurship: A meta-analysis on the internationalization and performance relationship", *Entrepreneurship Theory & Practice*, in press, doi: 10.1111/etap.12280/epdf

Sleuwaegen, L. and Onkelinx, J. (2014), "International commitment, post-entry growth and survival of international new ventures", *Journal of Business Venturing*, Vol. 29 No 1, pp. 106–120.

Stam, E. (2010), "Growth beyond Gibrat: Firm growth processes and strategies", *Small Business Economics*, Vol. 35 No. 2, pp. 129–135.

Terjesen, S.A., Hessels, J. and Li, D. (2016), "Comparative international entrepreneurship: A review and research agenda", *Journal of Management*, Vol. 42 No. 1, pp. 299–344.

Trąpczyński, P. (2016), "De-internationalisation: A review of empirical studies and implications for international business research", *Baltic Journal of Management*, Vol. 11 No. 4, pp. 350–379.

Vannoorenberghe, G., Wang, Z. and Yu, Z. (2016), "Volatility and diversification of exports: Firm-level theory and evidence", *European Economic Review*, Vol. 89, pp. 216–247.

Vissak, T. and Masso, J. (2015), "Export patterns: Typology development and application to Estonian data", *International Business Review*, Vol. 24 No. 4, pp. 652–664.

Vozikis, G.S. and Mescon, T.S. (1985), "Small exporters and stages of development: an empirical study", *American Journal of Small Business*, Vol. 10 No. 1, pp. 49–64.

Zander, I., McDougall-Covin, P. and Rose, E.L. (2015), "Born globals and international business: Evolution of a field of research", *Journal of International Business Studies*, Vol. 46 No. 1, pp. 27–35.

Table 1. Exporter types and export shares (in parentheses)

	Exporter types			Stages/firm types preceding export stages
	Experimental exporters	Active exporters	Committed exporters	
Cavusgil (1984)	experimental exporters (mostly <10%)	active exporters (mostly 10-40%)	committed exporters (mostly >40%)	pre-involvement and reactive involvement stages
Czinkota (1982)	experimental firms (not specified)	semi-experienced small exporters (not specified)	experienced large exporters (not specified)	the unwilling firm, the partially interested firm, the exploring firm
Czinkota and Johnston (1981)	experimental firms (mostly >5%)	semi-experienced small exporters (not specified)	experienced large exporters (not specified)	the unwilling firm, the uninterested firm, the interested firm (its export share <5%)
Cavusgil (1980)	experimental involvement (mostly <10%)	active involvement (not specified)	committed involvement (not specified)	domestic marketing and pre-export stages
Gankema et al. (2000)	experimental involvement (1-9%)	active involvement (10-39%)	committed involvement (>40%)	no exports
Lukason and Vissak (2017)	occasional exporters (average: 0.5%)	constant exporters (average: around 33%)		no exports
Pavord and Bogart (1975)	passive activity (not specified but only unsolicited export orders)	minor activity (not specified but the firm is sometimes looking for export orders)	aggressive activity (not specified but the firm is persistently looking for export orders)	no activity
Morgan-Thomas and Jones (2009)	reluctant internationalizers (≤10%)	regular internationalizers (11-49%)	rapid internationalizers (≥50% in ≤10 years since the first export activity)	no exports
Samiee and Walters (1991)	sporadic exporters (<5% in their sample)	regular exporters (>33% in their sample)		pre-export stage

Table 2. Manufacturing industry categories represented in the data.

Manufacturing industry division	NACE Rev. 2 groups (3-level codes)	Number of firms from each country	Median turnover in 2010-2013 (thousand EUR)	
			in Estonia	in Spain
Meat	101	8	6967.9	10233.9
Food and tobacco	102-109, 120	23	3696.3	6801.6
Beverage	110	5	8261.3	5557.3
Textiles and clothing	131-133, 139, 141-143	28	2135.5	2975.6
Leather, fur and footwear	151-152	7	1113.2	1409.2
Timber	161-162	13	12122.0	12988.8
Paper	171-172	6	5264.1	5745.8
Printing	181-182	6	3856.1	2931.0
Chemicals and pharmaceuticals	201-206, 211-212	6	18132.4	18342.4
Plastic and rubber products	221-222	20	3403.4	3925.9
Non-metal mineral products	231-237, 239	12	5153.3	8680.8
Fabricated metal products	241-245	30	3021.8	4221.1
Machinery and equipment	251-257, 259	19	3996.5	4354.5
Computer products, electronics and optical equipment	281-284, 289	7	12215.1	9877.5
Electric materials and accessories	261-268	14	5033.0	4392.3
Vehicles and accessories	271-275, 279	6	8214.9	4066.7
Other transport equipment	291-293	1	645.2	842.8
Furniture	301-304, 309	16	4345.2	4082.5
Other manufacturing	310	15	2482.7	2130.0
Total	321-325, 329	242	3684.2	4308.4

Note: all firms are matched by their size category (either micro-, small- or medium-sized firms), their specific size can differ. For instance, an Estonian firm and a Spanish firm with turnovers of 5 and 6 million EUR, respectively, are regarded well matched if they operate in the same industry.

Table 3. Frequencies of exporter types and medians, means and standard deviations (SD) of export shares (EXS) by exporter types

Exporter type	Number of firms per type	% of total	Statistic	EXS in a particular year, %			
				2010	2011	2012	2013
All firms							
Type 1: committed exporters	154	31.8	Median	91.1	90.5	90.9	90.6
			Mean	86.1	86.9	87.0	86.7
			SD	12.9	11.6	12.0	12.5
Type 2: active exporters	119	24.6	Median	40.9	43.8	44.8	44.3
			Mean	42.6	45.3	46.0	43.8
			SD	17.2	14.7	14.5	15.6
Type 3: experimental exporters	211	43.6	Median	7.0	7.0	9.5	7.9
			Mean	10.1	9.6	10.6	11.1
			SD	9.6	8.3	8.7	10.4
Total	484	100.0	Median	33.8	36.1	35.9	37.6
			Mean	42.3	43.0	43.6	43.2
			SD	35.1	35.1	34.7	34.8
Estonian firms							
Type 1: committed exporters	119	49.2	Median	93.4	91.7	92.1	91.2
			Mean	89.0	88.6	88.0	86.8
			SD	11.2	10.7	11.1	13.0
Type 2: active exporters	56	23.1	Median	42.4	44.2	47.4	42.1
			Mean	45.3	46.1	45.4	42.1
			SD	14.3	12.0	15.2	16.0
Type 3: experimental exporters	67	27.7	Median	8.7	9.1	7.8	6.5
			Mean	10.9	10.7	9.8	8.9
			SD	9.6	9.3	8.4	8.1
Total	242	100.0	Median	63.5	63.8	63.8	59.9
			Mean	57.3	57.2	56.5	54.9
			SD	35.5	35.0	35.5	35.9
Spanish firms							
Type 1: committed exporters	35	14.5	Median	77.5	81.6	84.4	89.0
			Mean	76.5	81.3	83.4	86.4
			SD	13.7	12.8	14.2	10.7
Type 2: active exporters	63	26.0	Median	39.4	42.4	43.6	44.6
			Mean	40.1	44.5	46.5	45.4
			SD	19.3	16.9	14.0	15.3
Type 3: experimental exporters	144	59.5	Median	6.4	6.8	9.6	9.6
			Mean	9.7	9.1	11.0	12.1
			SD	9.6	7.8	8.9	11.2
Total	242	100.0	Median	15.0	18.3	19.7	19.8
			Mean	27.3	28.8	30.7	31.5
			SD	27.5	28.8	28.7	29.4

Note: Chi-square contingency test p-value is 0.000 when analyzing contingency between the country of origin and exporter type.

Table 4. Export growth (EXG) medians, means and standard deviations (SD) by exporter types

Exporter type	Number of firms per type	% of total	Statistic	EXG in a particular year, %			
				2010	2011	2012	2013
All firms							
Type 1: committed exporters	154	31.8	Median	21.0	15.1	2.2	2.1
			Mean	33.1	20.9	6.7	3.7
			SD	60.6	35.2	24.2	27.3
Type 2: active exporters	119	24.6	Median	18.1	12.0	-1.9	-0.4
			Mean	42.4	41.3	9.9	6.0
			SD	93.1	88.2	57.1	57.9
Type 3: experimental exporters	211	43.6	Median	5.7	7.5	4.6	3.4
			Mean	50.2	37.1	39.6	27.0
			SD	135.8	110.6	121.3	115.1
Total	484	100.0	Median	16.2	12.4	2.2	1.5
			Mean	42.8	32.9	21.8	14.4
			SD	106.5	87.6	87.3	83.3
Estonian firms							
Type 1: committed exporters	119	49.2	Median	23.2	17.8	2.5	0.9
			Mean	38.4	22.2	6.6	0.5
			SD	64.9	36.0	23.8	25.2
Type 2: active exporters	56	23.1	Median	21.4	19.4	5.1	-0.4
			Mean	48.2	38.2	9.4	4.8
			SD	95.1	69.3	48.5	70.7
Type 3: experimental exporters	67	27.7	Median	13.1	16.6	5.4	-1.6
			Mean	66.7	43.7	18.6	17.6
			SD	136.6	102.1	99.1	112.6
Total	242	100.0	Median	22.8	18.0	3.6	0.3
			Mean	48.5	31.9	10.5	6.2
			SD	96.8	68.4	59.4	70.5
Spanish firms							
Type 1: committed exporters	35	14.5	Median	12.1	8.3	2.0	11.5
			Mean	15.2	16.3	7.1	14.6
			SD	38.3	32.4	26.1	31.7
Type 2: active exporters	63	26.0	Median	9.8	6.9	-5.2	0.4
			Mean	37.2	44.0	10.4	7.0
			SD	91.7	102.7	64.2	44.1
Type 3: experimental exporters	144	59.5	Median	4.1	2.5	4.4	5.0
			Mean	42.5	33.9	49.4	31.4
			SD	135.2	114.5	129.6	116.4
Total	242	100.0	Median	8.2	4.4	0.3	4.7
			Mean	37.2	34.0	33.1	22.6
			SD	115.4	103.5	107.3	93.8

Note: 3-sample median test p-values were > 0.01 for EXG for all the four years (also in case of all firms and countries separately), and thus, the median export growth/decline did not differ significantly through three exporter types.

Table 5. Export growth/decline patterns and their shares in Estonia and Spain.

Pattern	Pattern key (1: positive export growth, 0: export decline)				Share of a specific pattern, %		
	2010	2011	2012	2013	in Estonia	in Spain	in all data
EGP1	1	1	1	1	16.1	8.3*	12.2
EGP2	1	1	1	0	12.0	6.2*	9.1
EGP3	1	1	0	1	11.6	9.9	10.7
EGP4	1	0	1	1	3.7*	7.9*	5.8*
EGP5	0	1	1	1	5.8*	8.3*	7.0*
EGP6	1	1	0	0	13.6	10.3	12.0
EGP7	1	0	0	1	6.6*	5.0*	5.8*
EGP8	0	0	1	1	2.9	6.6*	4.8*
EGP9	1	0	0	0	4.5*	6.2*	5.4*
EGP10	0	1	0	0	2.1	6.2*	4.1*
EGP11	0	0	1	0	1.2	3.7*	2.5
EGP12	0	0	0	1	0.8	4.5*	2.7
EGP13	0	0	0	0	2.5	2.5	2.5
EGP14	1	0	1	0	4.1*	6.6*	5.4*
EGP15	0	1	0	1	2.9	5.0*	3.9
EGP16	0	1	1	0	9.5	2.9	6.2*
				Standard deviation	4.8	2.3	3.2

Note: Based on the random walk assumption, each growth pattern should have a share of 6.25%, with a 95% confidence interval 4.1%-8.4% in the sample of 484 firms. For 242 firms (Estonia or Spain separately), the 95% confidence interval is 3.2%-9.3%. The patterns in this range are marked with an asterisk (*).

Table 6. Contingency between exporter types and export growth/decline patterns.

	Exporter type									Total over all types
	1 (committed exporters)			2 (active exporters)			3 (experimental exporters)			
Pattern	Estonia	Spain	Total	Estonia	Spain	Total	Estonia	Spain	Total	
EGP1	24	4	28	11	5	16	4	11	15	59
EGP2	15	2	17	7	3	10	7	10	17	44
EGP3	19	6	25	4	9	13	5	9	14	52
EGP4	3	3	6	1	3	4	5	13	18	28
EGP5	5	7	12	3	5	8	6	8	14	34
EGP6	19	4	23	7	11	18	7	10	17	58
EGP7	6	2	8	3	2	5	7	8	15	28
EGP8	3	1	4	1	4	5	3	11	14	23
EGP9	3	3	6	4	6	10	4	6	10	26
EGP10	1	0	1	1	4	5	3	11	14	20
EGP11	1	1	2	0	1	1	2	7	9	12
EGP12	0	1	1	2	1	3	0	9	9	13
EGP13	2	0	2	2	0	2	2	6	8	12
EGP14	8	1	9	0	5	5	2	10	12	26
EGP15	2	0	2	2	3	5	3	9	12	19
EGP16	8	0	8	8	1	9	7	6	13	30
Total	119	35	154	56	63	119	67	144	211	484

Note: Chi-square contingency test p-value was 0.000 for whole sample, 0.070 for Estonia, and 0.138 for Spain.

Appendix 1. A summary of study designs by four research questions.

Research question	Variables and methods applied for studying each RQ	Table number
RQ1. Detection of exporter types	K-means cluster analysis of export shares (EXS) from 2010-2013 in the whole sample. K is detected based on the first local maximum of pseudo-F statistic. The contingency between two countries and exporter types is studied with chi-square test.	3
RQ2. Differences in growth/decline for exporter types	Presentation of descriptive statistics of export growth (EXG) for exporter types outlined under RQ1 and k-sample median tests to discover whether medians of EXGs differ significantly through exporter types.	4
RQ3. Randomness of export growth/decline patterns	Export growth/decline patterns (EGPs) determined manually based on Coad et al. (2013) assuming that either growth or decline occurs in each of the four consecutive years. This results in 16 theoretically possible patterns. The randomness of the share of each pattern is established by accounting if it falls in the respective binomial proportion confidence interval.	5
RQ4. Interconnection of exporter types and EGPs	The contingency between exporter types detected under RQ1 and EGPs detected under RQ3 is studied with chi-square test.	6