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Abstract

This paper investigates whether born global firms perform differently compared to other newly founded manufacturing firms. A rigorous quantitative treatment of born global firms has been absent in the international entrepreneurship literature. The quantitative focus of the paper adds to this literature. To a simple OLS estimation is added a matching approach in order to circumvent the absence of counterfactual for born global firms had they not chosen to pursue a born global strategy. Measuring performance five years after firm foundation, born global firms are found to have higher growth in employment and sales per employee but no such effect is found when performance is measured by profitability or labor productivity. For robustness purposes, similar results are found when the analysis is augmented to include a wider spread of born global firm definitions and having performance measured three to seven years subsequent to firm foundation.

Keywords: Born global firms, firm performance, manufacturing firms

JEL classification: L25, L26, M13, M21, F14

1 Introduction

As markets are becoming more and more global and interconnected it is of importance for economies to create environments where firms can grow and become competitive on a global arena. This is especially true for small open economies like Sweden without a large home market. Recent trends have identified groups of firms that from inception perceive the world as one market (Chetty and Campbell-Hunt, 2004). These firms are globally oriented from start and could be defined as firms that ‘‘from inception, seek to derive significant competitive advantage from the use of resources and the sales of outputs in multiple countries’’ (Oviatt and McDougall, 1994:p. 49). From a policy perspective it is of importance to study these born global firms in order to implement correct and appropriate export promoting measures. Born global firms are also likely to become promising prospective acquisition candidates. Hereby, domestic know-how, values and corporate culture can be spread globally.

Theoretical insights from the international entrepreneurship literature emphasizes how the dynamics of internationalization of born global firms lead to superior performance (Etemad and Wright, 2003; Knight and Cavusgil, 2004; Oviatt and McDougall, 2005). Oviatt and McDougall (2005) build a model that tries to explain the observed differences in the speed with which entrepreneurial opportunities are taken international. The internationalization process of small entrepreneurial firms is far from the linear and time-prolonged process used in the traditional stage theories of internationalization (Johanson and Vahlne, 1977, 1990, 2006 and Vernon 1966, 1971, 1979). Instead, many entrepreneurial firms start their international activities at foundation entering different countries simultaneously.

The empirical literature on born global firms has to a large extent focused on qualitative case-based studies, see Rialp-Criado et al. (2005) for a review. However, it is lacking a rigorous quantitative treatment on a country’s total amount of born global firms. This paper tries to fill this gap by investigating whether there is a performance difference between born global firms and other newly founded firms.

The paper is organized as follows. Section 2 reviews the stage theories of firm internationalization and the early literature on born global firms. It also delineates some factors facilitating the creation of born global firms and develops the hypotheses of the paper. Section 3 describes the data and section 4 the methodology used in the paper. Section 5 is stating the empirical results of the paper. Finally, the findings are summarized in section 6 with some concluding remarks.

2 Literature review and hypotheses

In order to successfully compete with foreign firms, an exporting firm must possess some "ownership advantage" (Dunning, 1988). These are often specified in terms of greater technological capacity (Cantwell, 1991; Davies & Lyons, 1991). Nations can benefit from having firms entering export markets and exploring such comparative advantages abroad.[1] In today's rapidly changing environment with time windows of opportunities narrowing down, firms have to swiftly appropriate its advantages. However, the traditional approach to firm internationalization builds on stage theories where firms start selling products to their home market and thereafter sequentially enter other markets. Two main models can be identified that use such an incremental stage approach of the internationalization process: Product life cycle theory by Vernon (1966, 1971, 1979) and the Uppsala internationalization model (Johanson and Vahlne, 1977, 1990, 2006; Johanson and Wiedersheim-Paul, 1975).

Vernon (1966; 1971) states that the internationalization process follows the product life cycle. In the introduction phases products are produced within the home country and exported to other countries. The flexibility of having production at home matters more than the possible cost advantages of having production in a foreign country. At the maturity phase, production starts in other advanced countries in order to serve local markets. The standardization in the product reduces the need for flexibility as the product matures. When an advanced level of product standardization is reached also less-developed countries are considered as production locations due to cost savings.

Vernon (1979) himself started questioning his model since the differences among many countries had decreased and the geographical reach of many companies had increased. He identified many firms that launched new products in several markets at once. This was especially apparent in industries with high level of innovation. Vernon (1979) did not completely reject his model even though it had lost some explanatory power during the decades. He argued that the model could still be applied to smaller firms that not yet had created an international network.

In the Uppsala internationalization model (Johanson and Vahlne, 1977, 1990, 2006) the "enterprise gradually increases its international involvement" (Johanson and Vahlne, 1990, p.11). They distinguish between psychic and physical distance where the former includes differences in languages, cultures, political system etc. and the latter only indicates geographical distance. The company starts its

[1] However, in a theoretical model Redding (1999) finds that, for developing economies, it might be better to enter sectors where they lack a comparative advantage in order to acquire such an advantage in the future.

internationalization process from markets perceived as psychically near. As the experimental knowledge increases in foreign markets the psychic distance decreases and the firm expands its operations in foreign countries even further. Compared to the Vernon (1966; 1971) model, the Uppsala internationalization model takes into account the evolution of the company within its environment to a higher degree. It thereby better explains the internationalization process.

Both the Vernon and the Uppsala models have been criticized for not being able to fully explain the internationalization of small firms in today's global markets, see e.g. Andersson & Wictor (2003) and Chetty & Campbell-Hunt (2004). A new paradigm, the so-called new "global approach", has been developed in order to fill this gap.

Some small and medium-sized firms do not follow an incremental stage approach in the internationalization process. Often they start their international activities from birth where they enter different countries at once and approach new markets both for exports and imports. The concept of born global firms was first used in a McKinsey study of manufacturing exporters in Australia (McKinsey & Co., 1993). The study highlighted a number of small and medium-sized firms that from inception competed against established players on the global arena. The existence of these firms contradicted the previous conception of business internationalization as a process of gradual commitment (Vernon, 1966, 1971 and Johanson and Vahlne, 1977, 1990). Such a firm was coined born global and defined as "one which views the world as its marketplace from the outset; it does not see foreign markets as useful adjuncts to the domestic market". A similar definition is found in Oviatt and McDougall (1994:p. 49). They define born globals as firms that ''from inception, seek to derive significant competitive advantage from the use of resources and the sales of outputs in multiple countries''. Numerous studies have followed after the McKinsey report with the phenomenon labeled differently: born globals (e.g. Knight and Cavusgil, 1996), global start-ups (Oviatt and McCougall, 1994), international new ventures (McDougall et al. 1994) and instant exporters (McAuley, 1999).

Compared to the time when the incremental stage models of internationalization were constructed there has been a significant change in the environmental conditions surrounding the creation of new firms. Due to these changes it has become easier to start a born global firm. Knight and Cavusgil (1996) present several trends that have given rise to the emergence of born global firms: 1) The pressure to specialize in order to be competitive has created an increasing amount of niche markets. In order to be successful in niche markets firms have to increase their customer base by going global. 2) Advances in technology regarding production and transportation. 3) Advances in communication technology. 4) Advantages of

small firms in terms of quicker response time, higher flexibility, adaptability etc. 5) Globalization itself in terms of knowledge, decreased trade barriers and facilitating institutions. Entrepreneurs nowadays have more international experience and foreign market knowledge. 6) Trends towards global networks which are facilitated by advances in information technology. Altogether, these trends and preconditions build an environment that facilitates the creation of born global firms.

Despite these trends, it is but a few of all new firms that become born global. There are a number of characteristics that distinguish these firms. One of the most important reasons behind becoming a born global firm is to lock-in new customers and swiftly exploit proprietary knowledge as the main source of competitive advantage (Bell et al., 2003). This is particularly true in sectors with rapid technological change. Freeman et al. (2006) list a number of key variables that can be positively associated with rapid internationalization. 1) A too small domestic market. 2) Commitment and belief by senior management to the idea of internationalization. 3) Personal networks. 4) Unique technology as source of competitive advantage. 5) Growth through partnership and alliances. Hence, some firms are better suited for a born global approach than others.

The study of born global firms is interesting in light of the increasing literature on an export-productivity link (e.g. Clerides et al. 1998, Bernard and Jensen 1999 and Bernard et al. 2007). Despite difficulties establishing causality in some studies where more productive firms tend to self-select into export markets, others have found that firms are "learning-by-exporting" (see e.g. Castellani (2002), Castellani and Zanfei (2003), Criscuolo et al. (2004), Hansson and Lundin (2004), Greenaway and Kneller (2007), Andersson and Lööf (2009) for studies finding support for a learning effect). By an active participation on foreign markets, exporting firms might acquire knowledge and technology that can enable firm growth. Furthermore, if foreign markets are perceived as more competitive, presence on export markets should force firms to becoming more efficient. Since born global firms soon after being founded enter foreign markets with high export intensities, most of the reasoning behind an export-productivity link applies for the firms subject to investigation in this paper.

Born global firms are also interesting from a sunk entry cost perspective. In the Melitz (2003) model on international trade, firms must first make an initial investment, an entry cost, before engaging in international activities. This is only affordable by the more productive firms. Less productive firms continue to produce for the domestic market only, while the least productive firms are forced to exit. Since born global firms decide to pay the initial sunk entry costs at such early stages, when the generation of cash flow normally is limited, they certainly hold high expectancies of growth and profitability on

international markets. Despite this relative infancy of born global firms, the Melitz (2003) reasoning suggests that these firms are more productive compared to other domestic firms.

The early export market entry and high export intensities of born global firms distinguish them from other newly founded firms. Based on this fact, the following hypotheses on how born global firms perform are formulated:

> *Hypothesis 1*: In the search for market shares globally, born global firms grow faster and generate higher sales than other firms with more incremental attitudes towards internationalization.
>
> *Hypothesis 2*: The competitive pressure from world markets makes surviving born global firms more productive than firms with slower internationalization.
>
> *Hypothesis 3*: Large sunk costs are of particular importance when firms enter export markets at early stages. Due to such entering costs, short-run profitability must be suffering for born global firms.

Each country and each market has its own preconditions. In this paper we study Swedish firms born in a milieu that for long has been characterized by dominant large corporations with a concentrated ownership. To a large extent the business climate has been and still is affected by its major players. Despite the importance of having firms growing and becoming competitive globally for small open economies like Sweden, one should bear in mind that Sweden in some regards is very much different from some other European countries of similar size like for instance Belgium and Denmark, which have a distribution of firm sizes much more focused on smaller firms. When interpreting and generalizing the results, such differences should be acknowledged.

3 Data

The dataset on new firms is compiled based on data provided by Statistics Sweden. The data include business statistics, international trade data on exports in manufacturing goods, and data on how firms are founded, i.e. firms resulting from spinoffs and mergers or truly new firms without such links to existing

firms. Since the access to trade statistics is restricted to exports in manufacturing goods, the paper will focus on firms within the manufacturing sector.[2]

We expect many spinoffs and merged firms which are categorized as new in the database to have different characteristics compared to the total bulk of new firms. Firm size, for instance, is considerably larger for merged firms than for other new firms. Since the data enable us to control for spinoffs and mergers, it is possible to sort out truly new firms which are what we want to investigate. The year of firm birth is defined as the year when the firm first appears in the business statistics. Among the many empirical definitions on born global firms in the literature[3], the following three definitions of born global firms are chosen:

1. *Stringent definition*: New firms with at least 25 percent of sales in exports within two years from inception *(abbreviation used below: BGF 2:25)*
2. *Modest definition*: New firms with at least 10 percent of sales in exports within five years from inception *(abbreviation used below: BGF 5:10)*
3. *Alternative definition*: New firms with at least an average of 25 percent of sales in exports for three consecutive years no later than year two, three and four after firm foundation *(abbreviation used below: BGF 3ma:25)*

By choosing three different definitions on born global firms it is believed that these definitions jointly are better at capturing firms that are set up for world markets from the outset than using a single definition. The first two definitions are supplemented with an alternative definition that better capture persistence in export behavior.

Born global firms that exit export markets during the time period are not included despite fulfilling the requirements of the definition.[4] Due to data availability, the dataset is restricted to include new firms where at least one person has its main employment. Since the data allow detailed monitoring of labor

[2] Due to threshold values for registration of exports to EU countries (Eliasson et al., 2011), some export data to the EU is not reported. Hence, there might be a moderate underestimation of the number of born global firms.

[3] See Bals et al. (2008) for other empirical definitions of born global firms. A common definition of born global firms (used e.g. by Moen & Servais, 2002 and Oviatt & McDougall, 1997) is one that views born globals "as firms less than 20 years old that internationalized on average within three years of founding and generate at least 25 percent of total sales from abrouad" (Knight et al., 2004, p. 649). This definition is also used on Swedish data in Nordman & Melén, 2008 and Melén & Nordman, 2009. However, the time period of study here does not allow for an investigation of firms as old as 20 years. Therefore, the three different definitions are used instead.

[4] Many of such switching firms have low sales and cannot be perceived as born global in the sense of Oviatt and McCougall (1994) or McKinsey & Co. (1993).

flows, it is possible to exclude new firms that between two consecutive years have replaced their staff entirely. Furthermore, new firms that during the time period have merged or spun off part of their business are also excluded.[5] All new firms that are founded as an affiliate to another firm are also removed from the sample since they might represent something else than a truly new firm.

The dataset stretches from 1997-2008 but, because of the described identification procedure of new and born global firms, we obtain a nine-year period 1998-2006 when born global firms of the stringent definition are founded, a six-year period 1998-2003 when born global firms of the modest definition are founded and a seven-year period 1998-2004 when born global firms of the stringent definition are founded.[6] This period is further reduced since the paper aims at describing the subsequent performance of born global firms born in a certain year. In order both to include a satisfactory amount of born global firms and measuring performance differences not too close to firm birth, performance measures five years after inception are chosen as dependent variables. Hence, firms being born during the years 1998-2003 are investigated. Furthermore, only firms surviving the first five years are included.

Since it is believed that new firms with subsequent presence on export markets are different from firms that remain at their home market only, future exporters are used as control group when comparing the characteristics of born global firms to other firms. The resulting unbalanced dataset includes 610 firms of which 58, 52 and 120 firms can be categorized as born global firms according to the three chosen definitions.

In Table 1 the number of new and born global firms founded over the 1998-2006 time period can be found. Clearly, born global firms constitute but a small share of all new firms. As expected, born global firms are most prevalent using the modest definition compared to the stringent definition. By adopting the alternative definition the number of born global firms decreases even more than the stringent definition. Despite the improved preconditions for setting up a born global firm listed above, and the increased amount of literature describing the activities of born global firms, Table 1 does not indicate a surge for these types of firms during this time period. The last three columns show a fairly stable share of new born global firms ranging from one to three percent of the annual total bulk of new firms.

[5] Replacing the staff, merging or spinning off part of the business would imply a somewhat new firm. Therefore, in order not to compare apples and pears, these firms are removed. Hereby, only organic growth is allowed.
[6] When investigating the activities of new firms the years after birth, the data is, hence, available to 2008.

Table 1 Frequencies of born global firms in different samples (the share surviving first five years in parenthesis)

Year	# firms	# future exporters	# BGF 2:25	# BGF 3ma:25	# BGF 5:10	% BGF 2:25	% BGF 3ma:25	% BGF 5:10
1998	1681 (36%)	221 (56%)	29 (48%)	20 (70%)	51 (49%)	1,73%	1,19%	3,03%
1999	1420 (38%)	192 (64%)	18 (28%)	9 (44%)	33 (39%)	1,27%	0,63%	2,32%
2000	1380 (42%)	173 (67%)	21 (67%)	15 (80%)	43 (63%)	1,52%	1,09%	3,12%
2001	1301 (42%)	147 (65%)	28 (36%)	12 (58%)	43 (51%)	2,15%	0,92%	3,31%
2002	1254 (44%)	123 (59%)	26 (42%)	13 (77%)	36 (42%)	2,07%	1,04%	2,87%
2003	1303 (42%)	127 (64%)	11 (36%)	8 (63%)	29 (62%)	0,84%	0,61%	2,23%
2004	1412	142	23	14		1,63%	0,99%	
2005	1802	135	20			1,11%		
2006	1801	127	26			1,44%		

When looking at industry classes[7], Table 2 shows that born global firms are most predominant within high technology manufacturing sectors. However, this is distinctive for all new firms with a positive export during the 1998-2008 timeframe. Since the investigated dataset is on firms born 1998-2003 and surviving the first five years, panel A shows all firms born 1998-2003 whereas panel B shows those firms surviving the first five years. The table reports approximately 40 percent of the new firms surviving the first five years, a somewhat higher share for born global firms and future exporters than for the total bulk of new firms. The survival rate is rather evenly spread across industries.

Table 2 Decomposition into industry classes

A. New firms 1998-2003									
	# firms	# future exporters	% future exporters	# BGF 2:25	% BGF 2:25	# BGF 3ma:25	% BGF 3ma:25	# BGF 5:10	% BGF 5:10
Manuf high tech	418	85	20,3%	13	3,1%	6	1,4%	23	5,5%
Manuf medium high tech	1020	221	21,7%	37	3,6%	18	1,8%	69	6,8%
Manuf medium low tech	2235	254	11,4%	37	1,7%	24	1,1%	60	2,7%
Manuf low tech	4666	422	9,0%	46	1,0%	29	0,6%	83	1,8%
Total	8339	982	11,8%	133	1,6%	77	0,9%	235	2,8%
B. New firms 1998-2003 surviving first five years (within parenthesis the share of firms surviving first five years)									
	# firms	# future exporters	% future exporters	# BGF 2:25	% BGF 2:25	# BGF 3ma:25	% BGF 3ma:25	# BGF 5:10	% BGF 5:10
Manuf high tech	166 (40%)	47 (55%)	28,3%	6 (46%)	3,6%	5 (83%)	3,0%	10 (43%)	6,0%
Manuf medium high tech	455 (45%)	136 (62%)	29,9%	18 (49%)	4,0%	13 (72%)	2,9%	38 (55%)	8,4%
Manuf medium low tech	1000 (45%)	169 (67%)	16,9%	16 (43%)	1,6%	17 (71%)	1,7%	29 (48%)	2,9%
Manuf low tech	1756 (38%)	258 (61%)	14,7%	18 (39%)	1,0%	17 (59%)	1,0%	43 (52%)	2,4%
Total	3377 (40%)	610 (62%)	18,1%	58 (44%)	1,7%	52 (68%)	1,5%	120 (51%)	3,6%

Commonly, born global firms are perceived as firms that do not follow an incremental internationalization pattern. Hereby, the first acquaintance with foreign markets is not necessarily bound to be in regions that are geographically close. Table 3 reports the regions approached by new firms during the first year of export market entry. Panel A confirms that Swedish born global firms to a higher degree than other firms are approaching more distant markets than the Nordic countries. When firms first expand activities to foreign markets, 71 percent of all firms enter countries within the Nordic region. For born global firms this

[7] The industry classes here are the same as the OECD uses to distinguish between industries based on their technology content.

percentage is somewhat lower. Except for the Nordic export markets, born global firms are more likely to start their export market activities on all other markets if one is to compare to the sum of all export entrants. We also see that there is higher tendency for born global firms to enter multiple export countries simultaneously and to expand subsequent activities to more countries than other newcomers on export markets. However, by comparing means and medians, one realizes that much of this difference is driven by small number of firms. The panel B descriptive statistics of firms surviving the first five years show similar results with born global firms being more prone to enter multiple countries simultaneously.

Table 3 Export market destinations the first year of export market entry

A. Export market descriptives for new firms the year of export market entry 1998-2003								
	All firms (in total 385)		BGF 2:25 (in total 132)		BGF 3ma:25 (in total 77)		BGF 5:10 (in total 216)	
	number of firms	percentage	number of firms	percentage	number of firms	percentage	number of firms	percentage
Baltpol	58	15%	25	19%	20	26%	32	15%
Nordic	273	71%	82	62%	52	68%	152	70%
G8	123	32%	63	48%	41	53%	82	38%
EU	34	9%	21	16%	15	19%	26	12%
Others	106	28%	49	37%	30	39%	68	31%
	mean	median	mean	median	mean	median	mean	median
Exports	1261277	71550	3253226	475221	5080480	583502	2193651	222388
Export destinations	2,05	1	3,00	1	3,66	2	2,49	1
Export destinations (total)	5,83	2	10,26	4	14,30	6	8,28	3
B. Export market descriptives for new firms the year of export market entry 1998-2003 and surviving first five years								
	All firms (in total 235)		BGF 2:25 (in total 60)		BGF 3ma:25 (in total 54)		BGF 5:10 (in total 127)	
	number of firms	percentage	number of firms	percentage	number of firms	percentage	number of firms	percentage
Baltpol	27	11%	15	25%	14	26%	20	16%
Nordic	190	81%	43	72%	39	72%	105	83%
G8	71	30%	34	57%	31	57%	46	36%
EU	21	9%	13	22%	12	22%	18	14%
Others	70	30%	31	52%	26	48%	47	37%
	mean	median	mean	median	mean	median	mean	median
Exports	1863198	89000	6067423	933693	6680205	1000460	3309426	205425
Export destinations	2,37	1	4,38	2	4,39	2	3,13	2
Export destinations (total)	7,70	3	17,78	10	18,20	10	11,81	5

Note 1: Baltpol stands for Poland and the Baltic states; Nordic is Norway, Denmark, Finland and Iceland; G8 is USA, Canada, Great Britain, Germany, France, Italy, Japan and Russia; EU is the 27 members of the EU except those included in G8; Others are the countries not listed above.
Note 2: Export destinations is the number of export destination countries the year of the firm's first export market entry; Export destination (total) is the number of export market destination countries for the firm during 1998-2008

In Table 4, the dependent and independent variables used in the OLS regressions are explained. The independent variables of interest are dummies for born global firms. The performance variables five years after firm birth are firm size, sales per employee, profits over sales and value added per employee. The control variables are firm size, human capital, equity ratio, dummies for Swedish firms with only national affiliates or with foreign affiliates, birth-year values of the performance measures of firm size, sales per employee, profits over sales and value added per employee. All quantitative variables reported are winsorized in order to remove extreme outliers. The one percent largest and smallest observations are hereby given the 99th and 1st percentile values respectively.[8]

[8] The estimations are also run without removal of outliers producing no major differences to the results.

Table 4 Definition of independent and dependent variables

Independent variables	
Bgf	One of the three definitions described above
Human	Share of employees with post-secondary education
Eq.ratio	Equity over total assets
Size	Employment
Sw.aff	Swedish group with Swedish daughters
For.aff	Swedish group with foreign daughers
Sales	Sales per empl
Profits	Profit over sales
Lp	Value added per empl
Dependent variables (five years after firm birth)	
Size	Employment
Sales	Sales per empl
Profits	Profit over sales
Lp	Value added per empl

The summary statistics are reported in Table 5.[9] The table reports statistics for all firms and born global firms separately.[10] The subsample of future exporters is also presented. Comparing born global firms to the overall sample of firms surviving the first five years we see that they the year of foundation have a higher share of employees holding a post-secondary education diploma and they are more prone to be belonging to corporate groups. Looking at the performance measures, born global firms seem to perform better on average in terms of employment, sales per employee and value added per employee. For the profitability measure, the results are not as clear. This holds both for the year of birth and five years afterwards.

[9] Deflation of variables is made using the consumer price index holding 2005 as base year. Data on CPI is from OECD.

[10] Running T-tests on differences in sample means between future exporters and the three born global firm definitions shows that the independent variables *Profits, Eq.ratio, For.aff* and the dependent variable *Profits* are not significant at the 10 percent level. Hence, differences in these variables should be interpreted with caution.

Table 5 Summary statistics

	Full sample (3238-3377 obs)		Future exporters (599-610 obs)		BGF 2:25 (55-58 obs)		BGF 3ma:25 (51-52 obs)		BGF 5:10 (116-120 obs)	
Independent variables	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
Size	1,38	1,27	2,09	2,57	2,57	2,60	2,63	2,74	2,70	3,76
Sales	715140	2230909	1407017	4234542	3525484	11500000	3810649	12100000	2293902	8123927
Profits	0,06	6,85	-0,92	13,94	-0,11	1,43	0,07	0,27	-1,13	12,27
Lp	262023	611993	373206	1103113	988597	3105583	1039394	3271523	623311	2189078
Human	0,17	0,36	0,24	0,38	0,30	0,37	0,34	0,38	0,29	0,38
Eq,ratio	0,30	3,31	0,29	0,34	0,34	0,31	0,29	0,29	0,30	0,29
Sw.aff	0,0086	0,092	0,018	0,13	0,052	0,22	0,058	0,24	0,025	0,16
For.aff	0,0018	0,042	0,0066	0,081	0,017	0,13	0,019	0,14	0,0083	0,091
Dependent variables	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
Size	2,26	15,40	5,55	35,89	24,53	113,59	26,44	119,86	14,36	79,35
Sales	852492	1522565	1506315	2951891	2277382	2453315	2271028	2589182	1922917	1996954
Profits	0,23	1,84	-0,04	2,38	0,08	0,21	0,01	0,73	0,03	0,50
Lp	328553	304049	435172	383153	590039	505150	588650	530094	498980	419161

4 Methodology

4.1 OLS

In order to investigate the performance of born global firms compared to other new firms we want to regress performance five years after firm birth (measured by firm size, sales per employee, profits over sales and value added per employee) on the born global firm dummies and a number of controls delineating firm characteristics at birth.[11] The reduced form specifications will be estimated using OLS with the four specifications looking as follows:[12]

A $$Size_{it+5} = a_0 + a_1 Bgf_i + a_2 Size_{it} + a_3 Eq.ratio_{it} + a_4 Human_{it} + a_5 Sw.aff_{it} + a_6 For.aff_{it} + industry\ dummies + time\ dummies + v_{it}$$

B $$Sales_{it+5} = b_0 + b_1 Bgf_i + b_2 Size_{it} + b_3 Eq.ratio_{it} + b_4 Human_{it} + b_5 Sw.aff_{it} + b_6 For.aff_{it} + b_7 Sales_{it} + industry\ dummies + time\ dummies + v_{it}$$

C $$Profits_{it+5} = c_0 + c_1 Bgf_i + c_2 Size_{it} + c_3 Eq.ratio_{it} + c_4 Human_{it} + c_5 Sw.aff_{it} + c_6 For.aff_{it} + c_7 Profits_{it} + industry\ dummies + time\ dummies + v_{it}$$

11 Firm birth is here defined as the first year a firm shows up in the business statistics.
12 See Appendix A for a correlation table. The relatively low correlations do not indicate severe problems with multicollinearity.

$$D\ Lp_{it+5} = d_0 + d_1 Bgf_i + d_2 Size_{it} + d_3 Eq.ratio_{it} + d_4 Human_{it} + d_5 Sw.aff_{it} + d_6 For.aff_{it} + d_7 Lp_{it} + industry\ dummies + time\ dummies + v_{it}$$

The subscript *i* indexes firms and *t* time. All the quantitative performance variables used in the estimations are in logarithms. *Profits* is profits over sales and *Lp* is labor productivity. Sales represent sales per employee and *Size* is number of employees. Human is measured by the ratio of employees with a secondary education to the total number of employees. This variable serves as proxy for the human capital of the firm. To capture differences in financing, *Eq.ratio* represents the ratio between equity and balance sheet total. The three dummy variables for born global firms, here abbreviated by *Bgf*, are defined as explained above and the dummies *Sw_aff* and *For_aff* represent firms with Swedish and foreign affiliates respectively. Industry class dummies are included to control for fixed effects across industry classes.[13] Time dummies control for business cycle effects.

4.2 Nearest neighbor matching

The simple OLS estimations above are not able to control for the possible self-selection of future high-performers into becoming born global firms. In the absence of a counterfactual for these firms it cannot be excluded that a born global firm should have performed differently than other firms even without the rapid entrance into export markets. To circumvent this potential problem, this paper implements a matching procedure based on Abadie et al. (2004) and Abadie & Imbens (2002) called nearest neighbor matching. In the spirit of Abadie et al. (2004), the notation is as follows:

Let the performance outcome be denoted by Y_i,

$$\text{where} \quad Y_i = Y_i(Bgf_i) = \begin{cases} Y_i(0) \\ Y_i(1) \end{cases} \quad \begin{matrix} if\ Bgf_i = 0 \\ if\ Bgf_i = 1 \end{matrix}$$

The treatment group is in this case born global firms. In case there would have been access to the counterfactual, it would have sufficed to calculate $Y_i(1)$-$Y_i(0)$ for an individual firm to estimate the performance differential. However, without such complete information, a similar "twin firm" serves as proxy for the counterfactual.

[13] The industry classes are the ones explained in Table 2.

Let characteristics used to identify similar firms among born global and other new firms be denoted by X, where X is a vector of covariates.

There are two regularity conditions:

For all x in the support of X

i) Bgf is independent of ($Y(0)$, $Y(1)$) conditional on $X=x$

ii) $c < Pr(Bgf = 1|X = x) < 1-c$, for some $c > 0$

For similar firms, i) implies that the choice of becoming a born global firm is purely random, i.e. assignment to the group of born global firms is independent of the outcomes, conditional on the covariates. Part ii) is an identification assumption stating that, given a certain covariate pattern, there has to be a probability to find a similar firm in the opposite group of firms for a match to be possible.

The conditional independence assumption i) requires detailed data on firm characteristics. The covariates used here in the matching procedure are firm size (employment), total sales, profits, value added, equity ratio, the ratio of employees with secondary education, whether the firm has Swedish or foreign affiliates, industry class and year. The matching is based on covariates the year of firm birth.

5 Results

The results from the OLS estimations are presented in Table 6. The focus of attention is on the coefficients of the born global firm dummies. When performance is measured by *Size* and *Sales*, we observe significant and positive estimates of the *Bgf* coefficients. The estimates are larger for the stringent and alternative definitions of born global firms. There seems to be no significant influence of *Bgf* on performance when measured by profitability or labor productivity.[14] [15]

[14] This can partly be explained by the fact that the object of study is new firms, whose primary objective might not be to boost profits in the relatively short run of five years which is investigated here. Profits constitute a major part of both the profitability and the labor productivity variables.

[15] For robustness purposes, Appendix B presents the coefficients of a number of alternative regressions where definitions of born global firms and the time horizon of firm performance are allowed to vary. These robustness results strengthen the view of born global firms performing superior in terms of size and sales. They also indicate that born global firms have a tendency to perform better in terms of profitability and labor productivity when the time horizon is expanded to measure performance six and seven years after inception. This tendency is very weak

The point estimates for the control variables show very mixed results. The only control variable that seems to have a significant influence on performance throughout the estimations is initial *Size*. The larger the firm is when founded, the better it performs five years later in terms of *Size*, *Sales* and *Lp*. However, large initial *Size* is affecting subsequent profitability negatively. Large shares of equity in firms' balance sheets (*Eq.ratio*) and high ratios of employees with secondary education (*Human*) could be expected to positively influence performance. Contrary to what could be expected, the estimations show no such effects. Since but a few of the firms in the sample have affiliates, the point estimates on *Sw.aff* and *For.aff* should not be put too much emphasis on. Except for the *Sales* regression, controlling for performance at firm birth show that high performers the year of firm birth also perform superior five years later.

Table 6 OLS results

Dep. var.	$Size_{it+5}$			$Sales_{it+5}$			$Profits_{it+5}$			Lp_{it+5}		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
$Bgf2:25_i$	0.384**			0.799***			0.190			0.545		
	[0.160]			[0.207]			[0.674]			[0.716]		
$Bgf3ma:25_i$		0.400**			0.736***			0.186			0.250	
		[0.169]			[0.236]			[0.718]			[0.827]	
$Bgf5:10_i$			0.363***			0.692***			-0.246			0.495
			[0.100]			[0.168]			[0.515]			[0.525]
$Size_{it}$	0.911***	0.912***	0.900***	0.313***	0.316***	0.294***	-0.796***	-0.796***	-0.772**	0.544*	0.556*	0.530*
	[0.043]	[0.043]	[0.044]	[0.114]	[0.114]	[0.113]	[0.298]	[0.297]	[0.302]	[0.290]	[0.296]	[0.296]
$Eq.ratio_{it}$	-0.032	-0.018	-0.025	0.320	0.343	0.330	-0.826*	-0.823*	-0.828*	0.040	0.056	0.049
	[0.075]	[0.075]	[0.074]	[0.359]	[0.359]	[0.358]	[0.439]	[0.438]	[0.439]	[0.714]	[0.717]	[0.717]
$Human_{it}$	0.036	0.026	0.030	-0.358	-0.374	-0.369	0.243	0.238	0.259	-0.618	-0.618	-0.629
	[0.077]	[0.077]	[0.078]	[0.331]	[0.334]	[0.332]	[0.453]	[0.452]	[0.452]	[0.612]	[0.609]	[0.610]
$Sw.aff_{it}$	0.406*	0.402*	0.444*	-0.119	-0.104	-0.030	-5.158***	-5.157***	-5.106***	-3.624	-3.574	-3.567
	[0.232]	[0.231]	[0.231]	[0.269]	[0.264]	[0.266]	[1.769]	[1.772]	[1.785]	[2.894]	[2.906]	[2.875]
$For.aff_{it}$	-0.071	-0.079	-0.028	-6.579	-6.604	-6.506	-0.705	-0.706	-0.642	3.602***	3.629***	3.654***
	[0.226]	[0.231]	[0.219]	[5.937]	[5.935]	[5.928]	[2.975]	[2.977]	[3.032]	[1.183]	[1.136]	[1.173]
$Sales_{it}$				0.031	0.026	0.027						
				[0.031]	[0.031]	[0.031]						
$Profits_{it}$							0.141***	0.140***	0.140***			
							[0.044]	[0.044]	[0.045]			
Lp_{it}										0.173***	0.172***	0.172***
										[0.061]	[0.061]	[0.061]
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	604	604	604	604	604	604	593	593	593	604	604	604
R-squared	0.43	0.43	0.44	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08

Robust standard errors in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%
Born global firms are in '(1) defined as firms with an exports to sales ratio of at least 25 percent during 1 year within 2 years of inception, in '(2) as at least an average of 25 percent 3 consecutive years during the first 4 years after foundation and in '(3) as at least 25 percent during 1 year within 5 years of inception.
Size, Sales, Profits and Lp are in logarithms

when the dependent variable is profitability but for labor productivity most of the born global variables seem to have positive and significant coefficients.

The OLS regressions of Table 6 do not capture the potential self-selection problem of firms with somewhat different characteristics being more prone to becoming born global firms. Therefore, a nearest neighbor matching approach is chosen for sensitivity purposes. Table 7 shows these results where matching of born global firms to other similar new firms is based on the following covariates measured at the year of firm birth: firm size (employment), total sales, profits, value added, equity ratio, the ratio of employees with secondary education, whether the firm has Swedish or foreign affiliates, industry class and year.

Both one and four matches[16] are used, with and without bias adjustment[17]. For the three definitions of born global firms, the results are significant when it comes to performance in *Size* and *Sales*.[18] Compared to the OLS estimates, these have the same sign but a somewhat different order of magnitude. Using a matching approach, most of the estimations show a smaller positive impact on *Size* and *Sales* of being a born global firm than the OLS regressions indicated in table 6. In two out of the twelve matching estimations on *Lp* we see a weakly significant and negative impact of being a born global firm on the *Lp* performance measure. The other *Lp* matching estimations and all *Profits* estimations show no significant results.

[16] More matches take more of the available information into account when estimating, but more matches also tend to imply more imprecise matches. A rather small number of matches should preferably be chosen according to Abadie & Imbens (2002).

[17] Without exact matching in finite samples Abadie & Imbens (2002) show that the matching estimator will be biased. Abadie & Imbens (2002) and Abadie et al. (2004) explain how to remove some of this bias using a bias-adjusted matching estimator. See Rubin (1973) and Abadie and Imbens (2002) for formal derivations.

[18] Due to the fact that the treatment, i.e. the assignment to the group of born global firms, might occur as early as the year of foundation, the matching regressions are also run on a subsample of born global firms assigned the status of born global firms not before the first year after foundation. Hereby, the matching precedes the assignment to the treatment group, which ideally is preferable. The results from matching on this subsample do not alter the fact that born global firms seem to perform better in terms of *Size* and *Sales*. In fact, the significance is even stronger when these matching regressions are run compared to what is presented in table 7.

Table 7 Results from nearest neighbor matching estimations (1216 observations throughout)

	Bgf2:25		Bgf3ma:25		Bgf5:10			
Dep.Var.	Coefficient	SE	Coefficient	SE	Coefficient	SE	Number of matches	Bias adjustment
$Size_{it+5}$	0,23**	0,10	0,34***	0,11	0,23***	0,08	1	No
	0,21*	0,12	0,38***	0,13	0,31***	0,08	4	No
	0,23*	0,13	0,34**	0,14	0,26***	0,09	1	Yes
	0,21*	0,12	0,35***	0,13	0,31***	0,08	4	Yes
$Sales_{it+5}$	0,79***	0,13	0,61***	0,14	0,68***	0,13	1	No
	0,82***	0,12	0,65***	0,12	0,73***	0,11	4	No
	0,70***	0,13	0,55***	0,13	0,59***	0,12	1	Yes
	0,71***	0,12	0,57***	0,12	0,63***	0,11	4	Yes
$Profits_{it+5}$	-0,06	0,53	-0,94	0,47	0,00	0,44	1	No
	0,11	0,56	-0,56	0,64	-0,37	0,38	4	No
	0,19	0,58	-0,78	0,67	0,07	0,42	1	Yes
	0,29	0,56	-0,34	0,64	-0,18	0,38	4	Yes
Lp_{it+5}	-1,55	1,03	-2,05*	1,14	-0,03	0,52	1	No
	-0,84	0,93	-1,77	1,15	-0,09	0,47	4	No
	-1,15	1,05	-2,05*	1,25	-0,17	0,53	1	Yes
	-0,72	0,93	-1,56	1,15	0,06	0,47	4	Yes

6 Summary and concluding remarks

This study has investigated whether born global firms perform differently compared to other firms. Being coined in 1993 by a McKinsey report, relatively little attention has been devoted to born global firms on a quantitative basis. In this paper, a first attempt towards analyzing a country's total stock of born global firms is made. Previous studies have predominantly focused on selected cases of born global firms, see Rialp-Criado et al. (2005) for a review. Three different definitions of born global firms are being investigated, a stringent, a modest and an alternative one. In total, the sample consists of an unbalanced dataset of new manufacturing firms born 1998-2003 and surviving the first five years including 610 firms of which 58, 52 and 120 firms can be categorized as born global firms according to the three chosen definitions. Performance in terms of employment, sales per employee, profits over sales and value added per employee five years after firm birth is the object of study.

Using OLS, initial evidence on superior performance in terms of growth in employment and sales per employee is found. However, performance measured by profitability and labor productivity is not found to be greater for born global firms. These results are confirmed by a sensitivity analysis with a richer set of born global firm definitions and with varying time horizons of performance measurements.

Since neither the group of born global firms, nor all other firms has an observable counterfactual, the OLS estimates might not fully capture the effect of being a born global firm. In other words, it is not possible to

determine the performance of born global firms had they not decided to become born global and, equivalently, the performance of non born global firms had they decided to become born global. Many of the summary statistics differ between born global and other firms, which might indicate that the OLS estimates not truthfully report a causal link on how born global firms perform.

Therefore, for robustness purposes, the paper applies a nearest neighbor matching approach. By matching on a number of covariates a counterfactual is created based on firms seemingly identical in the opposite group. The results from the matching estimations confirm the OLS results of a superior performance for born global firms in terms of size and sales per employee.

The objective of new firms differs compared to more mature firms. The findings indicate that born global firms prioritize growth in employment and sales. Short-term profits seem to be secondary to these firms. Similar findings of an inverse relationship between growth in employment and sales and firm profitability have been found in other studies, see for instance Markman & Gartner (2003) for a study on German firms. In the case of born global firms, this has probably to do with the higher concentration of born global firms to high-technology manufacturing sectors, which often require costs associated with innovation and product development. With longer time series, longitudinal studies on born global firms will make it possible to estimate if the lower profitability at early stages is transformed into better performance in the longer perspective.

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Appendix A: Correlation table

Variable	$Size_{t+5}$	$Sales_{t+5}$	$Profits_{t+5}$	Lp_{t+5}	Bgf2:25	Bgf3ma:25	Bgf5:10	$Size_t$	$Sales_t$	$Profits_t$	Lp_t	$Eq.ratio_t$	$Human_t$	$Sw.aff_t$	$For.aff_t$
$Size_{t+5}$	1.0000														
$Sales_{t+5}$	0.0915	1.0000													
$Profits_{t+5}$	-0.1535	-0.0493	1.0000												
Lp_{t+5}	0.1052	0.2805	0.3755	1.0000											
Bgf2:25	0.1897	0.0935	-0.0126	0.0277	1.0000										
Bgf3ma:25	0.1835	0.0784	-0.0118	0.0187	0.8817	1.0000									
Bgf5:10	0.2112	0.0994	-0.0512	0.0230	0.6550	0.6169	1.0000								
$Size_t$	0.6355	0.0787	-0.1386	0.0503	0.0920	0.0863	0.1327	1.0000							
$Sales_t$	-0.0141	0.0622	0.0298	0.0854	-0.0392	0.0374	-0.0218	-0.0525	1.0000						
$Profits_t$	-0.2150	0.0313	0.1623	0.0273	-0.0525	-0.0322	-0.0620	-0.1898	0.0094	1.0000					
Lp_t	-0.1104	0.0601	0.0962	0.2052	-0.0573	-0.0012	-0.0454	-0.0914	0.5752	0.4883	1.0000				
$Eq.ratio_t$	-0.0014	0.0577	-0.0427	-0.0130	0.0519	0.0039	0.0148	-0.0055	-0.1016	0.0786	-0.0453	1.0000			
$Human_t$	0.0096	-0.0516	-0.0093	-0.0678	0.0469	0.0768	0.0606	-0.0224	-0.0214	-0.0629	-0.1249	0.0185	1.0000		
$Sw.aff_t$	0.0911	0.0042	-0.1578	-0.0987	0.0821	0.0910	0.0259	0.0366	0.0399	-0.0391	0.0014	0.0673	0.0587	1.0000	
$For.aff_t$	0.0103	-0.1993	-0.0048	0.0293	0.0429	0.0479	0.0109	0.0076	-0.1174	-0.0881	-0.1417	-0.0374	0.0280	-0.0110	1.0000

Appendix B: Robustness regressions

Dep. Var.	$Size_{it+k}$					$Sales_{it+k}$					$Profits_{it+k}$					Lp_{it+k}				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
$Bgf2:25_i$	0.288***	0.286**	0.384**	0.470***	0.575***	0.755***	0.610*	0.799***	0.579***	0.503***	-0.499	0.279	0.190	0.609	1.007	-0.354	-0.139	0.545	0.680**	0.851**
	[0.106]	[0.128]	[0.160]	[0.173]	[0.210]	[0.195]	[0.323]	[0.207]	[0.124]	[0.148]	[0.511]	[0.554]	[0.674]	[0.665]	[0.696]	[0.609]	[0.670]	[0.716]	[0.288]	[0.389]
$Bgf3:25_i$	0.313***	0.318***	0.375**	0.489***	0.584***	0.715***	0.579*	0.782***	0.522***	0.489***	-0.362	0.147	0.185	0.514	1.122*	-0.143	-0.095	0.594	0.629**	0.841**
	[0.096]	[0.115]	[0.145]	[0.160]	[0.196]	[0.187]	[0.297]	[0.195]	[0.123]	[0.149]	[0.468]	[0.539]	[0.634]	[0.634]	[0.642]	[0.553]	[0.602]	[0.655]	[0.276]	[0.378]
$Bgf4:25_i$	0.289***	0.277***	0.356***	0.443***	0.561***	0.461**	0.187	0.670***	0.474***	0.426***	-0.316	-0.366	-0.408	0.281	0.835	-0.205	-0.917	0.119	0.567**	0.774**
	[0.090]	[0.106]	[0.133]	[0.149]	[0.183]	[0.231]	[0.349]	[0.191]	[0.125]	[0.149]	[0.444]	[0.541]	[0.638]	[0.617]	[0.646]	[0.535]	[0.700]	[0.697]	[0.268]	[0.384]
$Bgf5:25_i$	0.304***	0.291***	0.353***	0.422***	0.561***	0.512**	0.228	0.729***	0.549***	0.491***	-0.217	-0.409	-0.256	0.416	1.116*	-0.276	-0.744	0.308	0.664**	0.799**
	[0.087]	[0.102]	[0.125]	[0.140]	[0.172]	[0.227]	[0.339]	[0.187]	[0.133]	[0.158]	[0.434]	[0.528]	[0.604]	[0.589]	[0.600]	[0.532]	[0.673]	[0.660]	[0.265]	[0.358]
$Bgf2ma:25_i$	0.320***	0.362**	0.453**	0.576***	0.675***	0.593***	0.896***	0.800***	0.549***	0.475***	-0.285	0.170	0.420	1.175*	0.807	-0.101	-0.111	0.794	0.571*	0.794*
	[0.119]	[0.144]	[0.177]	[0.189]	[0.228]	[0.174]	[0.236]	[0.237]	[0.140]	[0.165]	[0.512]	[0.601]	[0.721]	[0.631]	[0.800]	[0.623]	[0.748]	[0.709]	[0.304]	[0.423]
$Bgf3ma:25_i$	0.296***	0.341**	0.400**	0.505***	0.607***	0.592***	0.869***	0.736***	0.510***	0.446**	-0.156	0.134	0.186	0.898	0.476	-0.012	-0.445	0.250	0.517*	0.663
	[0.114]	[0.135]	[0.169]	[0.181]	[0.216]	[0.168]	[0.230]	[0.236]	[0.146]	[0.178]	[0.492]	[0.588]	[0.718]	[0.659]	[0.799]	[0.592]	[0.784]	[0.827]	[0.296]	[0.416]
$Bgf4ma:25_i$	0.323***	0.348***	0.420***	0.526***	0.666***	0.586***	0.835***	0.728***	0.535***	0.506***	-0.108	0.036	0.194	0.816	0.568	0.005	-0.402	0.260	0.529*	0.751*
	[0.111]	[0.131]	[0.160]	[0.172]	[0.204]	[0.165]	[0.216]	[0.222]	[0.146]	[0.172]	[0.474]	[0.581]	[0.685]	[0.636]	[0.739]	[0.570]	[0.745]	[0.771]	[0.285]	[0.405]
$Bgf5ma:25_i$	0.322***	0.349***	0.410***	0.517***	0.651***	0.585***	0.816***	0.749***	0.563***	0.537***	0.042	0.209	0.186	0.748	0.777	0.030	-0.349	0.299	0.515*	0.732*
	[0.106]	[0.122]	[0.147]	[0.157]	[0.190]	[0.160]	[0.200]	[0.208]	[0.142]	[0.173]	[0.454]	[0.549]	[0.650]	[0.607]	[0.693]	[0.542]	[0.700]	[0.718]	[0.275]	[0.386]
$Bgf2ma:10_i$	0.311***	0.314***	0.442***	0.524***	0.620***	0.592***	0.539**	0.710***	0.512***	0.489***	-0.357	0.086	0.098	0.548	1.075*	-0.009	-0.255	0.632	0.610**	0.706**
	[0.084]	[0.099]	[0.124]	[0.137]	[0.161]	[0.156]	[0.258]	[0.187]	[0.124]	[0.123]	[0.431]	[0.489]	[0.574]	[0.590]	[0.584]	[0.477]	[0.566]	[0.570]	[0.262]	[0.321]
$Bgf3ma:10_i$	0.290***	0.300***	0.393***	0.447***	0.546***	0.615***	0.542**	0.699***	0.515***	0.492***	-0.193	0.135	-0.238	0.526	0.861	-0.041	-0.349	0.375	0.611**	0.682**
	[0.077]	[0.089]	[0.110]	[0.122]	[0.144]	[0.150]	[0.231]	[0.175]	[0.121]	[0.123]	[0.404]	[0.458]	[0.547]	[0.521]	[0.540]	[0.467]	[0.540]	[0.574]	[0.246]	[0.318]
$Bgf4ma:10_i$	0.281***	0.280***	0.353***	0.407***	0.519***	0.624***	0.498**	0.714***	0.535***	0.498***	-0.094	-0.217	-0.209	0.619	1.096**	-0.108	-0.266	0.506	0.642***	0.649**
	[0.073]	[0.084]	[0.102]	[0.114]	[0.135]	[0.148]	[0.226]	[0.172]	[0.126]	[0.127]	[0.390]	[0.460]	[0.523]	[0.502]	[0.515]	[0.461]	[0.513]	[0.542]	[0.242]	[0.294]
$Bgf5ma:10_i$	0.286***	0.288***	0.363***	0.416***	0.492***	0.608***	0.481**	0.692***	0.484***	0.492***	-0.061	-0.113	-0.246	0.386	1.175**	-0.106	-0.254	0.495	0.600**	0.677**
	[0.072]	[0.082]	[0.100]	[0.111]	[0.131]	[0.145]	[0.221]	[0.168]	[0.131]	[0.121]	[0.383]	[0.451]	[0.515]	[0.507]	[0.499]	[0.453]	[0.500]	[0.525]	[0.242]	[0.294]
$Bgf2:10_i$	0.261***	0.254***	0.324***	0.421***	0.511***	0.629***	0.517**	0.608***	0.450***	0.396***	-0.267	0.154	0.079	0.488	0.641	-0.106	-0.442	0.322	0.585**	0.595*
	[0.076]	[0.092]	[0.114]	[0.128]	[0.147]	[0.159]	[0.239]	[0.177]	[0.120]	[0.118]	[0.415]	[0.476]	[0.555]	[0.558]	[0.600]	[0.462]	[0.560]	[0.592]	[0.244]	[0.311]
$Bgf3:10_i$	0.287***	0.279***	0.315***	0.418***	0.527***	0.695***	0.576**	0.623***	0.484***	0.446***	-0.102	-0.078	0.126	0.465	0.683	0.140	-0.308	0.439	0.586**	0.627**
	[0.072]	[0.085]	[0.105]	[0.119]	[0.139]	[0.164]	[0.227]	[0.172]	[0.124]	[0.129]	[0.385]	[0.459]	[0.512]	[0.523]	[0.552]	[0.426]	[0.504]	[0.542]	[0.229]	[0.298]
$Bgf4:10_i$	0.280***	0.274***	0.320***	0.405***	0.504***	0.519***	0.298	0.659***	0.505***	0.458***	-0.138	-0.312	-0.356	0.413	0.791	-0.046	-0.617	0.501	0.613***	0.636**
	[0.067]	[0.079]	[0.098]	[0.110]	[0.129]	[0.183]	[0.248]	[0.166]	[0.122]	[0.128]	[0.367]	[0.445]	[0.511]	[0.497]	[0.517]	[0.428]	[0.527]	[0.506]	[0.225]	[0.282]
$Bgf5:10_i$	0.259***	0.239***	0.288***	0.382***	0.469***	0.525***	0.293	0.660***	0.551***	0.499***	-0.171	-0.368	-0.232	0.348	1.024**	-0.117	-0.755	0.641	0.724***	0.700**
	[0.065]	[0.076]	[0.093]	[0.107]	[0.126]	[0.184]	[0.251]	[0.171]	[0.127]	[0.130]	[0.366]	[0.438]	[0.491]	[0.499]	[0.511]	[0.439]	[0.534]	[0.499]	[0.239]	[0.284]
Observations	891	746	604	491	404	891	746	604	491	404	875	732	593	483	397	891	746	604	491	404
R-squared	0.40-0.41	0.43	0.43-0.44	0.43-0.44	0.44-0.46	0.13	0.13-0.14	0.07	0.03-0.03	0.06	0.10	0.10	0.08	0.09-0.10	0.04-0.05	0.10	0.11	0.08	0.07	0.09

Robust standard errors in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

(1)-(5) represent samples with firms surviving their first 3-7 years respectively. The dependent variables in (1)-(5) are accordingly *Size, Sales, Profits and Lp* 3-7 years after firm foundation, i.e. k=3,4,5,6,7.

The different definitions of born global firms are Bgfx:y_u where x is years after foundations and y is share of exports in sales, ma stands for moving average.

The same controls as in table 7 are used but their coefficients are obmitted here for illustrative purposes.