

# **S** JOURNAL OF SMALL BUSINESS **STRATEGY**

## **THE EFFECT OF EARLY INTERNATIONALIZATION ON SURVIVAL, CONSISTENCY, AND GROWTH OF EXPORT SALES**

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### **ABSTRACT**

*This paper presents the results of a ten year longitudinal analysis of almost 19,000 Polish manufacturing firms engaged in export operations. Export dynamics was measured by the rate of growth, consistency of export sales and survival in international operations. It was found that early involvement in international activities negatively affected the survival and regularity of sales of small exporters but that had a positive impact on larger exporters. A strong commitment to internationalization and a capacity for managing rapid growth are factors in achieving high growth in international sales over time. Managerial implications include recognizing the risk of possible failure when they enter international markets, and take into account that export volumes may stagnate after a first opportunity and not justify the initial effort to expand abroad. To remedy such unfavorable outcomes, managers should plan carefully before entering export markets or undertaking subsequent phases of export growth.*

**Keywords:** Internationalization, Survival, SMEs, Exports, Transition Economies

## INTRODUCTION

Small Medium Enterprises (SMEs) that internationalize early are considered “born global” and have the strategic advantage of early international operations that may have a positive impact on overall growth, particularly export sales (Keupp & Gassman, 2009). In fact, early definitions of born global enterprises have consistently included rapid growth (Bloodgood, Sapienza, & Almeida, 1996; Oviatt & McDougall, 1995) and a strong entrepreneurial orientation (McDougall & Oviatt, 2000).

The link between early internationalization and subsequent growth of export firms in emerging economies has not been well-researched (Autio et al., 2000; Bloodgood et al., 1996). While there have been limited studies on the effect of early internationalization on growth and profitability, the results of these studies have been attributed, for the most part, to survival bias. Bloodgood et al. (1996) stressed the need for longitudinal studies of young SMEs that internationalize. The purpose of our study is to examine longitudinally the relationship between early internationalization and growth to understand the relationship between early internationalization and strategic advantage for SMEs. We contribute to the literature by conducting a longitudinal analysis of export growth trajectories by dividing our sample into non-surviving exporters, low surviving exporters (those that survive but engage in export operations sporadically,

typically with a low level of export volumes), and successful exporters. This approach allows us to compare our results to the key findings of comparable studies in high-growth literature, thereby augmenting the body of knowledge relevant to both streams of research. In line with other studies focusing on SMEs, we limit the analysis of internationalization process to exports. SMEs rarely engage in more advanced entry modes, such as FDI or co-operative arrangements with foreign partners. We examine the SME characteristics longitudinally with respect to growth rates of export sales in light of the existing stream of research on high-growth SMEs (OECD, 2008).

Launching early international operations allows an SME to broaden its customer base, thereby facilitating implementation of a rapid growth strategy. Some indirect effects that stem from early internationalization include exports that may help achieve economies of scale and higher labor productivity; diversification of revenues that diminish the adverse effects of business cycles; and international exposure that enhances development of new knowledge, which stimulates innovation and future growth (Salomon & Shaver, 2005). SMEs that internationalize early build knowledge more efficiently than do those that enter international markets later, in part, because born global firms allow modification of existing domestic market operations for the international market. These firms have a built-in “learning

advantage of newness” (Autio, Sapienza, & Almeida, 2000).

However, dilution of limited capital, materials, and human resources across a number of geographic destinations can pose a serious risk to the survival of young SMEs. While early globalization can enhance long-term growth opportunities for SMEs, early internationalization may threaten short-term survival. Sapienza, Autio, and Zahra (2006) differentiated between the impact of early internationalization on future growth and its impact on survival chances. While early internationalization may have a positive impact on long-term growth, a capital-intensive process may reduce short-term survival. The sooner an SME begins exporting in the early phases of its life cycle, the greater the negative effects on its survival. Gabriellsson, Kirpalani, Dimitratos, Solberg, and Zucchella (2008) found that early initiation of export activities sometimes occurs without the commitment and organizational maturity required for success. High-tech born global SMEs typically initiate sales to international markets early because of limited opportunities in their domestic markets (Kudina, Yip, & Barkema, 2008), but rarely demonstrate subsequent growth (Mustar et al., 2006).

The paper proceeds in the following manner. The next section describes exporting and explains why a longitudinal study is useful in describing new firm survival and growth. Exporters fall into three groups based on success and survival. Our hypotheses are

developed. Second, we describe our sample, which includes Polish manufacturing SMEs that were active as exporters during 1993–2003. The third section of the article describes the methodology used to test our hypotheses. We address both the issue of the impact of early internationalization on the survival and consistency of export sales as well as identify the key characteristics of high-growth exporters. The fourth section describes the results of this analysis. The fifth section discusses conclusions and implications from the study.

## **THEORETICAL FRAMEWORK AND HYPOTHESES**

**Exporting** The previous studies of Small Medium Enterprises’ (SMEs) export activities have identified not only key differences between exporters and non-exporters, but also identified strategic differences in exporters’ behaviours after launching international sales. Some firms export permanently, while others engage in such operations sporadically. This heterogeneity has been observed in both developed (Johansson, 2009) and emerging countries (Alvarez, 2007). The sporadic exporters face greater difficulties in building sizeable export volumes that represent a significant percentage of their total sales (Samiee & Walters, 1991). Consequently, this hampers their export knowledge base. The positive effects of exporting most often benefit permanent exporters that place a significant portion of their sales on international markets (Alvarez, 2004; Anderson & Loof,

2008). These findings have significant implications for designing effective exporting programs: Instruments could be developed for the purpose of reducing entry costs; characteristics of superior exporting firms could be identified to assist in the export firm selection process; and success criteria could be identified to increase the chances of permanent export involvement for firms (Alvarez, 2007).

The need to explore this segment of smaller, sporadic, and generally less successful—in terms of their expansion in international markets—exporters has been only modestly addressed in the literature. McAuley (1999) studied the internationalization patterns of the Scottish micro-enterprises in arts and crafts businesses, which were identified “instant exporters”—as those that launch international sales within the first year of doing business. In one out of three cases, their involvement in exporting was unplanned and originated at trade shows or through other networks. McNaughton (2003) focused on a group of small Canadian exporters to investigate the number of markets served. Bell, McNaughton, Young, and Crick (2003) identified the incidental patterns of export initiation, the stagnation of export sales after the initial expansion, and fluctuations of export involvement over time. The authors suggested that the “sporadic” trajectory is a specific internationalization pathway that is different from both the incremental and the born-global routes.

### **Early internationalization and information systems**

The impact of early internationalization on firm survival, stability, and growth of exporting SMEs is affected by the rapidly changing environment in which international business has been conducted since the end of the 20<sup>th</sup> Century. The widespread application of information systems, the use of the internet, the decreasing cost of international travel, the flow of goods and services across borders based on lower customs and elimination of trade barriers, and the movement toward greater economic integration, particularly within regional alliances like the European Union (EU), have all positively impacted the business environment for exporting.

The role of information systems is of particular relevance for the internationalization efforts of smaller, young firms in the pre-internet era affected by the liabilities of foreignness and newness, while initiating export sales (Arenius, Sasi, & Gabrielsson, 2006). Internet technologies reduce both these liabilities and opening significant opportunities for young, rapidly growing firms to internationalize quickly. One of the key concepts in the entrepreneurship literature is the “liabilities of newness.” Morse, Fowler, and Lawrence (2007) argue that this concept should be re-examined in light of contemporary technological and social changes since, by implementing modern information technologies, firms can greatly reduce

the negative effects of newness. They explain that it is possible to build solid relationships through electronic ties while effectively managing a much greater number of individual connections, and adding new relationships that matter more efficiently.

There is widespread agreement in the literature that the liability of foreignness is greatly lowered with the use of modern internet technologies. As Loane, Bell, and Deans (2007) pointed out, “smaller firms can particularly benefit from the internet to gather information, promote themselves, and service customers in new markets for relatively little expense” (p. 279). An unsolicited international order is often a central factor in a firm’s decision to begin export sales (Bilkey & Tesar, 1977). This event is much more likely to occur via the internet than with earlier means of communication. A well-designed website of a young firm may attract potential customers and help overcome the trust barrier, which is the key disadvantage of the “liability of newness” (Loane, McNaughton, & Bell, 2004). Young firms can efficiently use the internet to facilitate information sharing and establish collaborative networks with partners that are often much larger in terms of size and resources (Prashantham, 2005).

The extensive use of e-commerce also leads to a reduction in the perceived psychic distance between home and international markets. Nevertheless, as Yamin and Sinkovits (2006) suggested, this may eventually lead to a “virtuality trap,” defined as an extensive reliance on

online information sources while downplaying alternative, more direct ways of learning about international markets. Clearly, the perception of reduced psychic distance provides additional stimuli for early internationalization by small and young exporters but can also lead to a lack of risk assessment in decision-making.

The overwhelming positive effects of information systems have given way to the possible negative ramifications of early internationalization and subsequent growth of new ventures. In fact, researchers have identified information system technology as the key enabler of firm growth (Mitra, 2005). However, the impact of information systems is much more complex. In a number of industries, these technologies have greatly reduced sunken costs associated with entry into international markets. These costs include market research, building sales channels, adjusting products to local preferences and requirements, and legal and governmental requirements, among others. In the past, such costs constituted significant barriers for smaller firms with limited financial and human resources (Bernard & Jensen, 1999; Roberts & Tybout, 1997). Since the internet decreases not only the economic costs of expanding internationally, but the liability of newness, the liability of foreignness, and psychic distance, young firms with minimal resources and a strong growth strategy can engage in international operations at a much earlier stage (Cabrol & Nlemvo, 2009). This is particularly true with regard to cross-border trade within economically

integrated groups, such as the European Union or North America through the North American Free Trade Agreement (NAFTA).

Based on the internationalization and exporting literature, we believe that the widespread application of ICT technologies has the effect on early internationalizing firms becoming heterogeneous (Davidsson & Wicklund, 2000; Davidsson, Kirchhoff, Hatemi-J, & Gustavsson, 2002). In addition to firms with substantial potential and determination to expand internationally, a growing number of micro-exporters operate on a smaller scale (Davidsson, Kirchhoff, Hatemi-J, & Gustavsson, 2002).

Therefore, early internationalization affects micro-exporters differently than it does exporters that are more substantial. Based upon the heterogeneity in the population of exporters, the impact of early internationalization on survival, and the consistency of export sales:

*H 1.1. The longer the time to internationalization for a micro-exporter, the more likely it is a surviving exporter.*

*H 1.2. The longer the time to internationalization for a surviving micro-exporter, the more likely it is a regular exporter.*

*H 1.3. The longer the time to internationalization for a substantial exporter, the less likely it is a surviving exporter.*

*H 1.4. The longer the time to internationalization for a surviving substantial exporter, the less likely it is a regular exporter.*

### **Entrepreneurial behavior**

We also expect highly diverse growth patterns in export sales once exporters survive the initial period that is typically turbulent and unstable (Morgan-Thomas & Jones, 2009). Only some embark on an accelerated growth strategy thereafter, whereas others settle for relatively low export volumes. Because of limited research on the growth of international sales (Halabisky, 2005; Klatt, 2006), we refer to the entrepreneurship literature on new venture growth in order to identify key characteristics at the firm level that differentiate dynamic exporters from slow-growing or declining ones (Wiklund, Patzelt, & Shepherd, 2009; McKelvie & Wiklund, 2010; Davidsson, Steffens, & Fitzsimmons, 2009). After reaching an initial level of stability or “business platform” (Davidsson & Klofsten, 2003), new ventures typically face major challenges during the accelerated growth stage (Flamholtz & Randle, 2000). Among the factors that influence high growth (Gilbert, McDougall, & Audretsch, 2006), two are particularly relevant to international expansion (Klatt, 2006): the founders’ strong motivation to grow, reflected in the venture’s growth-oriented vision (Barringer, Jones, & Neubaum, 2005), and the managerial capability to cope with the problems and obstacles typically encountered during the rapid-growth

phase (Barringer & Jones, 2004). Therefore,

*H 2. High-growth exporting firms are predominantly those with a long-term international commitment and strong managerial capacity for carrying out international operations.*

In addition, a commitment to international expansion and the managerial capacity to deal with rapid growth in international markets are integral for success (Knight & Kim, 2009; Cadogan, Kuivalainen, & Sunqvist, 2009). Initiating export operations immediately after start-up indicates a strong commitment to international markets according to the “born global” literature. When the time needed to reach the minimum threshold of export volume after the initial export sale is shorter, there is likely to be a strong commitment to expand exports in subsequent years

*H 2.1: The time between company formation and the first export sale is negatively associated with the company's export growth rate.*

*H 2.2: The time between launching export sales and reaching an annual export volume exceeding the minimum threshold is negatively associated with the company's export growth rate.*

The choice of legal form is an important firm-specific attribute that affects future performance (Brüderl & Schüssler, 1990). The key distinction is between the sole proprietorships and partnerships as compared to corporate vehicles, like

limited liability and joint stock companies. Particularly for suppliers in emerging transition economies, the use of limited or joint stock companies can moderate the use of corporate legal vehicles help to reduce the liability of foreignness, as well as importers' and customers' negative perceptions of the country of origin. Ownership form does make a difference in the success of small firms (for a full review of the literature prior to 1994, see Storey 1994). Almus and Nerlinger (1999) found that firms that had a limited liability form realized higher growth rates than firms that had their founders' private capital investments liable. The study included a multivariate analysis of high-tech German firms. Therefore:

*H 2.3 a: The use of corporate legal vehicles is positively correlated with a company's export growth rate.*

*H 2. 3 b: Limited liability or joint stock companies will have greater growth than firms operating as sole proprietorships.*

*H 2. 3 c: Limited liability or joint stock companies will have greater growth than firms that operating as partnerships.*

It is difficult to achieve a high level of aggregated growth over a longer period when expansion is interrupted by setbacks, such as a year when export sales decline compared to the previous year (Garnsey & Heffernan, 2005). Therefore, high-growth exporters use deliberate growth management policies so that they experience fewer setback

years in export sales than do their slower-growing counterparts:

*H 2.4: The number of setback years relative to the total export horizon (time between the first export sale and the last observation year) is negatively associated with the company's export growth rate.*

The ability to achieve low volatility of export sales during turbulent, rapid-growth periods is even more difficult and calls for sophisticated planning techniques because increased volatility often results in production bottlenecks, deteriorating quality, problems meeting delivery schedules, and cash flow problems (Nicholls-Nixon, 2005). High-growth exporters with strong managerial capabilities are better equipped to avoid excessive volatility in their annual export sales:

*H 2.5: High volatility of export sales is negatively associated with a company's export growth rate.*

The overall research design is illustrated in Figure 1.

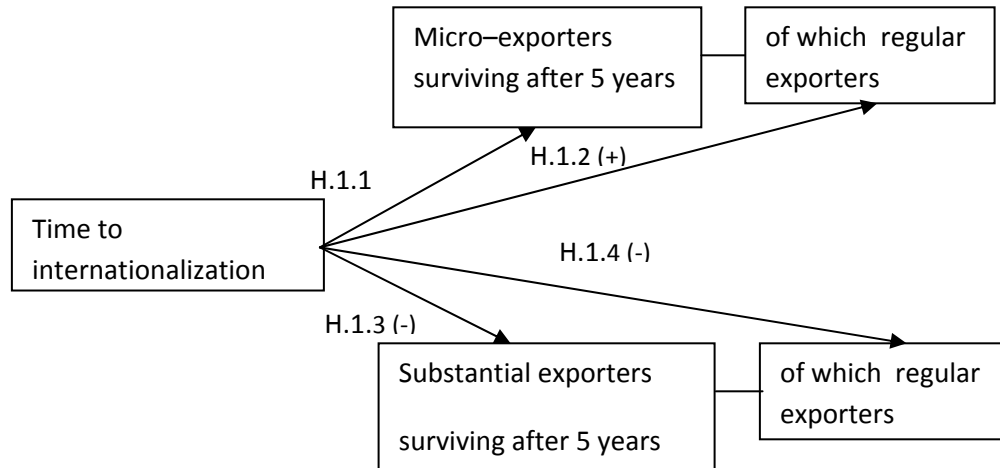
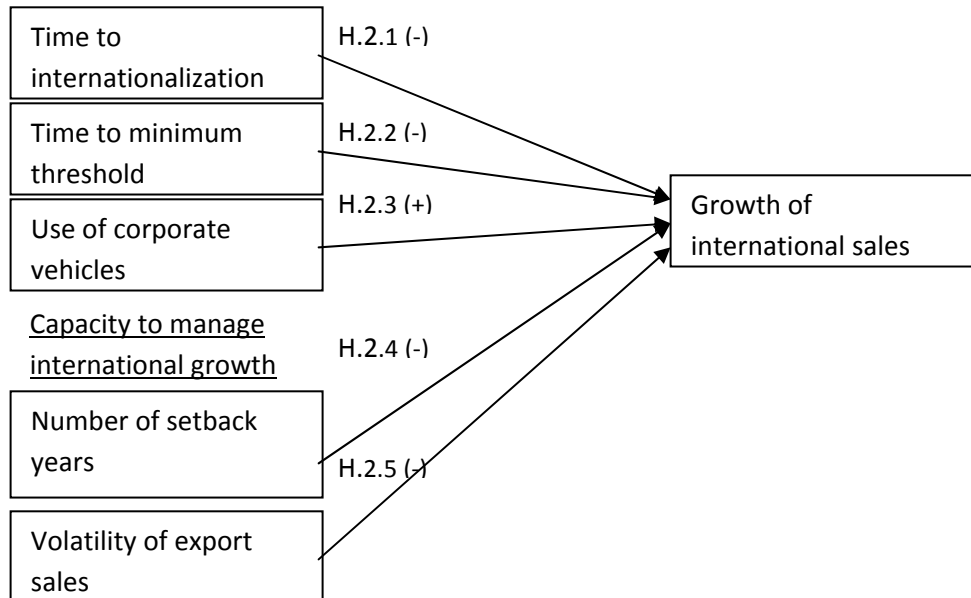
## METHODOLOGY

### Sample

Our longitudinal data set includes the entire population of 158,300 Polish firms engaged in export commodity trade

during the period 1993-2003. The data were provided by the Foreign Trade Data Centre (FTDC), a public organization responsible for compiling and processing official statistics on Poland's export/import commodity turnover. We refer to this data set as the FTDC Database. Access to such comprehensive, longitudinal database provided a unique opportunity. Unfortunately, regulatory changes enacted in 2004 prohibited access to the data beyond 2003. During the period covered by our analysis, all exporters in Poland were required to register with customs in order to process relevant documents on commodity export transactions. Therefore, the database is considered highly reliable. While records on annual export volume were readily available, additional data on individual exporters was somewhat limited. For each exporter, we identified the industry, year of establishment, legal form, region, and ownership type. Total sales or employment data for individual firms was not available. However, the longitudinal data available allowed us to analyse the growth trajectories of export sales, the core premise of our research. Because of high inflation rates during the period under investigation, we adjusted export values for inflation by using Producer Price Indexes (PPI) (EconStats, 2006).



**Figure 1-Study Design**Phase 1. Micro and substantial exportersPhase 2. Surviving substantial exportersCommitment tointernational expansion

Because of the size of the population of exporters, we adopted certain thresholds in regard to the volume of export sales. In order to eliminate the impact of incidental export transactions within the micro-exporter category, we distinguished a sub-category of marginal exporters defined as those that never exceeded an annual export volume of 80,000 PLN (approximately \$20,000 USD). Assuming an optimistic profit margin of export sales, this threshold equates roughly to the average annual wage in the private sector in Poland during the period covered by our analysis. We found a surprisingly high proportion of marginal exporters; they accounted for 61.4% of the population of firms engaged in exporting during 1993 – 2003 and for 46.4% of those engaged in exporting in 2003.

For categorizing the micro-exporters and substantial exporters, we adopted an annual export sales limit of 800,000 PLN (approximately \$200,000 USD), which is used in the Polish statistical system as a threshold for distinguishing exporters that are not required to provide detailed statistics on commodity turnover within the European Union. We applied this threshold as a substitute for the minimum employment level in the growth analysis.

The core analysis of the survival, consistency and subsequent growth of export sales was confined to 18,896

exporting firms, from the original set of 158,300 firms, that met the following criteria: not a marginal exporter; established after 1988 (to eliminate transition-specific factors); not a subsidiary of a foreign corporation (to eliminate the impact of the parent company on the export decisions and the export process in general); and belonging to the manufacturing sector (NACE Classification Division 15 to 37). This represented 49% of the total number of firms. We excluded the second-largest group of exporters, trading companies, since their inclusion could confound the results due to the inherent differences between the two industry groups. The remaining firms were predominantly service firms. We also excluded these firms because cross-border service transactions cannot be accurately captured in commodity trade statistics.

***Impact of early internationalization.*** In order to assess the impact of early internationalization on firm survival and on the consistency of export sales, we examined the status of 8,563 exporting firms that launched export activities during 1994-1998, five years after their initial export sales (See Table 1). Davidsson, Kirchhoff, Hatemi-J, and Gustavsson (2002) found that age, industry, beginning size, ownership form, and legal form are the most important factors related to growth for small independent firms.

**Table 1- Polish Manufacturing Firms Initiating Export Sales During 1994 – 1998**

Survival as exporters after 5 years and regularity of export sales (number of firms and % of the total)

Source: Own computations based on the FTDC Database

Exporter Category	All firms (number)	Status t + 5		As % of total					
		Non-surviving	Surviving	of which regular	Sporadic	Non-surviving	Surviving	of which regular	Sporadic
Micro-exporters	5540	2056	3484	2288	1196	37,1%	62,9%	41,3%	21,6%
Substantial exporters	3023	646	2377	2179	198	21,4%	78,6%	72,1%	6,5%
Total	8563	2702	5861	4467	1394	31,6%	68,4%	52,2%	16,3%

Surviving exporters were defined as those firms that continued as exporters five years after launching export sales. The five-year period is consistent with how new venture survival is categorized in the entrepreneurship literature as well as with how high-growth firms and gazelles are categorized by OECD/Eurostat (OECD, 2008). Among surviving exporters, we distinguished between regular exporters (those with consistent export sales) in the five consecutive years after launching, and irregular exporters (those failing to export in one or more years within the five year time period). This categorization is more complex than literature implicates (Alvarez, 2007; Johansson, 2009; Samiee & Waiters, 1991). Thus far, sporadic exporters are defined as those with at least one missing export year, including the last year of observation. By further delineating our sample, we are able to capture a more detailed analysis of irregular exporters by distinguishing between non-surviving exporters and sporadic ones.

***Characteristics of High-Growth Exporters.*** The analysis of growth rates of export sales of surviving, substantial exporters was conducted by adopting the most recent accepted definition of high-growth firms by the OECD and Eurostat (OECD, 2008), and measuring their contribution to the economy. High-

growth firms are those whose average growth rate of employment or sales greater than 20% during three years, with a minimum of ten employees in the base year. “Gazelles” achieve high-growth status within five years of beginning operations.

We adopted the OECD/Eurostat definition of high-growth firms as well as their definition of high-growth exporters, with the following adjustments. First, our growth analysis was confined to export sales since the corresponding figures on total sales and employment were not available. Second, instead of a minimum employment threshold of 10 people in the base year that was used in the OECD (2008) methodology, we used the minimum sales volume of export sales (800,000 PLN- approximately \$200,000 USD) to distinguish micro-exporters in the Polish customs statistics.

## ANALYSIS

***Early Internationalization.*** To test the relationships between early internationalization and the survival and the consistency of export sales in the first hypothesis, we conducted four binary logistic regressions. Descriptive data including zero-order correlations are presented in Table 2, and the results of the binary logistic regressions in Table 3.

**Table 2- Means, Standard Deviations, and Correlations in Logistic Regression Analysis**

Variables	Mean	STD	1	2	3	4	5	6	7
1. Surviving	.68	.465							
2. Time to Internationalization (in years)	2.26	2.164	.016						
3. Firm Age	9.40	2.435	.017	.819**					
4. Factor intensity (science-based)	.02	.147	.020	.010	-.006				
5. Factor intensity (specialized supplier)	.10	.297	.046**	.026*	.016	-.049**			
6. Factor intensity (scale-intensive)	.18	.382	.005	.032**	.022*	-.070**	-.153**		
7. Factor intensity (labor-intensive)	.35	.476	.053**	.031**	.024*	-.110**	-.240**	-.340**	
8. Factor intensity (resource-intensive)	.35	.478	-.092**	-.077**	-.049**	-.111**	-.244**	-.345**	-.542**

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

N = 8,563

First, we estimated the coefficients of two models—one model for micro-exporters (Model 1) and the other for substantial exporters (Model 3). Then we estimated the coefficients of two other models – one model for micro-exporters (Model 2) and the other for substantial exporters (Model 4). In each model, we measured the independent variable, time to internationalization, as the number of years between the year of establishment and the first recorded export sale. We controlled for two factors:

1) *Firm age*- the number of years from the formation of the firm to 2003.

2) *Industry effects*- industries categorized by factor intensity that included science-based, specialized supplier, scale-intensive, labor-intensive, and resource-intensive groups.

This is one of the key classifications used for the analysis of patterns and specialization in international trade at the industry and country level (OECD, 1987).

**Table 3-Logistic Regression Results for Surviving, Non-Surviving, Regular and Irregular Exporters**

Models 1 and 3: Dependent variable: 1 = Surviving exporter; 0 = Non-surviving exporter  
 Models 2 and 4: Dependent variable: 1 = Regular exporter; 0 = Irregular exporter; only surviving exporters considered

	<b>Model 1 (micro-exporters) N = 5,540</b>	<b>Model 2 (micro-exporters) N = 3,484</b>	<b>Model 3 (substantial exporters) N = 3,023</b>	<b>Model 4 (substantial exporters) N = 2,377</b>
<b>Independent variable</b>				
H1.1: Time to internationalization (confirmed)	.050**			
H1.2: Time to internationalization (not confirmed)		-.012		
H1.3: Time to internationalization (not confirmed)			-.058	
H1.4: Time to internationalization (confirmed)				-.195***
<b>Control variables</b>				
Firm age	.001	-.103***	.080*	.064
Factor intensity (science-based) <sup>1</sup>	.071	-.075	.651	.039
Factor intensity (specialised supplier)	.121	-.092	.214	.185
Factor intensity (scale-intensive)	-.206**	-.272**	.232	-.164
Factor intensity (resource-intensive)	-.476***	.022	-.279**	-.152
Hosmer and Lemeshow $\chi^2$	11.37 ( <i>p</i> = .182)	9.55 ( <i>p</i> = .298)	12.06 ( <i>p</i> = .148)	20.40 ( <i>p</i> = .009)
-2LL	7221.11	4415.52	3106.96	1342.59
Overall % correct	62.9%	65.5%	78.6%	91.7%
Nagelkerke R <sup>2</sup>	.021	.026	.015	.020

Note. Regression coefficients: \*\*\* *p* < .001; \*\* *p* < .01; \* *p* < .05; † *p* < .10; two-tailed tests

<sup>1</sup> 'Factor intensity (labor-intensive)' used as base category

**Characteristics of High-Growth**

**Exporters.** In testing the second hypothesis, we used hierarchical linear regression to measure growth in annual

export sales against the independent variables of time to internationalization, years to minimum export threshold, legal form, setback years, and volatility in the annual export sales. We controlled for firm age and industry effects.

The base population used in the statistical analysis were 18,896 domestic manufacturing firms engaged in exporting during 1993–2003. In the regression analysis, we selected 8,545 firms established after 1992 that were still exporting in 2003. Among those firms, only 2,411 had exceeded the micro-firm level export sales of 800,000 PLN (\$200,000 USD) at least once and had positive export sales in 1999 or earlier. This is based on the work of Hair, Black, Babin, Anderson, and Tatham (2006), that when regression analysis is used with one independent variable there must be a minimum of five observations. After deleting extreme data points with values beyond four standard deviations from the mean (a univariate detection of outliers) or unusually high Mahalanobis  $D^2$  measures (a multivariate detection of outliers) [Hair et al., 2006], the final sample consisted of 2,376 firms.

*The dependent variable: Growth in annual export sales.* Sales are often considered one of the more suitable indicators of growth (Davidsson & Wiklund, 2000). Following the recommendation by Weinzimmer, Nystrom, and Freeman (1998), we used

the OLS regression coefficient as a measure of growth. This approach recognizes changes in observations during the middle years of the time horizon and is preferable over growth measures that are based on only two observations—the first and last. Accordingly, the regression coefficients were calculated separately for each of the 2,376 firms based on all the observations available for each firm, as its Actual Export Horizon (AEH). AEHs ranged from 11 observations for firms established in 1993 to five observations for firms established in 1999.

Independent variables: Time to internationalization, years to minimum threshold, legal form, setback years relative to AEH, and volatility in annual export sales. Time to internationalization was measured by the number of years between the year of establishment and the first recorded export sale, the same as the binary logistic regression. Beginning export operations soon after start-up indicates a strong commitment to international business. Years to minimum threshold was operationalized as the number of years between the year of the first recorded export sale and the year in which export sales reached the minimum level of 800,000 PLN (\$200,000 USD). Reaching this minimum threshold in the initial phase of export development indicates strong commitment to export growth. Legal form was a corporation (joint-stock or limited liability), a sole proprietorship, or a partnership. Limited liability frees the owners of some types of liability due to the firm's operations. Setback years

relative to AEH was calculated by determining the number of times export sales in year (t) were not higher than export sales in year (t-1). Then, we divided these numbers by the AEHs to account for the numbers of years which export sales may take place for a given firm (Garnsey & Heffernan, 2005). Volatility in annual export sales was measured by the firm's annual export sales as the coefficient of variation (e.g., Pinches & Kinney, 1971), divided by the AEH.

*Control variables: Firm age and industry effects.* These same control variables were used in the previous binary regression analysis. Growth in annual export sales was measured against the control and independent variables by entering the control variables and adding the independent variable. The correlations between the independent variable coefficients are not higher than

the threshold of 0.7 (Anderson, Sweeney, & Williams, 1996), and a majority are within an acceptable  $\pm 0.2$  range. Nevertheless, we checked for potential multicollinearity by also examining the variance inflation factors and found them all to be at acceptable levels, with VIFs well below 10.0 (Neter, Kutner, Nachtsheim, & Wasserman, 1996). Calculations of VIFs ranged from a low of 1.066 to a high of 1.865. We also employed Levene's (1960) test to check for heteroskedasticity, which was found to be a problem with the data. Graphical inspection of the plots involving standardized residuals versus the dependent (predicted) values, as well as the independent and control variables also revealed heteroskedasticity problems. Consequently, all variance-covariance matrices were estimated according to White's (1980) method. See Table 4 for descriptive data, including zero-order correlations.



**Table 4-Means, Standard Deviations, and Correlations in Linear Regression Analysis**

Variables	Mean	STD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Growth in Annual Export Sales	483,003.87	1,209,891.28													
2. Time to Internationalization (in years)	.91	1.24	-.012												
3. Years to Minimum Threshold	2.02	2.18	-.102**	.114**											
4. Corporation	.49	.50	.121**	-.128**	-.186**										
5. Sole Propriet.	.30	.46	-.078**	.116**	.134**	-.645**									
6. Partnership	.21	.41	-.061**	.026	.077**	-.500**	-.340**								
7. Setback Years relative to AEH	.33	.17	-.398**	-.101**	-.124**	.054**	-.031	-.031							
8. Volatility in Annual Export Sales	80.15	44.17	.025	.161**	.530**	.015	-.010	-.007	.090**						
9. Firm Age	7.62	1.85	-.095**	.350**	.235**	-.040*	.061**	-.019	.144**	.147**					
10. Factor intensity (science-based)	.02	.16	-.007	.007	.047*	.110**	-.088**	-.035	.009	.030	.002				
11. Factor intensity (specialized supplier)	.11	.36	-.047*	-.028	-.015	.115**	-.087**	-.043*	.016	.017	-.045*	-.055**			
12. Factor intensity (scale-intensive)	.16	.37	.023	.008	.072**	.077**	-.096**	.015	-.008	.118**	.025	-.070**	-.153**		
13. Factor intensity (labor-intensive)	.35	.48	-.056**	.046*	-.026	-.149**	.133**	.033	.011	-.114**	.020	-.117**	-.255**	-.325**	
14. Factor intensity (resource-intensive)	.35	.48	.070**	-.037	-.035	-.020	.026	-.005	-.019	.001	-.011	-.118**	-.256**	-.326**	-.545**

## RESULTS

### Early Internationalization

The binary logistic regression results are found in Table 3. Two hypotheses were confirmed – the longer the time to internationalization for a micro-exporter, the more likely it is to be a surviving exporter (Model 1), and the longer the time to internationalization for a surviving substantial exporter, the less likely it is to be a regular exporter (Model 4). The time to internationalization has no statistically significant effect on the likelihood of a surviving micro-exporter's being a regular exporter (Model 2) and the time to internationalization has no statistically significant effect on the likelihood of a substantial exporter's surviving as an exporter (Model 3), were not supported.

### Characteristics of High-Growth Exporters

Table 5 shows the results of the hierarchical regression analysis. Model 1 (Table 5, first column) shows the results when only the control variables were included. The hypothesis is tested in Model 2 (Table 5, second column) by including the control and independent variables and was significant ( $\Delta R^2 = .179$ ;  $p = .00$ ). Hypotheses 2.1, 2.2, 2.3a, 2.3b, and 2.4 are supported.

Beginning export operations soon after start-up (H 2.1), reaching the minimum threshold (800,000 PLN) in the initial phase of export development (H 2.2), choosing a corporate legal vehicle (limited liability or joint-stock company) rather than a sole proprietorship (H 2.3a) or a partnership (H 2.3b), and minimizing the number of setback years relative to the length of export horizon (H 2.4) are significant predictors of high growth in annual export sales.

We also found support for the relationship between volatility and growth in annual export sales, although it was in the direction opposite to that predicted in Hypothesis 2.5. Those exporters with high growth rates of export sales typically experienced greater volatility of such growth rates.

Concerning the control variables, we found (see Table 5; Model 2) that firm age is not significantly related to a firm's growth in annual export sales and compared to labor-intensive firms, specialized suppliers exhibit lower growth in annual export sales and resource-intensive firms show higher growth. Neither science-based nor scale-intensive firms show any significant difference in growth in annual export sales when compared to labor-intensive firms.

**Table 5-Regression Results for Growth in Annual Export Sales (N=2,376)**

<b>Dependent Variable</b>	<b>Model 1</b>	<b>Model 2</b>
H1: Time to internationalization		-.057***
H2: Years to minimum threshold		-.117***
H3a: Legal form (sole proprietorship) <sup>1</sup>		-.106***
H3b: Legal form (partnership/other)		-.119***
H4: Setback years relative to AEH		-.172***
H5: Volatility in annual export sales		.088***
<i>Control variables</i>		
Firm age	-.053***	.003
Factor intensity (science-based) <sup>2</sup>	-.007	-.035
Factor intensity (specialized supplier)	-.050 <sup>†</sup>	-.084***
Factor intensity (scale-intensive)	.084***	.044
Factor intensity (resource-intensive)	.067***	.035*
F	10.23***	30.581***
	(5;2370)	(11;2364)
ΔF (robust)		54.528***
		(6;2364)
R <sup>2</sup>	.025	.204
ΔR <sup>2</sup>		.179 (p=.00)
		(compared to Model 1)
Adjusted-R <sup>2</sup>	.023	.201

**Note.** Unstandardized regression coefficients: \*\*\* p < .001; \* p < .05; † p < .10; two-tailed tests

<sup>1</sup> Legal form (corporation) used as base category

<sup>2</sup> Factor intensity (labor-intensive) used as base category

## **DISCUSSION AND IMPLICATIONS**

Our research confirms that heterogeneous structures exist in the population of exporters – regular and irregular exporters are common. A significant number did not survive after an initial period or are engaged sporadically in export operations. This finding reflects similarities of domestic and international operations of a large segment of SMEs. While the widespread use of Internet and ICT in general and the progress in regional integration have positively impacted the business environment for exporting, it opened international markets for smaller firms with limited resources and lack of growth orientation. Shane (2008) pointed out the myths and illusions regarding entrepreneurship in general, we speak of “illusions of international entrepreneurship”, reflected in the existence of large population of exporters which after initial entry, continue with small volume, irregular export sales. Although large in terms of numbers, this group is insignificant in terms of the size of their overall contribution to the growth of international trade at the country level. Regional integration has positively impacted the business environment for exporting, it opened international markets for smaller firms with limited resources and lack of growth orientation.

Moreover, our study confirmed that the size of export operations affects the consistency of exports. Micro-exporters face greater risks of becoming irregular exporters. Findings were mixed concerning if early internationalization contributes to increased diversification among exporters. Delayed internationalization clearly enhances the chances of micro-exporters’

surviving the initial five year period in international markets but does not have a statistically significant impact on subsequent consistency of export activities. The latter finding may indicate that the volume of export sales plays a decisive role in achieving consistency in export sales. With a relatively low export sales volume (the equivalent of USD \$200,000 annually), it is difficult for firms to achieve consistency because the limited number of export orders, which can be delayed for several months, and may result in a calendar year that has no exports sales. Exporters that reach more substantial sales volumes do not face significant risks of non-survival, irrespective of time before internationalization. On the other hand, early internationalization may reflect a general strategic commitment to international operations that is demonstrated in the subsequent consistency of exports. In the case of exporters that internationalize at a later stage, even quite sizeable export sales can be considered residual sales that are subordinate to predominant domestic sales operations.

The results of the empirical analysis confirm the positive impact of a strong commitment to international expansion on the subsequent growth of export sales, which has been identified in the entrepreneurial growth literature (Gilbert, McDougall, & Audretsch, 2006; Barringer, Jones, & Neubaum, 2005) as well as internationalization literature (Klatt, 2006). This commitment is reflected in early internationalization, quickly reaching substantial export volumes, and the use of corporate legal vehicles. The results were mixed concerning managerial capacity issues-another important factor in high-

growth firms (Barringer & Jones, 2004). High-growth exporters were found to be more efficient in avoiding temporary setbacks in absolute volumes of export turnover but saw higher volatility in growth rates over time compared to their slow-growing counterparts. This finding may lead to the conclusion that volatility in growth rates represents a major and still unresolved management bottleneck among high-growth exporters.

The results of our research have important implications for managers and consultants assisting SMEs in developing plans for international expansion. So far the focus has been on the careful preparation for initial export sales, including assessing company readiness to exports through specifically designed tools like Company Readiness to Export (CORE –

[www.globalEDGE.msu.edu](http://www.globalEDGE.msu.edu)). As a result, managers usually recognize the risk of possible failure when they enter international market. Our study found that these companies should also consider that export volumes may stagnate after a first opportunity and not justify the initial effort to expand abroad. To remedy such unfavorable outcomes, entrepreneurs and managers should plan carefully not only initial entry on export markets, but also subsequent phases of export growth. In addition, we found that the most up to date technology is integral to success on international markets.

We also derive important implications from emerging market economies from our research. First, emerging market economies could further small firm early export success by providing support. Emerging

market economies should include initiatives for accelerated internationalization of such firms as the most promising avenue for achieving growth objectives. Size matters, support is integral for small firm success. Unlike Moen and Servais (2002), who recommended a shift in export-promotion programs from established firms to young ventures, we contend that growth potential is the most important criterion for export promotion programs. Export promotion measures aimed at newly established firms should be more selective. Young companies should be encouraged to look for export markets shortly after their launch. However, policy efforts and funds allocated for implementation of export promotion programs may not yield the desired results if they are based on a sizeable segment of stagnant micro-exporters that do not contribute to achieving macroeconomic objectives. Specific objectives should include specific targeted measures of growth and diversification of exports , improved competitive position, building strong export management team which can efficiently manage the expansion phase, securing adequate financing for meeting additional cash flow requirements, among others. Second year fund allocation to these exporters should be based on meeting the criteria for the first year. Therefore, adopting efficient mechanisms for selecting new firms with international growth potential represents a major challenge in the implementation of export assistance programs. By doing so, emerging market economies have the opportunity to assist young exporters to have a greater chance of survival.

### FUTURE STUDIES

While discussing the results of our study, we have pointed out serious limitations to further studies concerning success in exporting. First, there is a lack of access to crucial company data, such as total sales and employment figures. If firm-specific data can be acquired, it would significantly enhance the knowledge-based concerning internationalization and high-growth firms, which would benefit both policy makers and exporters' strategic decision-making. Our research used international sales as an integrated variable but we did not explore the geographic scope of those sales.

Based on the limited research in this field (Johansson, 2009; Pangarkar, 2008; Salomon, 2006), we suggest that research on the geographic scope of export sales, as an important dimension of internationalization speed and a crucial influence on export dynamics, should be advanced, particularly in terms of small firms. Strategies for export success and survival need to be expanded, particularly for emerging market economies. In addition, specific policies related to geographic scope of export sales and the success of those policies worldwide could be compared and contrasted. Strategic implications of decision-making by different size exporters and success ratios should be explored in future studies. Lastly, a comprehensive investigation of the findings discussed above could be possible by including additional variables, such as the overall size of the exporting firm and its export intensity, which were not available. Comparisons could be included by geographically integrated regions and

recommendations for success at the firm, industry, and region level could be included. An important lesson can be learned from the entrepreneurship growth literature. The international research community is increasingly confronted with the most serious challenge identified in the high-growth analysis (McKelvie & Wiklund, 2010): An evolving high-growth firm that can grow either organically or by acquisitions and that undergoes governance structure changes over time. This issue becomes particularly relevant for longitudinal studies, which are very much needed but are rarely addressed.

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