

Firms' Survival in Export Markets and Credit Constraints: Does Foreign Financing matter?*

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Abstract

We study the impact of foreign financing on firms survival in export markets. We base our analysis on a panel of Argentine firms that started to export between 2004 and 2008. Our data base contains valuable information on firms debt with domestic and foreign creditors, as well as other characteristics of firms as their size. Using a discrete-time survival model and alternative methodologies, we evaluate the importance of foreign financing as a determinant of firms' survival in export markets, conditional on their access to domestic financing, other characteristics of the firms and the economic conditions on their destination markets. We find that foreign financing increases the probability of firms to survive in export markets.

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*The opinions expressed here are of the authors and do not necessarily represent those of the BCRA or the CEMLA.

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1 Introduction

According to the empirical evidence in the literature, the majority of export relationships are short lived –Besedes and Prusa (2006); Besedes and Blyde (2010) and Eaton et al. (2011) and, more importantly, these relationships are even shorter in developing countries. Thus, it seems that raising firms’ survival rates in exports markets is central for these countries, given the importance of export performance to boost economic growth and development –Hausmann and Rodrik (2003). In this regard, indentifying the determinants of firms’ survival in export markets is of the first order of magnitude for policy-makers.

Access to good financing conditions seems to be a natural candidate to explore, particularly in the case of developing countries, where financial markets are frequently underdeveloped and financial constrains are a main limiting factor for firms’ survival.

The importance of borrowing constraints for firms survival has been the focus of both the theoretical and the empirical industrial organization literature (see Rajan and Singales, 1998, Levine, 2003, Clementi and Hopenhayn, 2006), but the inclusion of financial variables in equations modeling firms survival is quite recent (Fotopoulos and Louri, 2000, Tsoukas, 2013). A set of more recent papers look at global engagement as a way of shielding firms from financial constraints. Bridges and Guariglia (2008) claim that exporters have better access to internal financial markets; they enjoy less bankruptcy risk; they are less dependent on the domestic demand and are expected to generate enough profits to pay the sunk costs associated with the exporting activity.

Like the industrial organization literature, international trade economists have recently emphasized the relevance of financial characteristics. These economists have traditionally recognized differences in factor endowments, market sizes and productivity levels across sectors and firms as the main sources of comparative advantage. A recent strand of literature has emphasized the importance of credit constraints for the entrance in export markets. Models developed by Chaney (2005) and Manova (2012) gave theoretical support to this intuition.

Also recently, the trade literature on heterogeneous firms extended this framework to empirically study the determinants of the survival of firms as exporters (see Besedes and Prusa, 2006b, Esteve-Pérez et al. 2007, Gorg et al. 2008, Vople-Martinius and Carballo 2009, Besedes and Blyde 2010,

Esteve-Pérez et al 2013, and Fu and Wu 2014, among others). Among them, the only ones that emphasize the importance of financial factors are Besedes and Blyde, 2010.

We study the importance of foreign financing for the survival of Argentine firms over the period 2004-2008 concentrating on firms that began to export within our sample period. Using information at the firm level on firms financing coming from both, domestic banks and foreign creditors, we are able to identify the contribution of foreign financing to the survival of firms as exporter, conditional on their access to domestic bank credit and other relevant characteristics of the firms and their destination markets. To the best of our knowledge, this is the first study that incorporates information on firms foreign debt in an equation modelling survival in the exports markets.

The paper is organized as follows: In section 2 we revise the related literature. In section 3 we describe the data set and present a descriptive analysis to motivate our empirical exercise, the results of which are displayed in section 4. Finally, section 5 concludes.

2 Related literature

The literature on firms' survival initiated in the field of industrial organization, highlighting the relevance of several factors that affect the probability of exit. The earlier studies employed explanatory variables defined at the industry level, but the set of interest was soon extended to include the firm level data. The literature investigated the impact of firms' non-financial characteristics on survival rates employing methods such as models of discrete choice or Cox models. Size and age were among the variables that raised more attention. Because large firms are more likely to have better access to financial and labor markets and to operate at a minimum efficient scale, they are expected to have better survival prospects. This intuition is confirmed by the works of Dunne et al. (1988), Mata and Portugal (1994) and Perez et al. (2004) for the U.S., Portugal and Spain, respectively. Other explanatory variables of interest have been the legal structure; the level of investment in R&D; the extent of foreign capital participation and importantly to this paper, the export status of the firm. Interestingly, this early literature did not consider either firms' financial characteristics or the incidence of financial and credit constraints on survival rates.

The inclusion of financial variables in equations modeling survival proba-

bilities required the use of data provided by firms' balance sheets. Fotopoulos and Louri (2000) was one of the first articles to employ financial information for 219 Greek manufacturing firms. They control for industry level variables such as entry rate, sunk cost and market growth. They find that larger initial capital; conservative borrowing; stronger commitment in fixed assets and lower diversification in terms of holding other firms' assets increase the probability of survival in the domestic market. More recently Tsoukas (2011) studies the link between firm survival and financial development for a panel of five Asian economies and find that traditionally used measures of financial development as the size of capital markets relative to GDP have an important role in influencing firm survival.

Interestingly, a set of more recent papers recovers the relevance of the export status; these articles look at global engagement as a way of shielding firms from financial constraints. Bridges and Guariglia (2008) claim that exporters have better access to internal and financial markets; they enjoy less bankruptcy risk; they are less dependent on the domestic demand and are expected to generate enough profits to pay the sunk costs associated with the exporting activity. Exporters then have higher likelihood of serving their debt and, therefore, face smaller liquidity constraints. Using a panel of 61,496 UK firms over the period 1997-2002, they show that lower collateral and higher leverage decrease the survival rate of the globally engaged firms by a smaller amount. Along these lines, Görg and Spaliara (2009) disentangle the effects of export status and financial health on firms' survival rates in the domestic market. They use data for firms in the UK and France and find that continuous exporters face a higher probability of survival compared to starters, continuous non-exporters and firms exiting the exporting market.

Like the industrial organization literature, international trade economists have recently emphasized the relevance of financial characteristics. Differences in factor endowments, market sizes and productivity levels across sectors and firms have been traditionally recognized as the main sources of comparative advantage. A recent strand of literature studies the impact of financial development on the extensive and intensive margins of trade and its potential role as a source of comparative advantage –Beck (2002, 2003), Manova (2007), Becker et al. (2013), Svaleryd and Vlachos (2008), and Hur et al. (2006). Exporting activities face greater transaction risks and larger up-front costs in terms of design, marketing and distribution –Becker et al. (2012). Furthermore, they require greater working capital because they have a longer lag between production and the receipt of sales revenue –Amiti and

Weinstein (2011). Hence, exporting activities have a strong dependence on external financing and, thus, financial constraints are expected to affect entry and sales in the exports markets.

Manova (2007) incorporates financial frictions into a heterogeneous firm model á la Melitz (2003) and identifies three additional mechanisms: the impact of credit constraints on trade is driven by reductions in total output; limited firm entry into exporting, and contractions in exporters' sales. Testing the predictions of her model with a sample of 107 countries and 27 sectors for the period 1985-1995, she finds that financially developed economies export more and sell more of each product in sectors that are more dependent on external financing. Along the same lines, Chaney (2005) introduces liquidity constraints into Melitz's model of heterogeneous firms (2003) to show that these constraints reduce entry and a deepening of financial market increases aggregate trade flows.

Being strongly influenced by the models of heterogeneous firms, most of which do not model survival rates explicitly, the empirical literature focused on the intensive and extensive margins of trade. Until quite recently, this literature ignored the duration of trade relationships and survival rates. However, understanding the determinants of survival is the first order of magnitude because the majority of export relationships are short-lived –Besedes and Blyde (2010). More importantly, these relationships are even shorter in developing countries so that raising survival rates in exports markets is central to boost economic growth and development –Hausmann and Rodrik (2003). Recent papers go beyond entry and exports sales –intensive and extensive margins–and investigate the determinants of survival rates in export markets. Esteve-Pérez et al (2007) focus on a panel of Spanish manufacturing firms and find that firms exporting to "closer" are more likely to survive than those that export to more "uncertain" ones. Martincua and Carballo (2009) study the duration of trade relationships established by Peruvian exporters over the period 2000-2006. They find that the median duration of a spell is just is one year and exit rates are accordingly high. More recently Fu and Wu (2014) use data of Chinese manufacturing firms to study the determinants of their survival in export markets. They find that larger, more export-oriented and foreign-owned relative to state-owned firms are more likely to survive for a longer period in export markets. Geographical diversification, product diversification as well as size, measured in terms of employment are found to increase the chances of survival in the exports market. In the same spirit, Besedes and Blyde (2010) find that Latin America has lower export survival

rates than the US, the EU and East Asia. They test a battery of possible explanatory variables defined at the country level to analyze what factors explain the differences in survival rate. Interestingly, they are the first to include financial variables in an equation modeling survival rate in the exports markets; they include domestic credit to the private sector and the market capitalization of listed companies as proportions of GDP. The result is that export survival rates are higher in countries with more developed financial systems. In this regard, Besedes and Blyde's work (2010) is the first attempt to assess the impact of financial and credit conditions on export survival.

This paper studies the importance of foreign financing as a determinant of Argentine firms survival in export markets over the period 2003-2008. The availability of valuable information on their access to foreign and domestic financing allows us to study explicitly the role of foreign financing in shaping the survival rates of firms in export markets, conditional on their access to domestic bank credit and other relevant characteristics of the firms. In this regard the papers contributes to the literature on new exporters and survival, shedding light on the importance of financial constraints for their permanence in export markets.

3 The data

Our initial data set comprises information for Argentine manufacturing firms that exported over the period 2003-2009 coming from raw data of three different sources: The tax collection agency, the customs office and the central bank. This data set contains information at the firm level on: (i) Export values by destination and product, (ii) size, measured by the number of employees and (iii) amount, origin and type of foreign creditor and (iv) amount of total debt with domestic financial institutions.

To construct our sample we only considered starters, that is, we do not consider those firms that were already exporting at the initial year of the sample, as proposed by Besedes and Prusa (2006b), to avoid the left censoring problem. Also, we did not consider those firms that are just occasional exporters, not being able to export for at least two consecutive years. We also restricted our sample to those firms with mean value of employees no lower than five. This leaves us with a sample of 2,178 that began to export in 2004. The firms are represented in the sample by their largest spell. We categorize them as having access to foreign financing if it received funds from

abroad 40% of its exporting years.

3.1 A first glance to exporters performance and international financing

Table 1 shows that the access to foreign financing is much more restricted for the firms in our sample relative to domestic bank credit: Whereas 58% of the firms receive financing from domestic financial institutions only 31% of them are able to get foreign financing. One of the questions we want to answer with our econometric exercise is whether, conditional on their access to domestic credit, foreign financing constitutes an extra source of financing that helps firms to remain in export markets.

Table 1. Access to financing

	% of firms
Without foreign debt	69.2
With foreign debt	30.8
Without domestic debt	41.9
With domestic debt	58.1

In Table 2 we look at the relationship between access to foreign and domestic financing and firms failure (*failure* = 1 if they exit from export markets). It suggests that firms with access to both, domestic and foreign financing, are less likely to exiting export markets.

Table 2. Access to financing and failure

	Fail = 0	Fail = 1
Without foreign debt	67.8	32.2
With foreign debt	78.1	21.9
Without domestic debt	65.6	34.4
With domestic debt	74.8	25.2

Do foreign and domestic financing contribute differently to firms duration? According to the figures in Table 3 it seems so. While the mean spell is significantly higher for firms with access to foreign financing compared to those without it, the difference is not statistically significant between firms with and without access to domestic financing.

Table 3. Access to financing and spell length

	Mean of spell	p-value
Without foreign debt	3.06	0.000
With foreign debt	3.29	
Without domestic debt	3.11	0.636
With domestic debt	3.14	

A strong presumption is that foreign financing is likely to be driven by firm-level characteristics as their productivity, ownership or size. Our data set contains information on firms size, commonly used as a proxy, although imperfect, of productivity. The figures in Table 4 seem to support this presumption since larger firms are less likely to exit export markets.

Table 4. Mean of Employees

	Employees
Fail = 0	35.8
Fail = 1	29.3

Overall, this first approximation to the data suggest that foreign financing can play a role in increasing firms' survival probability.

4 Survival in export markets: the importance of foreign financing

4.1 The determinants of export survival and the role of foreign financing

To study the importance of foreign financing for the survival of firms in export markets we follow Besedes and Prusa (2006a, 2006b), who extended to the problem of export survival the early empirical studies developed within the framework of heterogeneous firms facing sunk costs (Melitz 2003) to explain the export entry decision. Since this earlier work, a series of recent studies (Estevez-Pérez, 2007 and 2013, Volpe-Martinićus and Caballo 2009, Besedes and Blyde 2010, Molina and Fugazza, 2014, and Fu and Wu (2014) have addressed the problem of firms survival and its determinants using different estimation methodologies and variables mainly to deal with sources of heterogeneity at the firm, industry and destination level.

Within the context of this recent empirical work and motivated by the literature on the importance of financial constraints for firms survival (Rajan and Singales, 1998, Levine, 2003, Clementi and Hopenhayn, 2006), as well as the trade literature that focuses on financial constraints as a relevant characteristic for export participation (Chaney, 2005 and Manova, 2012), we address the question of whether the access to foreign financing could be a determinant for firms survival in export markets.

For the estimation of our empirical model, we consider firm, industry, destination characteristics that are expected to have an incidence on firms survival as exporters, in line with the recent literature. Additionally, to test for the importance of foreign financing we explicitly introduce the level of foreign financing received by the firms, controlling for their access to domestic bank financing and also for credit supply shocks in the country of origin of the foreign funds received by the firms.

(i) *Firm specific variables:*

We first consider firms size, measured by the number of employees to account for the possibility of large firms to exploit their economies of scale by exporting as well as to benefit from their better access to capital and skilled labor (Fu and Wu, 2014).

We also include regressor the initial level of exports of the firm, a

variable that according to the literature (see Cadot et al., 2013), has shown to have importance for firms survival.

Finally to test for the relevance of foreign financing for firms survival, we control for the access to domestic, that is we evaluate the importance of foreign financing conditional on firms access to domestic bank credit.

(ii) *Industry variables:*

We include industry variable dummies to control for industry characteristics of the firms that could explain their heterogeneity in terms of product quality and technology.

(iii) *Destination specific:*

We include as a determinant the rate of growth of real GDP in destination countries to take into account the impact of domestic demand conditions in the main destination markets of firms, which, could impact its survival as exporter. This is particularly relevant in our case, given that our sample includes 2007 and 2008, the first two years of the global financial crisis, that had a strong impact on domestic demand in some of the advanced economies.

4.2 Estimation methodology

Three approaches can be used to conduct survival analysis: non-parametric, semi-parametric and parametric. The non-parametric approach is widely used to conduct preliminary univariate analysis, which does not require and assumption about the distribution of the failure time (Esteve-Pérez, 2013 and Castagnino et al. 2013). When studying the determinants of firms survival, semi-parametric and parametric approaches are preferred. Many of the earlier and recent trade studies (Besedes and Prusa 2006b, Brenton et al 2009, Fugazza and Molina 2009) use the proportional semi-parametric Cox estimation. The shortcomings of this approach have been stressed by Estevez-Pérez et al 2007 and more recently by Hess and Persson (2012), who point out three main weaknesses of the Cox methodology: First, it assumes continuous-time specification, which does not fit with the discrete-time characteristics of trade models, which usually treat observations annually. Second, it does not deal with unobserved individual heterogeneity, which could lead

to spurious negative duration dependence, biasing estimations. Third, it assumes a proportional hazard, which could not be the case when using trade duration data.

Given the shortcomings of the Cox estimation for trade duration data, we choose the clog-log specification as our baseline model. In doing this, we follow Esteve-Pérez (2007 and 2013), Brenton et al. (2010), Tsoukas (2011) and Fu and Wu (2014). Additionally, we also estimate a random-effects Probit model as well as an Instrumental Variables Probit model. In the first case we want to take into account the panel data structure of the data. Regarding the IV Probit estimation, we want to control for firm-level characteristics that could drive foreign financing.

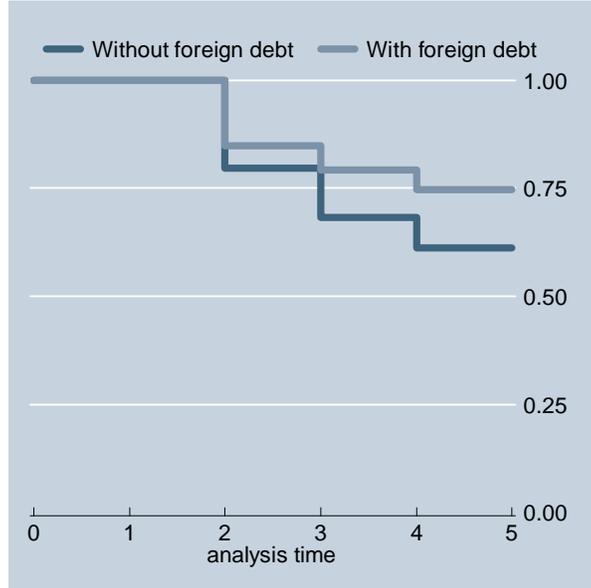
4.3 Results

4.3.1 Univariate analysis

When modeling survival, the interest is centered on duration, the time lapse before a firm exits export markets. Since firms can enter, exit and re-enter into export markets, more than one spell can be available for each firm in the sample. Different strategies are used to deal with this issue to conduct survival analysis. Here we choose to let each firm be represented by its longest spell. Additionally, when using duration data, a censoring problem arises, because for a given sample period, the complete, in our case, exporting history, is not necessarily observed: The exit time for firms that still export the last year of the sample is unknown (the right-censoring problem), as well as the starting time of firms that already export the first year of the sample. To deal with the left-censoring problem we concentrate on firms that started to export within the sample period, in line with Besedes and Prusa (2006b) and Fu and Wu (2014). This leaves us with a set of 2,178 firms.

We first characterize the patterns in duration depending on firms having or not access to foreign financing. In Figure 1 we present estimates of the Kaplan-Meier survival function for the two groups of starters in our sample. Firms' survival in export markets increases with their access to foreign finance (the survival function is higher for firms with access to financing). Note also the differences in dynamics: notably, the probability of survival of a firm without access to foreign finance decreases more rapidly than that of firms in the other group.

Figure 1. Kaplan-Meier survival estimates by access to foreign finance.



4.3.2 Multivariate analysis

As mentioned above our baseline model to study the importance of access to foreign financing for the survival of firms in export markets will be the clog log model which, as pointed out by Hess and Persson (2012), has important advantages relative to the Cox models, particularly when dealing with trade duration data: it takes into account the discrete-time nature of the trade duration data, which in our case consist on annual observations and allows for unobserved individual heterogeneity. Making this choice we follow the work of Esteve-Pérez et al (2007, 2013) Brenton (2010) and Fu and Wu (2014). Additionally we also estimate a random effects Probit and an IV Probit. While the first one takes into account the panel nature of the data, the IV Probit allows us to deal with the potential misestimation problems associated to the fact that firm-level characteristics may driving foreign financing.

The dependent variable is defined as follows. There are individuals $i = 1, \dots, N$ that are observed for $t_i = 1, \dots, T$ time periods. If the firm does not fail, the dependent variable is $event = 0$ for all t_i and if the firm fails the dependent variable $event = 0$ for all $t_i = 1, \dots, T - 1$ and $event = 1$ for $t_i = T$

The clog-log and the random effect estimations include the same three groups of explanatory variables.

- (i) *Firm specific variables*: Additionally to our variable of interest, which is the level of debt of the firm with foreign creditors at time (year), firms size, their level debt with domestic financial institutions and their initial level of exports
- (ii) *Industry variables*: An industry dummy variable, which controls for industry characteristics that could explain their heterogeneity in terms of product quality and technology
- (iii) *Destination specific variables*: the level of GDP growth in the destination countries, calculated as a weighted average with weights being year t exports of the firm to destination d relative to total firm exports in t .

The IV Probit estimation incorporates as an instrument the money market interest rate in the country of origin of the funds to account for credit supply shocks in these markets ¹ Since firms foreign financing can come from multiple origins, we use a weighted average rate, with weights given by the relative importance of each origin across the t exporting years on total foreign financing of firm i . Firms without access to foreign financing are assigned the sample mean interest rates for year t , with mean weights for the sample across t . All variables, except from dummies, are expressed in logs.

Table 5 presents the results of the clog-log estimation in which the heterogeneity is assumed to be Gamma distributed. Columns 1 to 3 sequentially incorporate the group (1) firm specific variables controlling for time effects. In all of the cases the access to foreign financing significantly reduces the probability of exiting export markets, conditional on the size of the firm, the access to domestic financing and the initial level of exports, and remains significant at the 1%. When we include the access to domestic bank credit (column 2) its contribution to the reduction of the hazard is significant at the 5%, although less than that of foreign financing. However, its contribution becomes not significant once we incorporate firms' initial level of export.

The estimation in column (4) incorporates the industry dummies, that aims at controlling for firms heterogeneity due to differences in production

¹See Rosengreen, 2002 and Del Prete and Frederico, 2014 for identification of supply shock using bank level data.

technology. Finally, in column (5) the GDP growth is incorporated to take into account demand conditions in the destination country, what seems to be important for our sample period, which includes 2007 and 2008, the initial years of the global financial crisis, that had a strong impact on domestic demand in the countries hit by this event.

Table 5. CLOG-LOG model estimation results*

Explanatory Variables	(1)	(2)	(3)	(4)	(5)
Ln(Foreign financing)	-0.218*** [0.0769]	-0.211*** [0.0753]	-0.110*** [0.0418]	-0.110*** [0.0402]	-0.220*** [0.0795]
Ln(Size)	-0.0127 [0.369]	0.148 [0.403]	-0.0981 [0.238]	-0.235 [0.218]	-0.152 [0.408]
Ln(Export year)	15.01*** [3.764]	14.78*** [3.621]	10.04*** [2.424]	8.889*** [2.061]	15.35*** [3.320]
Ln(Domestic financing)		-0.162 [0.135]	-0.0723 [0.0824]	-0.0964 [0.0781]	-0.278* [0.152]
Ln(Initial exports)			-0.255** [0.119]	-0.283** [0.116]	-0.784*** [0.262]
Ln(GDP growth)					-2.475*** [0.700]
Constant	-4.749*** [1.140]	-4.985*** [1.181]	-26.76 [235.8]	-22.72 [226.2]	7.386** [3.367]
Observations	6,104	6,104	6,104	6,104	6,104
Industry Fixed Effects	NO	NO	NO	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES

*** Significant at 1%, ** at 5%, * at 10%.

Robust Standard errors in brackets.

*Unobserved heterogeneity is assumed to follow a Gamma distribution

In Table 6 the results of estimation of the random-effects model are presented. The results are almost the same compared to the clog-log model in terms of the significance of the coefficients. The only notable difference is that GDP growth loses significance.

Table 6. Random-effects PROBIT model.

Explanatory Variables	(1)	(2)	(3)	(4)	(5)
Ln(Foreign financing)	-0.0382*** [0.00708]	-0.0368*** [0.00700]	-0.0343*** [0.00707]	-0.0344*** [0.00709]	-0.0347*** [0.00713]
Ln(Size)	-0.0825** [0.0335]	-0.0614* [0.0345]	-0.0450 [0.0353]	-0.0522 [0.0354]	-0.0527 [0.0357]
Ln(Domestic financing)		-0.0233* [0.0123]	-0.0204 [0.0125]	-0.0180 [0.0125]	-0.0179 [0.0125]
Ln(Initial exports)			-0.0910*** [0.0196]	-0.104*** [0.0203]	-0.107*** [0.0205]
Ln(GDP growth)					-0.114* [0.0601]
Constant	-1.666*** [0.143]	-1.667*** [0.141]	-0.873*** [0.192]	-0.403* [0.240]	-0.220 [0.261]
Observations	6,104	6,104	6,104	6,104	6,104
Number of firms	2,178	2,178	2,178	2,178	2,178
Industry Fixed Effects	NO	NO	NO	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES

*** Significant at 1%, ** at 5%, * at 10%.

Standard errors in brackets.

Finally Table 7 shows the estimation results for the IV Probit model. The aim in this case is to explicitly control for supply shocks in the main countries of origin of the funds received by the firms to identify the effect of foreign financing on the duration of firms in export markets, controlling for these potentially unobserved factors. With this aim the estimated models include the mean weighted average deposit interest rate in the main country of origin of the funds. As can be seen from Table 7, we do not include the estimation that include the destination country dummy variables, since credit supply shocks on them are potentially highly correlated with the demand conditions for which those dummies are supposed to control for. The results do not change significantly. Foreign financing continues to significantly reduce the hazard rate, although in this case at the 5% level.

Table 7. IV PROBIT model estimation results

Explanatory Variables	(1)	(2)	(3)	(4)
Ln(Foreign financing)	-0.0423** [0.0171]	-0.0417** [0.0172]	-0.0390** [0.0174]	-0.0427** [0.0180]
Ln(Size)	-0.0493* [0.0277]	-0.0417 [0.0281]	-0.0321 [0.0282]	-0.0351 [0.0292]
Ln(Domestic financing)		-0.00908 [0.0106]	-0.00684 [0.0106]	-0.00413 [0.0109]
Ln(Initial exports)			-0.0580*** [0.0149]	-0.0679*** [0.0157]
Constant	-5.775 [168.3]	-5.780 [167.8]	-5.278 [170.3]	-4.981 [135.5]
Observations	6,104	6,104	6,104	6,104
Industry Fixed Effects	NO	NO	NO	YES
Year Fixed Effects	YES	YES	YES	YES

*** Significant at 1%, ** at 5%, * at 10%.

Standard errors in brackets.

5 Conclusions

In this paper we study the importance of access to international markets financing as a determinant for the survival of firms in export markets. Focusing on a set of firms that started to export between 2004 and 2008 in Argentina, for which we have valuable information on export values and destinations as well as size and access to domestic and foreign financing, we conduct survival analysis to assess the importance of foreign financing in explaining their survival as exporters. We conduct our analysis controlling for other firms attributes as well as for other sources of heterogeneity, as the demand conditions on the destination country and the effects of supply shocks in the

country of origin of the financing received by the firm. We also use different estimation approaches to deal with other potentially unobserved sources of heterogeneity that could lead to biases and the over-estimation of negative duration dependence. Our results indicate that, after taking into account the level of domestic credit received by exporting firms, foreign financing provides an extra source of liquidity that contributes to their survival in export markets.

References

- [1] Amiti A. and D. Weinstein (2009), "Exports and Financial Shocks." NBER WP N° 15556.
- [2] Bernard A., J. Eaton , J. Jensen and S. Kortum (2003), "Plants and productivity in international trade." American Economic Review, vol 93.
- [3] Besedes, T. and J. Blyde (2010), "What drives export survival: An analysis of export duration in Latina America.", mimeo.
- [4] Besedes, T. and T. Prusa (2006), "Ins, Outs and the Duration of Trade.", Canadian Journal of Economics, Vol 30, N°1.
- [5] Brenton P. and E. von Uexkull (2010), "What explains the low survival rate of developing country export flow?". The World Economic Review, 24(3).
- [6] Bridges, S and A. Guariglia (2008), "Financial Constraints, Global Engagement , and Firm Survival in the United Kingdom." Scottish Journal of Political Economy, Vol 55, N°4, September.
- [7] Campa, J. and M. Shaver (2002), "Exporting and capital investment: On the strategic behavior of exporters." IESE Business School Discussion Paper N| 469, University of Navarra.
- [8] Castagnino T., L D'Amato and M. Sangiácomo (2013) "How do firms in Argentina get financing to export?" ECB Working Paper N° 1601.
- [9] Chaney T. (2005). "Liquidity Constrained Exporters." Mimeo, University of Chicago.
- [10] Chor D. and K. Manova (2012), "Off the Cliff and the Back? Credit Conditions and International Trade during the Global Financial Crisis." Journal of International Economics,
- [11] Cleves M., R. Gutierrez, W. Gould and Yulia Marchenko (2010), "An Introduction to Survival Analysis Using Stata."

- [12] Esteve-Pérez S., J. M. Mañez-Castillejo, M. E. Rochina Barrachina and J.A: Sanchis-Llopis, 2007, "A survival analysis of manufacturing firms in export markets. Unpublished manuscript.
- [13] Esteve-Pérez S., F.Requena-Silvente and V. J. Pallardó-Lopez (2013), "The duration of firm-destination export relationships: Evidence from Spain, 1997-2006". *Economic Inquiry*, vol. 51,January.
- [14] Fu, D. and Y Wu, (2014), "Export survival pattern and its determinants: an empirical study of the Chinese manufacturing firms". *Asian Pacific Economic Literature*. Crawford School of Public Policy.
- [15] Fugazza, M. and A.C. Molina (2009), "The determinants of trade survival", HEID Working Paper No05/2009, The Graduate Institute of International and Development Studies.
- [16] Greenaway D., A. Guariglia and R. Kneller (2007), "Financial factors and exporting decisions." *Journal of International Economics* 73.
- [17] Görg H., R. Kneller and B.Murakozy (2008), "What makes a successful exporter?" GP research Paper 2008/01, The University of Nottingham.
- [18] Housmann R. and D. Rodrik (2003), "Economic development and self-discovery". *Journal of Development Economics* 72.
- [19] Helpman, E., M. Meliz and S. Yeaple (2004), "Exports versus FDI." *American Economic Review*, vol. 64.
- [20] Hess W. and M. Persson (2012) "The duration of trade revisited", *Empirical Economics*, 43(3).
- [21] Manova K., S. Wei and Z. Zhang (2011). "Firm Exports and Multinational Activity under Credit Constraints." NBER Working Paper 16905.
- [22] Melitz M. (2003). "The Impact of Trade on Intra-industry reallocations and Aggregate Industry Productivity." *Econometrica*, vol. 71.
- [23] Minneti R. and S. Chun Zhu (2011). "Credit Constraints and Firms Export: Microeconomic Evidence from Italy." *Journal of International Economics*, vol. 83 (2).

- [24] Muûls M. (2008). "Exporters and Credit Constrains. A Firm-Level Approach." National Bank of Belgium.
- [25] Tsoukas, S. (2013), "Firm survival and financial development: Evidence from a panel of emerging Asian economies". *Journal of Banking & Finance* 35.
- [26] Volpe-Martincus C. and J. Carballo (2009) "Survival of new exporters in developing countries: does it matter how they diversify?". IDB Working Paper Series N° 140, Inter-American Development Bank.