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# BANK INTERNATIONALIZATION AND FIRM EXPORTS: EVIDENCE FROM MATCHED FIRM-BANK DATA

by Raffaello Bronzini[#] and Alessio D'Ignazio*

**Abstract**

In this paper we investigate whether new exporter firms have a higher probability of starting to export to the countries where their financing banks have already established their branches. The underlying mechanism we hypothesize is based on the transmission of foreign market knowledge from banks to firms, so as to cut down information barriers to international trade. In those countries where such information is arguably more precious to the firm, we found a significant positive relationship between a firm's probability of beginning to export to one market, and the presence in the same market of a branch of the firm's financing bank. Coherently with the mechanism hypothesized, we find a stronger effect for closer firm-bank relationships, and when banks have established their branches abroad over a longer time period.

**JEL Classification**: F10, G21.
**Keywords**: internationalization, export, bank-firm relationships.

**Contents**



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# 1 Introduction[1]

Over recent years the literature examining whether credit constraints affect firms' internationalization has rapidly expanded.[2] The economic argument of these studies is grounded in the new international trade theories with heterogeneous enterprises. Since engaging in offshore activities implies large sunk costs, only better, more productive firms are able to penetrate foreign markets through exports (Melitz, 2003; Bernard, Eaton, Jensen and Kortum, 2003). In such a framework, credit constraints hamper internationalization, because they prevent enterprises from raising funds for financing fixed exporting costs.[3]

Unlike financial constraints and internationalization, whether and how the characteristics of bank-firm relationships affect a firm's propensity to export has been studied very little.[4] Our paper contributes to this stream of research. We investigate whether new exporter firms have a higher probability of starting to export to the countries where their financing banks have already established their branches. The underlying mechanism we hypothesize is based on the transmission of knowledge from banks to firms, so as to cut down information barriers to international trade. Banks with branches abroad collect a wide stock of information over time on foreign countries that can easily be transmitted to their customers through the usual informal bank-firm contacts. Such a valuable flow of knowledge allows firms to reduce the fixed start-up costs associated with entering a new foreign market. This intangible asset turns out to be particularly helpful for small and medium enterprises that are less equipped to start international business. In addition, it

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[2]See e.g.: Greenaway, Guariglia and Kneller (2007); Berman and Hericourt (2010); Bellone, Musso, Nesta and Schiavo (2010) and Minetti and Zhu (2011).

[3]For the theoretical contributions see: Chaney (2005) and Manova (2010).

[4]Taking advantage of a unique firm survey, Bartoli, Ferri, Maccarone and Rotondi (2011) examine whether banks help firms to export through non-standard banking services, while Ricci and Trionfetti (2012) verify whether a firm's probability to export is affected by the intensity of the relationships with foreign banks.

is even more valuable if the relevant entry costs are specific to each destination country, as theoretically postulated by Chaney (2008) and Eaton, Kortum and Kramarz (2011), and empirically shown by Moxnes (2010).

There is anecdotal and survey-based evidence that shows both the relevance of informational barriers to firm internationalization and the role played by the banks in helping enterprises to internationalize. For example, information barriers on foreign countries are deemed the main obstacle to internationalization by a representative sample of Italian firms interviewed by the Bank of Italy (Bank of Italy, 2011). On the other hand, we know that the largest banks offer a wide range of non-financial services to support small- and medium-size firm internationalization, which range from helping enterprises to find profitable off-shore markets and suitable foreign clients, to consulting facilities on foreign legal systems or institutional frameworks. We also know that such non-financial services give considerable support to the international activity of enterprises (Bartoli et al., 2011).

This paper provides an in-depth analysis of such issues. We take advantage of detailed matched firm-bank data that provide information on firm exports as well as on firm-bank relationships. In particular, we know the destination country of firm exports and if a firm has ever exported there before. Moreover, we are able to link firm information with the characteristics of their financing banks. Namely, we know if and where banks financing firms have branches abroad. As a result, we can regress a firm's probability of exporting for the first time to one country on the presence of its financing banks in the same country, together with country fixed effects and a large set of controls at firm level.

The relevance of the information on foreign markets provided by banks is likely to be different across countries. We envisage that information barriers and therefore entry costs will be higher in less market-oriented and less efficient countries, where firms face a wide range of legal, regulatory and cultural constraints, and the market is less accessible because of bureaucracy, institutional factors, or public administration inefficiency. This set of obstacles is country-specific and might show a large heterogeneity across countries (World Bank, 2014). We presume that the internationalization of banks is more important for firms wishing to export to markets where such obstacles are larger.

We found a significant positive relationship between a firm's probability of starting to export to one market and the presence, in the same market, of a branch of the financing bank, which is robust to several sensitivity tests. Coherently with the mechanism hypothesized, this result applies to those countries characterized by higher information barriers. Moreover, we find a stronger effect for closer firm-bank relationships, and when banks have established their branches abroad over longer time periods.

The link between the destination country of exports and the country where the financing banks have branches might also be due to reasons other than the transmission of information from banks to firms. For instance, firms that are planning to export in certain markets could choose a bank which is internationalized in the same countries to enable access abroad to the usual banking services. Furthermore, the causality nexus might be the other way round, in the sense that it could be banks that follow firms by establishing foreign branches where their clients export (Seth, Nolle and Mohanty, 1998). Our empirical model, together with some auxiliary exercises, suggests that the link is not driven by firms choosing a bank established in the export country or by banks following their clients abroad.

On the whole, the results of our exercises are consistent with the assumption that the information transmitted by banks helps firms to start exporting. The paper provides suggestive evidence of a relationship, hitherto unexplored, which has an intuitive economic implication: being a client of an internationalized bank can be helpful in starting new international businesses. This result turns out to be relevant not only for a firm's strategic purposes but also to understand the forces able to strengthen a firm's international competitiveness and the indirect effects of bank-firm relationships.

The remainder of the paper is organized as follows. In the next section we discuss the theoretical background and the research papers more closely related to our analysis. In Section 3 we describe the dataset used. In Section 4 we present the empirical model and the baseline results. In Section 5 we test the validity of the information channel argument, while in Section 6 we carry out some robustness exercises and falsification tests. Section 7 includes the main concluding remarks.

## 2 Background and related literature

From a theoretical point of view, our paper is based on the recent international trade theories with heterogeneous enterprises, stemming from Melitz (2003), Bernard et al. (2003) and Melitz and Ottaviano (2008).[5] Such theories argue that firms willing to engage in international activities face considerable fixed entry costs. For example, to become an exporter, firms must gather information on the foreign market, adapt their products to foreign tastes, create a distributional system and start new business relationships. Since all these activities imply sunk costs, only more productive, usually larger firms are capable of overcoming such outlays in order to export. In the most recent contributions the fixed entry costs are considered as being specific to each export market, as postulated by Chaney (2008) and Eaton et al. (2011). Empirically, Moxnes (2010) shows that country-specific entry costs are much higher than global (non-country specific) sunk export costs.

Our research contributes to the literature on the links between the banking sector and the real economy, focusing in particular on the non-credit channels through which the banking sector might influence trade. Our hypothesis is that banks that have established branches abroad gather a large set of information over the years on the foreign countries where they are located. Such intangible assets can easily be transferred to their customers, thereby helping enterprises to overcome the entry barriers into the new foreign markets represented by sunk costs. This soft information turns out to be extremely valuable for smaller enterprises, which are less equipped to begin international business, and if the fixed costs are specific to each destination countries. A natural corollary of the mechanism illustrated is that the information flow from the bank to the firms will be wider, the stronger the bank-firm relationship and the longer the period of internationalization of the bank. That is, a more intense information transfer will occur inside long-established bank-firm relationships, or if the internationalized bank is the main credit supplier of the firms, and if the banks have established their branches abroad for long time spans.

The capability of financial intermediaries to reduce the fixed costs of internationalization has recently been explored by a flourishing literature on exports and financial constraints,

[5]For two exhaustive reviews, see Helpman (2006) and Greenaway and Kneller (2007).

which is based on similar theoretical arguments. Given the presence of sunk costs, export activity can only start if firms can raise financial resources to cover the associated fixed outlays. In contrast, firms that are financially constrained are unable to reach foreign markets. Theoretical contributions include Chaney (2005), Muuls (2008) and Manova (2010), while empirical papers encompass, among others, Greenaway et al. (2007), Bridges and Guariglia (2008), Berman and Hericourt (2010), Egger and Kesina (2010), Bellone et al. (2010), Manole and Spatareanu (2010) and Minetti and Zhu (2011). In these studies, the econometric strategy has been to regress the probability to export, or, in order to study the intensive margin of trade, the export volume on opportune measures of firms' financial constraints. Credit rationing at firm level is approximated using either financial balance sheet variables or specific information directly gathered through firm surveys. In order to deal with the endogeneity issue, these papers usually utilize instrumental variable methods. The econometric investigations provided mixed evidence on the role of financial constraints on a firm's trade performance. As regards Italy, Minetti and Zhu (2011) found that credit rationing reduces the probability of exporting as well as the level of foreign sales.

The link between the banking sector and firm internationalization has been further explored from a different perspective by Amiti and Weinstein (2001), who use Japanese firm-bank matched data and show that a firm's export growth rate is affected by the health of its main bank. Michalski and Ors (2012) focus on US data and show that interstate trade is positively affected by the extent of banking integration. Frazzoni, Mancusi, Rotondi, Sombrero and Pezzulli (2011) find that the strength of the relationship's lending, measured by the ratio of the firm's debt with its main bank and the firm's assets, enhances the firm's decision to export and the intensity of exports. De Bonis, Ferri and Rotondi (2014), in addressing a parallel question, show that firms that have stronger relationships with internationalized banks (in this case measured by the duration of the bank-firm relationship) are more likely to undertake foreign direct investments. Ricci and Trionfetti (2012) go further, and find that the a firm's probability to export is positively affected by the share of working capital financed by foreign-owned banks. The authors assume that the linkages with foreign networks help firms to overcome information barriers and thus to reduce entry

export costs.[6]

Our paper is also related to an earlier stream of literature that investigated whether the country's financial development affects its trade performance (see e.g.: Beck (2002), Becker and Green berg (2005), Hur (2006) and Samba and Yan (2009)). Unlike our study, however, these contributions follow a macro-economic approach. Beck (2002), for example, develops a theoretical model with asymmetric information where financial development affects the growth of the sector with increasing returns to scale. As a result, countries with a better-developed financial system show a higher export share and a positive trade balance in manufacturing. The model is tested across 65 countries over 30 years, providing empirical support for Beck's theory.

Although in recent years the literature on the role played by firm financing on firm export performance has rapidly expanded, to the best of our knowledge no paper has examined the link between firms that start exporting to a foreign country and the presence in the same country of their financing banks. This paper aims to fill that gap.

# 3 Data

Our empirical exercise benefits from a unique dataset, built by using three different sources.

Firstly, we draw information about firm export activities from the European firms in a global economy (EFIGE) survey, carried out in 2009 (*EFIGE Project*, 2008-2012). In particular, we focus on about 2,800 Italian firms surveyed by the EFIGE project. In the survey, firms are asked whether they exported any products before 2008. According to this question, we can identify three groups of firms: a) those who exported always or regularly before 2008; b) those who exported sometimes before 2008; c) those who never exported before 2008. In the survey, firms are also asked whether they had engaged in export activities in 2008, and those firms that exported in 2008 were asked to list their top

[6]The relevance of the role of banks in helping firms to reduce entry export costs is also underlined by Bartoli et al. (2011). Using a survey conducted by one of the largest Italian banks on her customers they show that for the majority of firms, banks have played an important role in helping firms' foreign activities, especially by supplying services like: counter-parties signalling, legal and financial advice, onsite support during fairs, advice on offshore investment opportunities and training services for commercial and administrative personnel.

three destination countries. Our baseline econometric exercise is based on sample (c). We also draw some relevant information from the survey such as number of employees, sales, sector and headquarters' location. The EFIGE data base is particularly suitable for the present paper, not only for the useful information provided, but also because it focuses mainly on small and medium enterprises (Altomonte and Ottaviano, 2012). Indeed, it is more attractive for them to examine the factors helping internationalization.

Secondly, we draw information about banks' cross-border presence from the Bank of Italy's Census, which provides information about bank branches and representative offices in foreign countries since 1994.[7]

Finally, we join data on firm export activities and those on bank internationalization by using information on bank-firm relationships drawn from the Central Credit Register (CCR), sourced by the Bank of Italy. The CCR provides bank-firm level information on a large set of credit variables. We are interested, in particular, in the amount of credit granted. We collect annual year-end data, from 1998 to 2010. In this way we are able to map the set of financing banks for every firm in our sample. The CCR provides data about the universe of Italian firm-bank relationships where the amount of borrowed funds is above a threshold of 75,000 euros.[8]

Our entire sample consists of 2,773 manufacturing firms. 1,538 exported regularly before 2008 (sample a), the year of the survey. 466 exported sometimes (sample b), while 769 never exported before 2008 (sample c). 52 firms belonging to the last group started exporting in 2008.

The last set of firms, which we will refer to as the "non-exporters" before 2008, is smaller in size than the group of firms that exported "sometimes" before 2008 and that of "regular" exporters (see Table 1). In addition, as expected, firms that regularly exported before 2008 are larger: they have about 85 employees on average, almost three times those of firms that exported sometimes or never before 2008; 33 and 30 employees, respectively.

Table 2 shows the distribution of "non-exporter" firms (before 2008) according to their

[7] Siotec, a census of banks carried out by the Bank of Italy.

[8] According to Italian banking rules, for each borrower, financial intermediaries supervised by the Bank of Italy have to report to the CCR, on a monthly basis, the amount of each loan, either granted or disbursed by banks, for all loans exceeding 75,000 euros (the threshold was lowered to 30,000 euros in 2008).

headquarters: about 80 per cent of them are located in Central and Northern Italy. The predominant sub-sector of economic activity is the manufacture of metal products (more than one quarter of the sample), followed by food products and non-metallic mineral products (about 10 per cent for both; see Table 3). Notice that the distribution of new exporters is relatively similar to that of the whole sample of "non-exporters".

Table 4 shows the distribution of the foreign branches of the Italian banks financing the firms of our overall sample. Overall, 22 countries are represented. Foreign branches are mostly located in the United Kingdom, the United States, Luxembourg and France. While more than 700 banks operate in Italy, only a few of them have branches abroad. In particular, over the period 2006-07 only 16 banks had a branch abroad. The distribution of branches over foreign countries is very concentrated. The first 5 banks count together for more than three-quarters of the foreign branches. The most internationalized bank is Unicredit, with branches in 18 countries (see Table A.1 in the Appendix).

# 4 Empirical model and results

In order to investigate the links between foreign banking activity and firms' export decisions we rely on a firm-country-level dataset. The structure of the data is as follows. On the one hand, we have a sample of 769 firms that were non exporting before 2008 (in the previous section the sample labelled c). For any firm that started exporting in 2008, we know the top 3 destination countries. On the other hand, the EFIGE dataset lists 116 potential destination countries (list of destination countries for the sample of 2,773 Italian manufacturing exporting firms surveyed in the EFIGE; see Table A.2). This provides us with a dataset of about 90,000 firm-country pairs observations.

It turns out that 52 of 769 firms (of non-exporting firms before 2008) started exporting in 2008. On average, they export to 1.5 countries; only two firms export to more than 3 countries.[9] Hence, the fact that the EFIGE dataset only lists the top 3 export countries for each firm only implies a negligible loss of information in our dataset. The new exports are directed to 33 countries (see Table A.3). France and Germany cover the largest share

[9] Respectively, 4 and 7.

(15.2 and 12.7 percent, respectively). The probability to export is relatively uniformly distributed across the remaining countries.

To assess the role of bank-firm relationships in firms' internationalization, we estimate the following probit model, where the unit of analysis is the pair of firm $i$-country $c$:

$$Prob(export)_{ic} = \alpha + \beta bran_{ic} + X_i\gamma + k_c \ + \epsilon_{ic} \tag{1}$$

$Prob(export)_{ic}$ is our dependent variable, which takes the value one if in 2008 firm $i$ starts exporting to country $c$, and zero otherwise. Our variable of interest is the dummy $bran_{ic}$, taking the value one if any of the banks financing firm $i$ before 2008 had a branch in country $c$. Since the extent of bank internationalization varies over time, we measure the dummy $bran_{ic}$ considering several two-year windows, starting from period 2006-07 and dating back to the period 2003-04. For instance, the dummy $bran_{ic,2006-07}$ takes the value one if at least one of the banks financing firm $i$ over the period 2006-07 had a branch in country $c$ in the same period. On the other hand, the dummy $bran_{ic,2006-07}$ takes the value zero either if the bank $i$ has a branch in country $c$ in the period 2006-07, but firm $i$ did not borrow money from it over that period, or if the bank did not have branches in country $c$ over that period regardless of whether firm $i$ was borrowing money from it or not during that period.

The empirical model includes a set of variables at firm level ($X_i$) to control for the firm's probability to export, and at country level ($k_c$) to control for the firm probability to sell in each potential market.

The $X_i$ vector includes the following firm-level controls: the headquarters' location (namely, four Italian territorial areas: North West, North East, Centre and South), productivity, sector dummies (2-digit NACE), firm-size class dummies (3 classes), and a dummy for firms belonging to a business group.[10]

$k_c$ is a vector of country dummies, which allows us to control for unobservable factors affecting, in the same direction, both banks' and firms' decisions to go international. For instance, if business opportunities in a certain country $c_1$ are more appealing for banks

[10]Productivity is proxied by sales over employees.

with respect to another country $c_2$, then it is likely that it will also be true for firms.

Given the data structure (each firm appears 116 times in the sample) and the fact that most control variables vary only across firms (productivity, business group, location, NACE-2 dummies and size dummies), we cluster the standard errors at firm level in all our regressions.

In Table 5 we report the results of the estimates including just sector and firm size dummies and a group of country-level observables (volume of imports and imports growth rate in the period 2006-07 and a dummy flagging countries bordering Italy). We find a positive correlation between the probability that a firm starts to export in a country and the presence of at least one of its lending banks in that country.

Arguably, the importance of the information on the foreign markets gathered by the banks and provided to the firms is likely to be different across countries. Trade is also affected by intangible barriers, involving both cultural and institutional aspects, which might lead to additional costs, related to information collection, contract negotiation and enforcement (Anderson and van Wincoop (2004) and Linders, Slangen, de Groot and Beugelsdijk (2005)). More specifically, we presume that the information channel is more effective for countries where the intangible barriers are higher and make them less penetrable. It is not easy to find proxies for intangible barriers, as they might reflect both cultural aspects and institutional qualities (language, quality of public administration, political stability, religion, to name just a few). While in our econometric setup variables such as language and religion are mostly controlled by means of country dummies, similarly to Djankov, La Porta, Lopez-de Silanes and Shleifer (2002) we also devise a proxy for institutional quality differences by using data on the ease of doing business. We assume that in more market-oriented and efficient countries, where information circulates more rapidly and the efficiency of the institutions facilitates the setting up of businesses, the intangible barriers are lower. On the contrary, we argue that in more regulated and less efficient countries the information barriers are higher, because their bureaucracies hamper business, and the inefficiency of their institutions (e.g. central government administrations) could affect country penetrability. Following this conceptual framework, we use the World Bank's Doing Busi-

ness Report to split the countries into two groups: Easy (lower informational barriers) and Not easy (higher informational barriers) countries, according to the Doing Business indicators. In the World Bank Doing Business Dataset each country is ranked according to 10 sets of indicators (Starting a business; Dealing with licenses; Hiring and firing workers; Registering property; Getting credit; Protecting investors; Paying taxes; Trading across borders; Enforcing contracts; and Closing a business). Starting from 2010, they have been combined into an overall "ease of doing business" ranking indicator. We focus on the information available for the year 2006, the same as for the information about the branches, concerning the indicator "Starting a business", which we consider as a proxy for the ease of market penetration for potential exporters. Overly restrictive national regulations not only discourage home entrepreneurs (Fonseca, Lopez-Garcia and Pissarides, 2001) but are also likely to constitute a barrier to cross-border trade. On the other hand, we do not use the indicator "Trading across borders", as it might be considered endogeneous to the probability of a firm exporting to each country. In particular, we split our destination countries into two groups according to whether the number of days necessary to start a business in 2006 were below or above the mean (see Table A.4). [11] As expected, the countries where doing business is deemed to be less easy are those that in principle could be characterized by higher intangible barriers. [12]

The results reported in table 6 support our hypothesis. We show that the impact on a firm's export decisions of being financed by a bank with a branch in a foreign country is greater for those countries where doing business is less easy.

Since both banks and firms might be attracted by the same countries thank to unobservables acting in the same direction, such as business opportunities, the next step was to estimate the model with country dummies. Notice that with country dummies we ended up with a smaller subset of observables (around one third of the previous sample). This smaller sample size is not a concern for our empirical exercise. On the contrary, since

[11] Notice that we also replicated the estimates using the overall index and obtaining similar results.

[12] The top 10 countries where doing business is easier are: Singapore, New Zealand, Hong Kong, Denmark, South Korea, Norway, United States, United Kingdom, Finland and Australia; the bottom 10 are instead: Haiti, Angola, Venezuela, Afghanistan, Congo, Chad, South Sudan, Central African Republic, Libya and Eritrea.

the sample drops the countries where no firms have exported and plausibly also no banks have established branches, we exclude a large set of 0-0 observations, thus decreasing the rareness of the event.

Table 7 shows the results after adding the full set of firm-level controls. We find a larger and statistically significant coefficient of our variable of interest for the group of countries where doing business is less easy, while the coefficient is smaller and non-statistically significant for the other group or for the overall sample.

As a robustness check, we estimate our model with country dummies after splitting the destination countries according to a different Doing Business indicator, represented by the countries overall ranking in 2010, which we employ with one or two caveats. Unfortunately the overall ranking indicator is not available for previous years: using such a contemporary variable could lead to endogeneity in our estimates; moreover, since the overall ranking is related to the full set of indicators, it also reflects those among them which are not directly related to market penetration. The results reported in Table A.5 confirm our previous findings.

### 4.1 Identification challenges

After having introduced country fixed effects, there are still two identification issues we need to tackle. Firstly, we need to disentangle the hypothesis in question, i.e. the firm follows the bank, from the opposite scenario, i.e. the bank follows the firm, or the bank and the firm jointly plan to access foreign markets (Seth et al., 1998). Secondly, we need to control for another possible mechanism, where willing-to-export firms choose banks according to their presence abroad. For example, to have offshore access to the standard banking services.

Concerning the first issue, since our sample consists of firms that never exported before 2008 and the banks having already established themselves offshore in 2008, we can rule out those cases where the bank follows the firm. Moreover, our sample of non-exporters before 2008 largely consists of small firms, characterized by, on average, 30 employees, against 85 for firms that export regularly. Firms that started exporting in 2008 are also small (30 employees on average). Hence, there seem to be no grounds in our sample for the hypothesis

of firms and banks planning an internationalization decision jointly.

The second identification issue is trickier. Firms willing to start exporting to one market could choose a bank earlier that can provide offshore financial or payment services in the same market. One way to assess whether our baseline result is driven by firms cherry-picking banks is to look at the duration of the relationship with the bank. In particular, if the effect truly goes from the bank to the firm, it is reasonable to expect a larger effect of the hypothesized information channel on the bank-firm relationships which started earlier, since there has been a longer period for the information to be transmitted from the former to the latter. On the other hand, if willing-to-export firms select banks according to their presence abroad, we should find a stronger effect for the banks whose relationship with the firm started in the few years preceding the latter's export decision. The empirical evidence on the effect of the duration of firm-bank relationships will be shown in the next section. Results suggest that the role of cherry-picking by firms is limited.

# 5 Testing for the validity of the information channel hypothesis

We argued that the main mechanism driving our results is the flow of information on a foreign country from a bank to a firm. Accordingly, we estimated the model by breaking down the sample into more and less accessible countries, and we find results coherent with the information channel hypothesis. In this section, we try to provide further evidence to support this hypothesis.

In order to help firms to internationalize by reducing export-related sunk-costs, information on foreign countries must be gathered by banks and transferred to domestic firms. The effectiveness of this information channel may depend on the intensity of bank-firm relationships. We envisage that the stronger and longer the relationship between firm and bank, the stronger the flow of information between them will be. As a result, we expect a more significant effect on exports for stronger and longer-lasting bank-firm relationships.

A wide range of literature shows that the strength of the bank-firm relationship plays a

central role in the financial and economic conditions of firms. Some papers have focused on the duration of relationship lending and cost of credit. In this framework, longer relationship lending may decrease the cost of loans, because it decreases asymmetric information about a borrower's quality (Berger and Udell, 1995; Blackwell and Winters, 1997).[13] In the same stream of research, other authors examined whether the duration of relationship lending improves credit availability (Petersen and Rajan, 1994; Angelini, Di Salvo and Ferri, 1998) or promotes innovation (Herrera and Minetti, 2007).

Using a similar framework we carry out some exercises to support the information channel argument. We argue that stronger relationship lending should promote the transmission of information. Therefore, we expect that if our findings are driven by information channelled from banks to firms, longer and stronger bank-firm relationships should produce greater effects than the presence abroad of bank branches on a firm's probability to export (to the same countries). In order to test such a hypothesis, we divide the sample into weaker and stronger relationship lending and re-estimate the baseline model. We consider two alternative proxies for the strength of credit relationship. A first proxy is the duration of bank-firm relationship. Hence, we break-down the sample into longer (*Top*) and shorter (*Bottom*) duration of firm-bank relationship according to whether they fall above or below the median value (6 years). In particular, in the *Top* (*Bottom*) model the variable of interest $bran_{ic}$ is built taking into account bank-firm relationships whose duration falls above (below) the median. As before, $bran_{ic,2006-07}$ takes value one if at least one of the banks financing firm $i$ over the period 2006-07, and whose relationship with the firm in 2007 falls above (below) 6 years, had a branch in country $c$ in the same period (and zero otherwise).

The second proxy for the strength of credit relationships is a measure of the role played by bank $j$ for firm $i$. Following Degryse, Masschelein and Mitchell (2011), the importance of the bank has been approximated by the ratio of credit disbursed (in the period preceding the export decision) by bank $j$ to firm $i$ over total bank credit to firm $i$. As with duration, we separate bank-firm relationships whose intensity is above the sample median from those

[13]Notice that the results of the empirical literature on the link between duration of relationship lending and cost of credit are not univocal. See e.g.: Petersen and Rajan (1995) and Degryse and Van Cayseele (2000)

falling below it, and re-estimate our model.[14]

As before, we add country dummies and estimate our model separately on the full sample, on the countries where doing business is not easy, and on those where doing business is easy. The results obtained by dividing the sample according to the duration of relationship lending are shown in the first two columns of Table 8. Those achieved by breaking down the sample according to the importance of the disbursed loans are reported in the last two columns. Regardless of the variable used to split the sample we obtain similar results. We find a larger, and statistically significant, coefficient of our variable of interest for longer, or closer (in terms of credit disbursed), bank-firm relationships, while the coefficient is smaller and non-statistically significant for weaker relationships. However, as in our previous findings, such results hold when we consider the subsample of countries where doing business is not easy.

To support the information channel hypothesis we carried out an additional exercise based on the duration of the offshore presence of banks. Those that have branches abroad for a longer period will presumably have collected more useful information on the foreign countries that can be transmitted to firms. Therefore, we expect a larger effect on firms' exports if the banks established their branches earlier. To test for such hypothesis we redefine the variable of interest $bran_{ic}$ according to whether the branches have been settled before or after the year 2001 and by re-estimating the baseline model with country dummies.[15] The results are reported in Table 9. We find a significant effect when we estimate the model on the subsample of countries where doing business is not easy and when banks established their branches before 2001, whereas the effect is non-significant in all other cases.

We have shown that a greater effect on firms' export propensity is found in the case of stronger bank-firm relationships, or an earlier presence abroad of the financing banks. Both results are consistent with the hypothesis that the information channel plays an important

[14]Similarly to the previous case, in the *Top* (*Bottom*) model the variable of interest $bran_{ic}$ is built taking into account bank-firm relationships whose credit concentration falls above (below) the median (10 per cent). As before, $bran_{ic,2006-07}$ takes value one if at least one of the banks financing firm $i$ over the period 2006-07, and whose credit concentration before 2007 falls above (below) the median, had a branch in country $c$ in the same period.

[15]The choice of the year was discretionary, but small changes in the year have no noticeable effect on the results.

role in explaining the positive relationship between a firm's probability of beginning to export in one market, and the presence of its financing bank in the same country.

# 6 Robustness

In this section we carry out a set of sensitivity exercises to test the robustness of our benchmark model.

As a first robustness check we add some additional controls: a more precise measure of productivity, defined as value added over employees, tangible assets and intangible assets, all measured in 2007, and, as a firm-country level control, the distance between the firm's headquarter and each country's capital city; we also add the number of banks financing each firm as an additional control. Balance-sheet variables are taken from the Cerved dataset and, as they are not available for the full set of firms in our sample, their usage comes at the price of a smaller sample available to estimate our model. The results reported in Table A.6 are very similar to those obtained using a more parsimonious set of covariates: being financed by a bank having a branch in a certain country leads to a larger probability that such a firm starts to export in that country; such a result, as in our baseline model, only applies to the subset of countries where doing business is deemed to be less easy.

A second robustness check relates to our rare-events setting. Up to now our sample has consisted of 769 firms that never exported before 2008. In this way we were able to precisely model the entry into a foreign market (for the first time) as a function of bank internationalization. On the other hand, working with such a sharp sample leaves us with very few firms that started exporting in 2008 (52 firms against 717 firms that remain non-exporters). Since we observe firm-country pairs, and firm export on average to 1.5 countries, our dependent variable takes the value one in about 0.4 per cent of the cases in our baseline model with country dummies.[16] In this rare-events setting, probit models

[16]When looking at the conditional distributions of the dependent variable (dummy export) over the value of our identification variable (dummy bran0607) we find that the conditional probability that a firm starts to export in a country where one of its financing banks has a branch more than doubles the probability of starting to export in countries where there is no such branch. In particular, the dummy export takes the value 1 in 0.30% of the cases when bran0607 is zero; on the other hand the dummy export takes the value 1 in 0.69% of the cases when bran0607 is equal to one.

might underestimate the true parameters (King and Zen, 2001). In order to address this potential bias we resample our dataset by selecting only a subsample of the firms among those which never exported before 2008 and that remained domestic in 2008. In this way, we obtain a more balanced sample, with our bank-firm dependent variable now switching in about 1.6 per cent of the cases. Now the number of non-exporting firms is 100. In order to deal with the selection bias arising from outcome-based sampling we randomly select the subsample of never-exporters and estimate our baseline model. We perform this exercise from 100 to 1000 times in order to generate distributions of our estimates. The results, reported in Table 10, show larger average coefficients, thus supporting the claim of underestimation associated with the model fitted on the full sample. However, the bias does not seem to be too severe.

A further source of bias could be related to potential sample selection being at work. While we control for a series of firm level covariates in our model, the set of the new exporter firms could still differ from that of non-exporter ones due to unobservable characteristics, thus compromising our identification strategy. As a robustness check we then estimate our model by using a subset of non-exporter firms selected by means of a two-step matching algorithm as a control sample. Firstly, we associate each exporter firm with all non-exporter firms belonging to the same sector of economic activity, region (NUTS2) and size class, thus imposing common support on such variables; secondly, we select the nearest neighbor according to the level of sales as reported in the EFIGE survey. The estimates in Table A.7 confirm our previous findings although, as expected, they are now less precise. In addition, by including in our model a smaller number of control firms now, the share of $1s$ in the estimation sample rises even further with respect to the outcome-based sampling test described before, reaching 2.2%.

Our preferred model specification relies on a sample split, where destination countries are grouped according to how easy doing business is deemed to be there. The first reason for having chosen such a strategy is that it allows the coefficients of all covariates to differ across the two samples. The second one is that sample splits allow us to lower the risk of high collinearity between covariates that would arise due to the interaction of a pair

of dummy variables within a model plagued by a very large incidence of zeros. A third reason is related to the interpretation of the interaction effects in nonlinear models, such as probit, which is cumbersome as, contrarily to what happens for linear models, it does not just depend upon the sign of the coefficient of the interacted variables.[17] However, as a robustness check we estimate our probit model using the alternative model specification based on interacting our model covariates with a dummy variable flagging countries where doing business is less easy. We also estimate a linear probability model. The results shown in Table A.8 are consistent with the previous ones. Once again, the impact of being financed by a bank with a branch in a certain country positively affects the probability that the firm starts to export in that country, if in the latter doing business is less easy.

### 6.1 Falsification tests

In order to validate our results we also run a couple of falsification tests. Firstly, we check that they are not obtained by considering just any random export destination country for the (few) firms that start exporting by running a couple of falsification tests. In the first one we randomly assign a target country to the new exporter firms and fit our model onto the simulated network. The random allocation is constructed as follows: for each firm we keep track of the number of its exporting countries and then we allocate the same number of countries to the firm, randomly drawn from a uniform distribution over the entire set of countries to which Italian firms in our dataset export. Firm-bank relationships remain unchanged. We perform the random allocation up to 100 times in order to generate a distribution of the coefficient of interest. The mean estimate of the coefficient is always not statistically significant (see Table A.9). Moreover, the majority of point estimates are not statistically significant.

In the second falsification test we perform an alternative network scrambling. As we have seen, the variable of interest, the dummy $bran_{ic}$, takes the value one if any of the firm

[17] In particular, let us consider the simple probit $Pr(y = 1|x_1, x_2) = E(y|x_1, x_2) = \Phi(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_1 x_2)$, where $\Phi(.)$ is the cdf of a standard normal distribution. The interaction effect will be given by: $\frac{\partial^2 E(y|...)}{\partial x_1 \partial x_2} = \beta_3 \Phi'(.) + (\beta_1 + \beta_3 x_2)(\beta_2 + \beta_3 x_1)\Phi''(.)$. It is simple to check that the sign of the interaction effect does not only depend on the sign of $\beta_3$. On the way of dealing with interaction effects in probit see Norton, Wang and Ai (2004).

$i$'s lending banks has a branch in country $c$. In this setting, if Italian banks mainly choose their foreign target countries following the same criteria as the exporting firms (for instance: geographical proximity, amount of foreign investments, immigrants, trade agreements and so on), the results that we have found would reflect a spurious relationship. In order to check for that, we artificially replace the set of financing banks for each new exporter firm and then re-estimate our model. Since we are drawing banks from the same (Italian) banking system, if our main result stems from a spurious country-level relationship we should still find a significant relationship between bank internationalization and a firm's export decisions. On the other hand, if the impact truly depends on some specific bank-firm linkages, we should find none. For the sake of simplicity we replace the set of banks for each new exporter firm with the set of banks of a very similar (non-exporter) firm and estimate our model once. The matched firm is found by nearest-neighbour matching, according to sector and size. For each pair of firms we make sure that enterprises belong to different regions, in order to minimize the probability that both firms are clients of exactly the same set of banks. The results reported in Table A.10 show that the coefficient of interest is never statistically significant.

# 7 Conclusions

In this paper we have analysed whether firms which are customers of internationalized banks have a higher probability of starting to export to countries where their banks have previously established a branch. In the less accessible countries - where the intangible obstacles and therefore the sunk costs are assumed to be higher, and hence the information gathered by the banks more precious to the firms - we find a significant positive relationship between the foreign market of new-exporter firms, and the presence in the same market of their financing banks. We argue that firms benefit from the information on the foreign country collected by their banks which is easily transmittable to their customers. This flow of knowledge helps firms to overcome information barriers to international trade, thus reducing the sunk costs in order to start exporting.

A test for the information channel hypothesis is a complex task primarily because of

the unavailability of explicit information. We have provided empirical evidence of a significant and larger effect for less accessible countries, closer firm-bank relationships, and for earlier presence abroad of the internationalized banks. These results are consistent with the assumption that the information channeled from banks to firms is relevant in shaping firms' export activity. At the same time, we acknowledge that for a more comprehensive assessment of the link between banks' internationalization and firms' exports further investigations will be needed.

Our contribution provides suggestive evidence on a relationship, hitherto unexplored by the theoretical and empirical literature, which offers a straightforward economic implication. Firms can take considerable advantage of being customers of internationalized banks. The result turns out to be important for firms' strategic purposes, but also to better understand the forces able to strengthen a firm's international competitiveness.

This paper contributes to a worthwhile, but so far barely explored line of research. Theoretical and empirical investigations able to enlighten shed further light on the role played by the bank-firm relationships on firm internationalization, together with the underlying driving mechanisms, are thus very welcome.

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# Tables

Table 1: Firm size distribution by export status before 2008

| Export before 2008? | Always/Regularly | | | Sometimes | | |
|---|---|---|---|---|---|---|
| Class size (1) | Freq. | Per cent | Mean empl. (2) | Freq. | Per cent | Mean empl. |
| 1 (smaller) | 227 | 14.76 | 18.3 | 153 | 32.83 | 18.6 |
| 2 (medium) | 839 | 54.55 | 30.5 | 255 | 54.72 | 29.7 |
| 3 (larger) | 472 | 30.69 | 214.4 | 58 | 12.45 | 81.6 |
| Total | 1,538 | 100 | 85.2 | 466 | 100 | 32.5 |

| Export before 2008? | Never | | | New-exporters in 2008 | | |
|---|---|---|---|---|---|---|
| Class size (1) | Freq. | Per cent | Mean empl. (2) | Freq. | Per cent | Mean empl. |
| 1 (smaller) | 340 | 44.21 | 20.1 | 18 | 34.62 | 19.3 |
| 2 (medium) | 360 | 46.81 | 30.4 | 28 | 53.85 | 25.3 |
| 3 (larger) | 69 | 8.97 | 72.4 | 6 | 11.54 | 83.5 |
| Total | 769 | 100 | 29.6 | 52 | 100 | 29.9 |

(1) Class 1: annual turnover below 2 million euros; class 2: annual turnover between 2 and 10 million euros; class 3: annual turnover above 10 million euros. - (2) Average number of employees.

Table 2: Firms that never exported before 2008, by headquarters' region

| Region | Never exported | Per cent | | |
|---|---|---|---|---|
| | | | *New exporters* | *Percent* |
| Piedmont & Valle d'Aosta | 67 | 8.7 | *6* | *11.5* |
| Lombardy | 149 | 19.4 | *9* | *17.3* |
| Liguria | 12 | 1.6 | *1* | *1.9* |
| **North West** | **228** | **29.6** | **16** | **30.8** |
| Veneto | 81 | 10.5 | *10* | *19.2* |
| Trentino - Alto Adige | 7 | 0.9 | *0* | *0.0* |
| Friuli | 16 | 2.1 | *1* | *1.9* |
| Emilia Romagna | 110 | 14.3 | *7* | *13.5* |
| **North East** | **214** | **27.8** | **18** | **34.6** |
| Tuscany | 65 | 8.5 | *3* | *5.8* |
| Umbria | 14 | 1.8 | *0* | *0.0* |
| Marche | 47 | 6.1 | *3* | *5.8* |
| Lazio | 30 | 3.9 | *2* | *3.8* |
| **Centre** | **156** | **20.3** | **8** | **15.4** |
| **Centre & North** | **598** | **77.8** | **42** | **80.8** |
| Abruzzo | 31 | 4 | *1* | *1.9* |
| Basilicata | 7 | 0.9 | *0* | *0.0* |
| Calabria | 13 | 1.7 | *1* | *1.9* |
| Campania | 42 | 5.5 | *2* | *3.8* |
| Molise | 6 | 0.8 | *0* | *0.0* |
| Puglia | 38 | 4.9 | *4* | *7.7* |
| Sardinia | 9 | 1.2 | *0* | *0.0* |
| Sicily | 25 | 3.3 | *2* | *3.8* |
| **South & Islands** | **171** | **22.2** | **10** | **19.2** |
| **Italy** | **769** | **100.0** | **52** | **100.0** |

Table 3: Firms that never exported before 2008, by economic activity sector

| Sector (Nace 2 digits) | Never exporters | Per cent | | |
|---|---|---|---|---|
| | | | *New exported* | *Percent* |
| Manufacture of basic metals | 15 | 2.0 | *1* | *1.9* |
| Manufacture of beverages | 9 | 1.2 | *2* | *3.8* |
| Manufacture of chemicals and chemical products | 9 | 1.2 | *0* | *0.0* |
| Manufacture of coke and refined petroleum products | 3 | 0.4 | *0* | *0.0* |
| Manufacture of computer, electronic and optical products | 30 | 3.9 | *2* | *3.8* |
| Manufacture of electrical equipment | 33 | 4.3 | *3* | *5.8* |
| Manufacture of fabricated metal products | 210 | 27.3 | *14* | *26.9* |
| Manufacture of food products | 76 | 9.9 | *6* | *11.5* |
| Manufacture of furniture | 22 | 2.9 | *2* | *3.8* |
| Manufacture of leather and related products | 10 | 1.3 | *0* | *0.0* |
| Manufacture of machinery and equipment | 42 | 5.5 | *4* | *7.7* |
| Manufacture of motor vehicles and trailers | 10 | 1.3 | *2* | *3.8* |
| Manufacture of other non-metallic mineral products | 76 | 9.9 | *1* | *1.9* |
| Manufacture of other transport equipment | 8 | 1.0 | *0* | *0.0* |
| Manufacture of paper and paper products | 18 | 2.3 | *3* | *5.8* |
| Manufacture of rubber and plastic products | 29 | 3.8 | *2* | *3.8* |
| Manufacture of textiles | 32 | 4.2 | *1* | *1.9* |
| Manufacture of wearing apparel | 38 | 4.9 | *3* | *5.8* |
| Manufacture of wood and of products of wood and cork, except furniture | 34 | 4.4 | *3* | *5.8* |
| Other manufacturing | 15 | 2.0 | *0* | *0.0* |
| Printing and reproduction of recorded media | 39 | 5.1 | *2* | *3.8* |
| Repair and installation of machinery and equipment | 11 | 1.4 | *1* | *1.9* |
| **Total** | **769** | **100.0** | **52** | **100.0** |

Table 4: Foreign branch distribution of Italian banks financing our firms sample

| Country | Freq. | Percent |
|---|---|---|
| Austria | 3 | 1.9 |
| Belgium | 4 | 2.6 |
| China | 6 | 3.8 |
| Egypt | 1 | 0.6 |
| France | 15 | 9.6 |
| United Kingdom | 28 | 17.8 |
| Greece | 3 | 1.9 |
| Netherlands | 2 | 1.3 |
| Romania | 2 | 1.3 |
| Spain | 10 | 6.4 |
| United States | 16 | 10.2 |
| Turkey | 2 | 1.3 |
| Japan | 6 | 3.8 |
| Luxembourg | 15 | 9.6 |
| Germany | 12 | 7.6 |
| Lebanon | 1 | 0.6 |
| Hong Kong | 10 | 6.4 |
| Singapore | 8 | 5.1 |
| Bahamas | 2 | 1.3 |
| Cayman Islands | 8 | 5.1 |
| Abu Dhabi | 2 | 1.3 |
| Dubai | 1 | 0.6 |
| **Total** | **157** | **100.0** |

Table 5: Probability to export and bank internationalization (sector-size dummies only)

| VARIABLES | (baseline) | (1) | (2) | (3) |
|---|---|---|---|---|
| bran0607 | 0.617*** | | | |
| | (0.101) | | | |
| bran0506 | | 0.591*** | | |
| | | (0.0934) | | |
| bran0405 | | | 0.546*** | |
| | | | (0.0941) | |
| bran0304 | | | | 0.529*** |
| | | | | (0.0989) |
| 2dgt NACE dummies | yes | yes | yes | yes |
| firm size dummies | yes | yes | yes | yes |
| country level vars | yes | yes | yes | yes |
| Constant | -3.203*** | -3.186*** | -3.187*** | -3.187*** |
| | (0.151) | (0.152) | (0.151) | (0.152) |
| % of 1s | 0.12 | 0.12 | 0.12 | 0.12 |
| Observations | 66608 | 66608 | 66608 | 66608 |
| Pseudo $R^2$ | 0.0618 | 0.0528 | 0.0484 | 0.0471 |

Standard errors clustered at firm level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 6: Probability to export and bank internationalization (sector-size dummies only) by ease of doing business

| VARIABLES | DOING BUSINESS: NOT EASY | | | |
|---|---|---|---|---|
| | (a) | (b) | (c) | (d) |
| bran0607 | 0.734*** | | | |
| | (0.186) | | | |
| bran0506 | | 0.716*** | | |
| | | (0.217) | | |
| bran0405 | | | 0.702*** | |
| | | | (0.217) | |
| bran0304 | | | | 0.630*** |
| | | | | (0.213) |
| 2dgt NACE dummies | yes | yes | yes | yes |
| firm size dummies | yes | yes | yes | yes |
| Constant | -3.431*** | -3.413*** | -3.416*** | -3.417*** |
| | (0.241) | (0.248) | (0.248) | (0.247) |
| % of 1s | 0.07 | 0.07 | 0.07 | 0.07 |
| Observations | 21894 | 21894 | 21894 | 21894 |
| VARIABLES | DOING BUSINESS: EASY | | | |
| | (e) | (f) | (g) | (h) |
| bran0607 | 0.535*** | | | |
| | (0.116) | | | |
| bran0506 | | 0.506*** | | |
| | | (0.101) | | |
| bran0405 | | | 0.451*** | |
| | | | (0.102) | |
| bran0304 | | | | 0.454*** |
| | | | | (0.109) |
| 2dgt NACE dummies | yes | yes | yes | yes |
| firm size dummies | yes | yes | yes | yes |
| Constant | -3.100*** | -3.083*** | -3.083*** | -3.083*** |
| | (0.178) | (0.179) | (0.178) | (0.179) |
| % of 1s | 0.18 | 0.18 | 0.18 | 0.18 |
| Observations | 33048 | 33048 | 33048 | 33048 |

Clustered standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 7: Firm probability to export and bank internationalization, country FE

| VARIABLES | Doing Business: ALL COUNTRIES | DB: NOT EASY | DB: EASY |
|---|---|---|---|
| bran0607 | -0.0417 | 0.505** | -0.167 |
| | (0.134) | (0.246) | (0.142) |
| bran0506 | -0.0276 | 0.508** | -0.151 |
| | (0.114) | (0.234) | (0.118) |
| bran0405 | -0.0555 | 0.460* | -0.181 |
| | (0.115) | (0.239) | (0.122) |
| bran0304 | -0.0544 | 0.319 | -0.161 |
| | (0.119) | (0.262) | (0.126) |
| country FE | yes | yes | yes |
| firm level controls | yes | yes | yes |
| Observations | 24,616 | 7,579 | 13,608 |
| % of 1s | 0.36% | 0.24% | 0.43% |

Clustered standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 8: Relationship lending intensity and firm probability to export

| | DOING BUSINESS: ALL COUNTRIES | | | |
|---|---|---|---|---|
| | Relationship length | | Credit concentration | |
| | *top (1)* | *bottom (2)* | *top (3)* | *bottom (4)* |
| VARIABLES | (a) | (b) | (c) | (d) |
| bran0607 | 0.0373 | -0.0557 | 0.0653 | 0.176 |
| | (0.127) | (0.155) | (0.125) | (0.352) |
| country FE | yes | yes | yes | yes |
| firm level ctrls | yes | yes | yes | yes |
| Constant | -5.915*** | -5.923*** | -5.914*** | -19.40*** |
| | (0.172) | (0.174) | (0.173) | (0.434) |
| % 1s | 0.32 | 0.32 | 0.32 | 0.32 |
| Observations | 24,616 | 24,616 | 24,616 | 24,616 |
| | DOING BUSINESS: NOT EASY | | | |
| | Relationship length | | Credit concentration | |
| | *top (1)* | *bottom (2)* | *top (3)* | *bottom (4)* |
| VARIABLES | (e) | (f) | (g) | (h) |
| bran0607 | 0.447* | 0.0261 | 0.456* | 0.184 |
| | (0.242) | (0.328) | (0.241) | (0.352) |
| country FE | yes | yes | yes | yes |
| firm level ctrls | yes | yes | yes | yes |
| Constant | -2.730*** | -2.562*** | -2.735*** | -2.585*** |
| | (0.337) | (0.306) | (0.337) | (0.306) |
| % 1s | 0.26 | 0.26 | 0.26 | 0.26 |
| Observations | 7,579 | 7,579 | 7,579 | 7,579 |
| | DOING BUSINESS: EASY | | | |
| | Relationship length | | Credit concentration | |
| | *top (1)* | *bottom (2)* | *top (3)* | *bottom (4)* |
| VARIABLES | (i) | (j) | (k) | (l) |
| bran0607 | -0.0525 | -0.0970 | -0.0256 | 0.0430 |
| | (0.142) | (0.162) | (0.134) | (0.190) |
| country FE | yes | yes | yes | yes |
| firm level ctrls | yes | yes | yes | yes |
| Constant | -6.024*** | -6.081*** | -6.021*** | -6.016*** |
| | (0.226) | (0.231) | (0.227) | (0.225) |
| % 1s | 0.43 | 0.43 | 0.43 | 0.43 |
| Observations | 13,608 | 13,608 | 13,608 | 13,608 |

Clustered standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

(1) bran0607 was computed by only taking into account banks whose firm-relationship length (using granted loans) was equal to or above the median value computed before the year 2008 (6 years). For example, bran0607 takes the value one if at least one of the banks financing firm $i$ in 2006-07 for at least 6 years had a branch in country $c$ in the same period. Bank-firm relationships whose length in 2007 is below 6 years are not taken into account. (2) As in point (1) but now considering banks whose length of relationship with the firm falls below the median. (3) bran0607 was computed by only taking into account banks whose average ratio of credit disbursed towards the firm over the years preceding the export decision was above the median (10%). (4) As in point (3) but now only considering banks below the median.

Table 9: Bank sample split by year of settlement abroad and firm probability to export

| | DOING BUSINESS: ALL COUNTRIES | |
|---|---|---|
| | banks established earlier | banks established later |
| VARIABLES | (a) | (b) |
| bran0607 | 0.0322 | -0.0506 |
| | (0.130) | (0.121) |
| country dummies | yes | yes |
| sector dummies | yes | yes |
| firm ctrls | yes | yes |
| Constant | -5.915*** | -5.920*** |
| | (0.171) | (0.174) |
| Observations | 24,616 | 24,616 |
| | DOING BUSINESS: NOT EASY | |
| | banks established earlier | banks established later |
| VARIABLES | (c) | (d) |
| bran0607 | 0.535** | 0.376 |
| | (0.229) | (0.244) |
| country dummies | yes | yes |
| sector dummies | yes | yes |
| firm ctrls | yes | yes |
| Constant | -2.831*** | -2.728*** |
| | (0.386) | (0.295) |
| Observations | 7,579 | 7,579 |
| | DOING BUSINESS: EASY | |
| | banks established earlier | banks established later |
| VARIABLES | (e) | (f) |
| bran0607 | -0.0870 | -0.130 |
| | (0.146) | (0.129) |
| country dummies | yes | yes |
| sector dummies | yes | yes |
| firm ctrls | yes | yes |
| Constant | -6.029*** | -6.075*** |
| | (0.227) | (0.233) |
| Observations | 13,608 | 13,608 |

Clustered standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 10: Probability to export and bank internationalization after randomly subsampling non-exporters. Distribution of the estimated coefficient and standard error

| | DOING BUSINESS: ALL COUNTRIES | | | |
|---|---|---|---|---|
| REPLICATIONS | 100 | 200 | 500 | 1000 |
| | | **b[bran0607]** | | |
| mean | -0.0671028 | -0.0672072 | -0.0638772 | -0.0650227 |
| s.e. | (.0511465) | (.0554197) | (.0517874) | (.0518835) |
| | | **s.e.[bran0607]** | | |
| mean | 0.1633939 | 0.1630968 | 0.1630516 | 0.1631941 |
| s.e. | (.0031664) | (.0033777) | (.0034129) | (.0033358) |
| New exporters | 52 | 52 | 52 | 52 |
| Non exporters | 100 | 100 | 100 | 100 |
| % 1s | 1.59 | 1.59 | 1.59 | 1.59 |
| | DOING BUSINESS: NOT EASY | | | |
| REPLICATIONS | 100 | 200 | 500 | 1000 |
| | | **b[bran0607]** | | |
| mean | 0.6337176 | 0.6333003 | 0.6379675 | 0.6390464 |
| s.e. | (0.0711464) | (0.0723088) | (0.0741922) | (0.0746999) |
| | | **s.e.[bran0607]** | | |
| mean | 0.3253203 | 0.324326 | 0.3244403 | 0.324724 |
| s.e. | (0.0126141) | (0.0126618) | (0.0134098) | (0.0135336) |
| New exporters | 52 | 52 | 52 | 52 |
| Non exporters | 100 | 100 | 100 | 100 |
| % 1s | 1.34 | 1.34 | 1.34 | 1.34 |
| | DOING BUSINESS: EASY | | | |
| REPLICATIONS | 100 | 200 | 500 | 1000 |
| | | **b[bran0607]** | | |
| mean | -0.2459736 | -0.2440133 | -0.2416673 | -0.2427793 |
| s.e. | (.0618478) | (.0670216) | (.0614581) | (.0615844) |
| | | **s.e.[bran0607]** | | |
| mean | 0.1783629 | 0.1780856 | 0.1781254 | 0.1783259 |
| s.e. | (.0047204) | (.0046601) | (.0044042) | (.0043799) |
| New exporters | 52 | 52 | 52 | 52 |
| Non exporters | 100 | 100 | 100 | 100 |
| % 1s | 2.23 | 2.23 | 2.23 | 2.23 |

All models are estimated including country dummies and firm level controls.

# Appendix

Table A.1: Banks financing our firms sample (1) with branches abroad in the period 2006-07

| bank name | countries | percent |
|---|---|---|
| Banca Nazionale del Lavoro | 4 | 7.41 |
| Monte dei Paschi di Siena | 5 | 9.26 |
| Unicredit | 18 | 33.33 |
| Intesa Sanpaolo | 13 | 24.07 |
| UBI banca | 1 | 1.85 |
| Chebanca! | 1 | 1.85 |
| Banca di Trento e Bolzano | 1 | 1.85 |
| Banca IMI | 2 | 3.7 |
| Banca Italo Romena | 1 | 1.85 |
| Banca Sella | 1 | 1.85 |
| Banco di Brescia | 1 | 1.85 |
| Banco Popolare | 1 | 1.85 |
| Banca Antonveneta | 1 | 1.85 |
| Banca Carige | 1 | 1.85 |
| Banca Regionale Europea | 1 | 1.85 |
| Mediobanca | 2 | 3.7 |

(1) Never exported before 2008.

Table A.2: Country list in our sample

| | | | | | |
|---|---|---|---|---|---|
| Afghanistan | Chile | Germany | North Korea | Norway | South Africa |
| Albania | China | Ghana | South Korea | Oman | Spain |
| Algeria | Colombia | Greece | Kuwait | Pakistan | Suriname |
| Angola | Congo | Grenada | Latvia | Panama | Sweden |
| Argentina | Costa Rica | Guatemala | Lebanon | Peru | Switzerland |
| Australia | Cote D'Ivoire | Guayana | Libya | Philippines | Syria |
| Austria | Croatia | Honduras | Liechtenstein | Poland | Taiwan |
| Azerbaijan | Cuba | Hungary | Lithuania | Portugal | Thailand |
| Bahamas | Cyprus | Iceland | Luxembourg | Qatar | Tunisia |
| Bahrain | Czech Republic | India | Macedonia | Romania | Turkey |
| Bangladesh | Denmark | Indonesia | Malaysia | Russia | Ukraine |
| Belarus | Dominican Rep. | Iran | Malta | Rwanda | United Arab Emirates |
| Belgium | Egypt | Iraq | Mexico | San Marino | United Kingdom |
| Belize | El Salvador | Ireland | Moldova | Saudi Arabia | USA |
| Bosnia Herzegovina | Estonia | Israel | Monaco | Senegal | Venezuela |
| Brazil | Ethiopia | Italy | Montenegro | Serbia | Vietnam |
| Bulgaria | Finland | Japan | Morocco | Seychelles | Yemen rep |
| Burkina Faso | France | Jordan | Netherlands | Singapore | |
| Cameroon | Gabon | Kazakhstan | New Zealand | Slovakia | |
| Canada | Georgia | Kenya | Nigeria | Slovenia | |

Table A.3: Export-target countries for new exporter firms

| Country | Freq. | Percent |
|---|---|---|
| Algeria | 1 | 1.3 |
| Austria | 1 | 1.3 |
| Bulgaria | 2 | 2.5 |
| China | 1 | 1.3 |
| Croatia | 1 | 1.3 |
| Czech Republic | 2 | 2.5 |
| Egypt | 1 | 1.3 |
| France | 12 | 15.2 |
| Germany | 10 | 12.7 |
| Greece | 5 | 6.3 |
| Guayana | 1 | 1.3 |
| Hungary | 2 | 2.5 |
| Jordan | 1 | 1.3 |
| Libya | 1 | 1.3 |
| Liechtenstein | 1 | 1.3 |
| Lithuania | 1 | 1.3 |
| Luxembourg | 1 | 1.3 |
| Morocco | 1 | 1.3 |
| Netherlands | 4 | 5.1 |
| Poland | 1 | 1.3 |
| Portugal | 2 | 2.5 |
| Qatar | 1 | 1.3 |
| Romania | 3 | 3.8 |
| Russia | 2 | 2.5 |
| San Marino | 1 | 1.3 |
| Serbia | 1 | 1.3 |
| Seychelles | 1 | 1.3 |
| Slovenia | 3 | 3.8 |
| Spain | 4 | 5.1 |
| Tunisia | 1 | 1.3 |
| Turkey | 1 | 1.3 |
| USA | 3 | 3.8 |
| United Kingdom | 5 | 6.3 |
| **Total** | **78** | **100** |

Table A.4: Destination countries, by ease of doing business

| DOING BUSINESS: EASY | DOING BUSINESS: NOT EASY |
|---|---|
| Afghanistan | Albania |
| Algeria | Angola |
| Argentina | Azerbaijan |
| Australia | Bangladesh |
| Austria | Belarus |
| Belgium | Belize |
| Bulgaria | Bosnia Herzegovina |
| Canada | Brazil |
| Congo | Burkina Faso |
| Croatia | Cameroon |
| Denmark | Chile |
| Egypt | China |
| Estonia | Colombia |
| Ethiopia | Costa Rica |
| Finland | Cote D'Ivoire |
| France | Czech Republic |
| Georgia | Dominican Rep. |
| Germany | El Salvador |
| Ghana | Gabon |
| Greece | Guatemala |
| Grenada | Guayana |
| Hungary | Honduras |
| Iceland | India |
| Iran | Indonesia |
| Iraq | Kenya |
| Ireland | Lebanon |
| Israel | Macedonia |
| Italy | Peru |
| Japan | Philippines |
| Jordan | Poland |
| Kazakhstan | Portugal |
| South Korea | Saudi Arabia |
| Kuwait | Senegal |
| Latvia | Seychelles |
| Lithuania | Slovenia |
| Malaysia | Spain |
| Mexico | Suriname |
| Moldova | Syria |
| Morocco | Taiwan |
| Netherlands | Venezuela |
| New Zealand | Vietnam |
| Nigeria | Yemen Rep. |
| Norway | |
| Oman | |
| Pakistan | |
| Panama | |
| Romania | |
| Russia | |
| Rwanda | |
| Serbia | |
| Singapore | |
| Slovakia | |
| South Africa | |
| Sweden | |
| Switzerland | |
| Thailand | |
| Tunisia | |
| Turkey | |
| Ukraine | |
| United Arab Emirates | |
| United Kingdom | |
| USA | |

Table A.5: Firm probability to export and bank internationalization - country FE and alternative Doing Business indicator (overall rank in 2010)

| VARIABLES | Doing Business: ALL COUNTRIES | DB: NOT EASY | DB: EASY |
|---|---|---|---|
| bran0607 | -0.0417 | 3.679*** | -0.0702 |
| | (0.134) | (0.361) | (0.137) |
| bran0506 | -0.0276 | 3.760*** | -0.0574 |
| | (0.114) | (0.360) | (0.116) |
| bran0405 | -0.0555 | 3.769*** | -0.089 |
| | (0.115) | (0.362) | (0.118) |
| bran0304 | -0.0544 | 3.772*** | -0.0899 |
| | (0.119) | (0.363) | (0.121) |
| Country FE | yes | yes | yes |
| Firm level ctrls | yes | yes | yes |
| Observations | 24,616 | 4,180 | 17,016 |

Clustered standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A.6: Probability to export and bank internationalization after controlling for additional covariates

| VARIABLES | DB: ALL COUNTRIES | DB: NOT EASY | DB: EASY |
|---|---|---|---|
| bran0607 | -0.0911 | 0.388* | -0.198 |
| | (0.138) | (0.236) | (0.150) |
| prod | -0.0023 | 0.00119 | -0.004 |
| | (0.003) | (0.004) | (0.003) |
| intang | 0.0386 | 0.115*** | 0.0205 |
| | (0.027) | (0.043) | (0.031) |
| tang | -0.02 | -0.0524 | -0.0165 |
| | (0.031) | (0.047) | (0.036) |
| distance | -0.510** | -0.866** | -0.413 |
| | (0.253) | (0.425) | (0.251) |
| no. of banks | 0.0654 | 0.164 | 0.0346 |
| | (0.085) | (0.120) | (0.101) |
| group | 0.167 | -0.0526 | 0.218 |
| | (0.147) | (0.272) | (0.168) |
| North West | -0.0623 | -0.376 | 0.00762 |
| | (0.154) | (0.274) | (0.169) |
| North East | -0.00963 | -0.277 | 0.0474 |
| | (0.132) | (0.266) | (0.144) |
| Centre | -0.254 | -0.221 | -0.305 |
| | (0.163) | (0.299) | (0.190) |
| sector and size dummies | yes | yes | yes |
| country dummies | yes | yes | yes |
| Constant | 1.611 | 2.936 | 0.888 |
| | (2.095) | (2.756) | (2.070) |
| Observations | 19600 | 4176 | 12520 |
| Clustered standard errors in parentheses. *** p0.01, ** p0.05, * p0.1 | | | |

Table A.7: Probability to export and bank internationalization after selecting control sample by matching

| VARIABLES | DB: ALL COUNTRIES | DB: NOT EASY | DB: EASY |
|---|---|---|---|
| bran0607 | -0.0981 | 0.692** | -0.296 |
| | (0.180) | (0.350) | (0.199) |
| bran0506 | 0.032 | 0.855** | -0.145 |
| | (0.160) | (0.435) | (0.163) |
| bran0405 | 0.0217 | 0.840* | -0.158 |
| | (0.161) | (0.431) | (0.169) |
| bran0304 | -0.00974 | 0.483 | -0.16 |
| | (0.171) | (0.460) | (0.181) |
| Country FE | yes | yes | yes |
| Firm level ctrls | yes | yes | yes |
| Observations | 3201 | 949 | 1860 |
| % of 1s | 2.18% | 1.43% | 2.68% |

Clustered standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A.8: Probability to export and bank internationalization using interactions rather than a sample split

| VARIABLES | Probit | Linear probability model |
|---|---|---|
| bran0607 | -0.147 | -0.00219 |
| | (0.144) | (0.003) |
| db-not easy | -0.505 | -0.0101** |
| | (0.425) | (0.004) |
| bran*db-not easy | 0.787** | 0.00780* |
| | (0.334) | (0.005) |
| firm level ctrls | yes | yes |
| firm level ctrls*db-not easy | yes | yes |
| country FE | yes | yes |
| Observations | 19548 | 19548 |

Clustered standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A.9: Probability to export and bank internationalization after randomly assigning target countries to the new exporters - distribution of the estimated coefficient

| | DB: ALL COUNTRIES | DB: NOT EASY | DB: EASY |
|---|---|---|---|
| REPLICATIONS | 100 | 100 | 100 |
| | | **b[bran0607]** | |
| mean | 0.0296855 | 0.3177944 | 0.0274775 |
| s.e. | (0.1984709) | (0.823172) | (0.2275328) |
| | | **s.e.[bran0607]** | |
| mean | 0.1839521 | 0.2225863 | 0.2097365 |
| s.e. | (0.0312714) | (0.1653038) | (0.0446608) |
| countries | 74 | 74 | 74 |

All models are estimated including country dummies and firm level controls.

Table A.10: Probability to export and bank internationalization, falsification test (1-to-1 matching)

| VARIABLES | DB: ALL COUNTRIES | DB: NOT EASY | DB: EASY |
|---|---|---|---|
| bran0607 | -0.132 | -0.151 | -0.130 |
| | (0.144) | (0.289) | (0.150) |
| country FE | yes | yes | yes |
| firm level ctrls | yes | yes | yes |
| Constant | -6.056*** | -2.462*** | -5.984*** |
| | (0.230) | (0.304) | (0.276) |
| Observations | 23256 | 7202 | 12789 |

Clustered standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

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