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Japanese Small and Medium-Sized Enterprises' Export Decisions: The Role of Overseas Market Information*

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Abstract: This paper examines how the Japanese firms' export decision is affected by the availability of information on export markets, focusing on whether the availability of such information has a different impact on the export decision between large firms and small and medium-sized enterprises (SMEs). Unlike existing studies which solely focus on information sharing among firms, we are interested in the role of firms' lender banks as an additional source of information. Specifically, using a unique dataset containing information not only on firms' export activities but also on their lender banks' exposure to other exporting firms and lender banks' own overseas activities, we find that information spillovers through lender banks positively affect SMEs' decision to start exporting and the range of destinations to which they export. Such information spillovers also reduce the likelihood that exporter firms exit from export markets. The export-to-sales ratio of exporter firms, however, is not affected by such information spillovers. These results imply that information on foreign markets provided by lender banks substantially reduces the fixed entry costs associated with starting exporting and entering new export markets as well as firms' costs associated with continuing to export. Our results highlight that channels of information spillovers other than those examined in the literature so far may be of considerable importance, especially for SMEs.

Key words: Export Decision; Lender Bank; Information Spillover; Extensive and Intensive Margins

JEL Classification: F10, F14, G21, L25

1. Introduction

The successful globalization of Japanese firms, especially small and medium-sized enterprises (SMEs), is becoming one of the most important policy topics in Japan. Facing sluggish domestic sales against the background of an aging and shrinking population, Japanese firms have increasingly been relying on export markets for sales and profits. The share of exports in Japan's GDP has increased from 10.9% in 2000 to 14.7% in 2012. Yet, while well-established large firms have been diversifying their destinations of sales and locations abroad, it is generically difficult for SMEs to overcome the various obstacles associated with entering overseas markets. Given that SMEs account for a large share in the manufacturing sector in terms of the number of firms, the number of employees, and value added, however, it is important from a policy perspective to encourage SMEs to expand their business activities towards overseas markets. Against this background, this study examines the determinants of firms' export behavior, focusing in particular on SMEs.

The international trade literature suggests that to start exporting firms incur fixed sunk costs. These costs reflect, for example, the fact that firms initially are uncertain about their export profitability and thus have to collect a considerable amount of relevant information on export markets. Other potential costs include, for example, modifying products to suit local tastes and setting up distribution networks. Developing a theoretical model, Melitz (2003) therefore suggests that only firms which are sufficiently productive to cover such fixed costs can be exporters. Extant empirical studies (e.g., Bernard *et al*. 2003; Mayer and Ottaviano 2008; and Todo 2011) examining this hypothesis, however, indicate that there must be other important factors which affect firms' decision to export. They suggest that even when their productivity is not very high, firms can be exporters as long as other critical conditions are satisfied. This means that even SMEs, which tend to be less productive than larger firms, can potentially be exporters, and from a policy perspective, it is important to understand

what these other determinants of exporting are and what policy makers can do to help SMEs to enter export markets.

The extant literature has already focused on a number of determinants that may affect firms' export decision. One important research strand in this context concentrates on information spillovers. The underlying idea is that information exchange with other exporting firms reduces the individual fixed costs associated with exporting, and that such information exchange therefore increases the probability that a firm will export (see, e.g., Krautheim (2012) for a theoretical investigation).[1] Having access to information on foreign markets, the hypothesis goes, substantially reduces uncertainty and encourages firms to engage in export activities. Empirical work by Koenig *et al*. (2010) confirms this hypothesis, showing that the presence of other exporters has a positive effect on the export decision of other firms. However, although Koenig *et al*. (2010) find evidence of positive information spillovers, the evidence produced by other empirical studies on such information spillovers is at best weak (e.g., Aitken *et al*. 1997; Barrios *et al*. 2003; Bernard and Jensen 2004). According to a survey conducted by the Small and Medium Enterprise Agency of Japan, however, it is clear that many enterprises that would like to export face problems in terms of, e.g., "securing outstanding partner enterprises" and "ascertaining the needs of local enterprises and residents overseas." Especially compared to large enterprises, a high percentage of SMEs have not been able to undertake export operations as a result of difficulties to "secure outstanding partner enterprises." This is a serious challenge for SMEs, which have much more limited managerial resources than large enterprises (Japan Small Business Research Institute 2008). In fact, the productivity of SMEs on average is much lower than that of large firms, suggesting that many SMEs are not sufficiently profitable to afford the fixed costs of exporting. Therefore, in order for SMEs to start exporting, they have to raise their productivity or try to lower the costs of exporting. However, SMEs usually have much fewer transaction partners than large

firms. Therefore, SMEs are more likely to face serious difficulties in finding a partner enterprise abroad through information exchanges with their current transaction partners, implying that it is costly for SMEs to collect information on foreign markets and possible partner enterprises abroad. Thus, one of the most important research questions is what channels contribute to the effective information exchange between exporting firms and non-exporting firms, which is more relevant for SMEs than large firms and has not been clearly examined in extant studies. Obtaining a more detailed picture of information spillovers is important especially in the context of SMEs, since it is much less clear how such information spillovers arise for SMEs than for larger firms. For example, SMEs likely have much fewer opportunities to interact with export firms in their daily business activities than large firms.

Given these considerations on information spillovers, this study focuses on information provided by lender banks as an additional channel of information spillovers. The hypothesis we examine in this paper is that lender banks contribute to such information exchange in the form of acting as a conduit for information on export markets and potential business partners abroad. In the case of Japan, lender banks generally provide not only financial support but also business consulting services utilizing their extensive knowledge collected through lending transaction relationships and from various information sources. Since the monitoring of borrower firms is important for banks, banks in general should accumulate information on borrower firms and related parties. Thus, if we assume that a particular bank is very knowledgeable about overseas business opportunities either through its own banking activities (e.g., foreign branches) or transactions with client firms with experience in exporting, potential exporter firms would find it helpful to consult with such a bank.

The information provided by lender banks could be more important for SMEs than for large firms for the following two reasons. First, although SMEs tend to have less access to information about overseas market than larger firms (e.g., they have a smaller

number of trading partners, have less exposure to overseas information through imports, and are more constrained in their internal resources for the collection of overseas market information), they usually have close ties to lender banks and therefore are in a good position to obtain feedback from banks on their business strategies. Hence, lender banks could play an important role as a conduit of export market information for SMEs. Second, lender banks themselves have a strong incentive to provide such information to client SMEs, since the expansion of client firms' business activities naturally leads to larger business opportunities for lender banks. In other words, to the extent that lender banks have accumulated overseas market information, it would be natural for them to share such information with their clients.

This study contributes to the existing literature in at least two ways. First, we examine the export decision by using a large-scale dataset that includes a large number of SMEs and makes it possible to link firm-level information with information on the lender banks of each firm. Using this dataset and focusing in particular on SMEs, we investigate whether the importance of information provided by banks is more crucial for SMEs than for large firms, given that, as mentioned above, SMEs likely find it more difficult than larger firms to collect information on export markets by themselves due to their managerial resource constraints. Specifically, to examine the role of information provided by banks and differences in this role for SMEs and large firms, we focus on whether such spillovers affect whether firms start exporting (*an extensive margin*), expand their export destinations (*another extensive margin*), stop exporting (*another extensive margin*), and/or whether spillovers lead to changes in the export-to-sales ratio (*the intensive margin*). Second, we also consider the impact of main banks' financial health and the agglomeration of nearby exporters on firms' export decision.[2]

The findings suggest that information spillovers through banks positively affect SMEs' decision to start exporting and expand their export destinations. The

information spillovers also reduce the likelihood of firms stopping to export. The export-to-sales ratio of exporters, however, is not affected by such information spillovers. These results imply that information on foreign markets provided by lender banks substantially reduces the fixed entry costs of exporting as well as the costs associated with maintaining firms' export status.

The remainder of this study is organized as follows. Section 2 describes the dataset used in the analysis and provides some descriptive statistics for our sample firms. Next, Section 3 briefly explains the role that main banks play in Japan and presents the empirical strategy we employ. Section 4 then presents our estimation results, while Section 5 concludes.

2. Differences in Export Behavior between Large Firms and SMEs

2.1. Data Description

Let us start by looking at differences between large firms and SMEs in terms of their export behavior and various firm characteristics. To examine firms' export behavior and various other characteristics, we use firm-level panel data for the period 1997–2008 from the *Basic Survey on Business Structure and Activities (BSBSA)* conducted annually by the Ministry of Economy, Trade and Industry (METI). The survey is compulsory and covers all firms with at least 50 employees and 30 million yen of paid-in capital in the Japanese manufacturing, mining, and wholesale and retail sectors as well as several other service sectors. The survey contains detailed information on firm-level business activities such as the 3-digit industry in which the firm operates, its number of employees, sales, purchases, exports, and imports (including a breakdown of the destination of sales and exports and the origin of purchases and imports).[3] It also contains the number of domestic and overseas subsidiaries, and various kinds of financial data such as costs, profits, investment, debt,

and assets. Although the survey covers firms in the non-manufacturing sector, this study focuses on firms in the manufacturing sector only because the survey does not cover international transactions in services and only asks firms about the amount of trade in goods.[4]

The key aim of our analysis, as mentioned above, is to investigate the importance of information on destination markets and advice provided by lender banks to their client firms. To do so, we combine the firm-level data with information on firms' lender banks and examine the relationships between firm characteristics, lender banks' ability to provide advice, and firms' export status. We merge the dataset above with information on the lender banks for each firm using the information on loan relationships in Teikoku Databank Ltd.'s corporate information database. The database, called *COSMOS2*, contains the names of each firm's lender banks listed in the order of importance to the firm. (The maximum number of lender banks listed for each firm is ten.) We assume that the bank at the top of the list for a particular firm in a particular year is the main bank of that firm in that year. Information on the characteristics of lender banks is taken from the Nikkei *NEEDS* Financial Quest database, including banks' total assets, their equity ratio, and their loan-deposit ratio. We also calculate the number of client firms for each bank using our firm–bank-linked dataset. Our unbalanced panel data contain approximately 7,000 manufacturing firms each year.

2.2. Overview of the Firm–Bank-Linked Database

Using the firm–bank-linked database, we examine how large firms' and SMEs' export behavior and various other characteristics differ. We start with Table 1, which provides an overview of the share of exporters among firms of various sizes in our dataset. SMEs are defined as firms with paid-in capital of up to 300 million yen or up to 300 employees, following the Japanese legal definition of SMEs. We define all other firms in our database as large firms. We further divide SMEs into small firms and medium-sized firms in order to more closely examine differences among SMEs. Small firms are defined as firms with paid-in capital of up to 150 million yen and no more than 150 employees. All other SMEs are defined as medium-sized firms.

As shown in Table 1, the share of exporters differs considerably between large firms and SMEs. While approximately 60 percent of large firms are exporters, only 25 percent of SMEs are. The share of exporters among small firms is even smaller: 20 percent. In other words, more than 80 percent of small firms do not export. Given that nearly 90 percent of the firms in our dataset are SMEs, this means that a substantial number of manufacturing firms in our database – about 70 percent – are non-exporters.

Table 1: Number of firms in the dataset by size and export status

	No. of firms	Share in all firms (%)	Share in the size category (%)
All firms	77,305	***100.0***	
Exporters	22,526	29.1	
Non-exporters	54,779	70.9	
Large firms	9,778	12.6	***100.0***
Exporters	5,876		60.1
Non-exporters	3,902		39.9
SMEs	67,527	87.4	***100.0***
Exporters	16,650		24.7
Non-exporters	50,877		75.3
Medium-sized firms	45,298	58.6	***100.0***
Exporters	12,959		28.6
Non-exporters	32,339		71.4
Small firms	22,229	28.8	***100.0***
Exporters	3,691		16.6
Non-exporters	18,538		83.4

Given that far fewer SMEs are exporting than large firms, this suggests that SMEs are less likely to start exporting. In order to test this statistically, we define an export starter as a firm which did not export from year *t-3* to year *t-1* but exported in year *t*. We construct various dummy variables representing a firm's export status and examine differences in export behavior across firms of different sizes. The first dummy variable we use, *NEW_EXP*, takes one for firms which did not export from year *t-3* to year *t-1* but exported in year *t*. This variable takes zero for firms which did not export from years *t-3* to *t*. Therefore, the variable *NEW_EXP* is not defined for firms which did export between years *t-3* and *t* (i.e., that were always exporters). A second dummy variable we use is *NEW_REGION*, which takes one for firms which exported in year *t-1* and increased the number of export destinations in year *t*. The dummy takes zero for firms which exported in year *t-1* but did not increase the number of export destinations in year *t*. A third dummy variable we use is for firms that stopped

exporting, *STOP_EXP*, which takes one for firms which exported in year *t-1* but did not export in year *t*, and zero otherwise. Finally, we construct a variable, *EXP_SALES*, which represents the ratio of exports to sales for firms which export in year *t*.

Table 2 shows the mean values for these variables. For all firms, the mean of *NEW_EXP* is 0.034, indicating that 3.4 percent of non-exporting firms in years *t-3* to *t-1* started exporting in year *t*. Looking at the difference between large firms and SMEs, 6.4 percent of non-exporting large firms started exporting in year *t*, while 3.2 percent of non-exporting SMEs started exporting in year *t*, and the difference in this propensity to start exporting is statistically significant at the 1 percent level. Similarly, the propensity to start exporting differs significantly between medium-sized and small firms (3.7 percent versus 2.3 percent). As for the expansion of export destinations (*NEW_REGION*), larger firms are more likely to increase their number of export destinations and the differences are statistically significant across different sizes of firms. On the other hand, smaller exporting firms are more likely to stop exporting than larger firms (*STOP_EXP*). Finally, while large firms have a significantly higher export intensity (*EXP_SALES*) than SMEs, no statistically significant difference between medium-sized and small firms can be observed.

Table 2. Differences in export behavior by firm size

	All firms		Large firms vs. SMEs					Medium-sized firms vs. Small firms				
			Large firms		SMEs			Medium-sized firms		Small firms		
Variable	Obs.	Mean	Obs.	Mean	Obs.	Mean	*t*-test	Obs.	Mean	Obs.	Mean	*t*-test
NEW_EXP	50,385	0.034	3,711	0.062	46,674	0.032	***	29,844	0.037	16,830	0.023	***
NEW_REGION	20,884	0.156	5,606	0.181	15,278	0.147	***	11,944	0.152	3,334	0.126	***
STOP_EXP	20,884	0.067	5,606	0.051	15,278	0.072	***	11,944	0.066	3,334	0.093	***
EXP_SALES	20,143	0.135	5,138	0.160	15,005	0.127	***	11,704	0.126	3,301	0.130	

Note: *** indicates that the mean values of two groups of firms are significantly different at the 1% level.

Overall, the results indicate that smaller firms are less likely to start exporting and

continue exporting. In terms of Melitz's (2003) theoretical model, these results suggest that small firms are not sufficiently productive to cover the fixed costs involved in starting and continuing to export. Thus, for small firms to start exporting, information on export markets from a variety of sources, such as nearby exporting firms, foreign investors, transaction partners, and lender banks, may play a particularly important role.

Against this background, Table 3 examines differences in firm characteristics and the availability of information on foreign markets among firms of different sizes and between exporters and non-exporters. Specifically, firm characteristics examined include firms' level of total factor productivity TFP[5] as well as their ratio of liquid assets to total assets (*F_CASH*). As proxies for the availability of information on export markets, we calculate the number of nearby firms (*F_NEARBYFIRM* and *F_NEARBYINDEXP*),[6] the foreign ownership ratio (*FOREIGN*), the import ratio (*IMPORTRATIO*), and the share of overseas assets in total assets (*FFORINV*) for each firm. We also calculate several variables which proxy the amount of information on export markets provided by each firm's lender banks: the share of exporting client firms in the total number of client firms for the top-lender bank of a firm (*BANKINFO*), the average share of exporting client firms in the total number of client firms for all the lender banks of a firm (*BANKINFO_AVR*), the number of overseas branches of the top-lender bank of a firm (*BANKBR*), the average number of overseas branches of all the lender banks of a firm (*BANKBR_AVR*), and the size (total assets in logarithm) of the top-lender bank (*B_SIZE*). Finally, we employ a dummy variable, *JBIC*, which takes one for firms who borrow from the Japan Bank for International Cooperation (JBIC), formerly called the Japan Export-Import Bank. This is a government-run financial institution specializing in international financial operations such as trade finance.

Table 3 shows that, regardless of firm size, exporters tend to have higher TFP and

larger cash flow than non-exporters, and the difference in the means is significantly different in all cases. These figures indicate that exporters are more productive and less financially constrained than non-exporters, suggesting that productivity and financial resources play an important role in allowing firms to cover the fixed costs of exporting. Moreover, regardless of firm size, exporters have a larger value than non-exporters for all the variables representing availability of information on export markets or information sources. The only exception is the mean value of *JBIC* for small firms, which is larger for non-exporters, although the difference in the means is not statistically significant. All these figures indicate that exporters tend to have more information available than non-exporters, which can be interpreted as implying that utilizing such available information lowers the fixed costs of exporting.

Table 3. Comparison of mean values for exporters and non-exporters

	All firms		Large firms		SMEs		Medium-sized firms		Small firms	
Variable	Exporters	Non-exporters	Exporters	Non-exporters	Exporters	Non-exporters	Exporters	Non-exporters	Exporters	Non-exporters
TFP	0.050	-0.008	0.101	0.056	0.032	-0.013	0.043	0.000	-0.008	-0.036
F_CASH	0.580	0.542	0.537	0.507	0.595	0.544	0.593	0.541	0.602	0.550
F_NEARBYFIRM	428.008	262.111	600.068	484.389	367.286	245.064	377.732	256.626	330.610	224.894
F_NEARBYINDEXP	4.667	1.592	5.519	2.656	4.366	1.510	4.434	1.559	4.127	1.424
FOREIGN	14.565	2.160	22.328	8.533	11.825	1.671	13.465	2.192	6.068	0.763
IMPORTRATIO	0.046	0.008	0.049	0.014	0.044	0.008	0.045	0.008	0.043	0.007
FFORINV	0.033	0.004	0.051	0.009	0.026	0.003	0.028	0.004	0.020	0.002
BANKINFO	0.240	0.207	0.261	0.237	0.233	0.204	0.234	0.208	0.228	0.198
BANKINFO_AVR	0.237	0.204	0.255	0.232	0.231	0.202	0.232	0.206	0.225	0.195
BANKBR	17.932	13.863	20.354	17.580	17.077	13.578	17.451	14.219	15.764	12.461
BANKBR_AVR	15.116	12.018	16.890	14.938	14.490	11.794	14.779	12.351	13.473	10.821
B_SIZE	16.718	16.308	17.011	16.733	16.614	16.276	16.651	16.352	16.485	16.142
JBIC	0.005	0.001	0.010	0.004	0.003	0.001	0.003	0.001	0.000	0.001

Note: The difference between exporters and non-exporters is statistically significant at the 1% level in all cases except for *JBIC* for small firms.

An interesting finding is that the average TFP for exporting SMEs is much lower than the average TFP for non-exporting large firms (0.032 vs. 0.056). On the other hand, regarding the mean values for the information-related variables, the difference between exporting SMEs and non-exporting large firms looks small. Exporting SMEs tend to have larger mean values than non-exporting large firms for proxies representing

information directly obtained by firms themselves (*FOREIGN*, *IMPORTRATIO*, *FFORINV*) rather than via intermediaries such as nearby firms or banks. As for proxies of information provided by a firm's lender banks, although the mean values for exporting SMEs are smaller than those for non-exporting large firms, the difference is quite small.

Thus, it appears that SMEs are inferior to large firms in terms of both firms' own performance and the availability of various information sources. Even exporting SMEs are less productive than non-exporting large firms. The findings thus suggest that, on their own, many SMEs are unlikely to be sufficiently productive to cover the costs of exporting and therefore need to rely on a variety of information sources to lower such costs and overcome the barriers to exporting. Thus, the results thus far allow us to conjecture that the availability of a variety of information sources is more critical for SMEs to start exporting than for large firms.

3. Empirical Strategy

3.1. The Main Bank System in Japan

Before turning to our statistical analysis, let us consider the various roles banks play in Japan, given that we focus on one of these roles here, namely their role as information provider. Traditionally, lender banks in Japan, particularly main banks, provide not only financial services but also various consulting services to their client firms. In this study, we focus on the importance of the latter role. The so-called "main bank system" has been a key feature of Japan's economic system that can be traced back as far as the early post-war period.[7] In this system, a firm's "main bank" usually is the bank from which it has borrowed the most and with which it typically has a long-term relationship. In addition, it is widely argued that main banks not only provide

loans to client firms but also play a consulting role by providing relevant business information. In addition, main banks may get involved in the management of a firm in times of distress. Although the extent and form of main banks' involvement in firms' management in times of financial difficulties have been changing over time, main banks are still perceived to play an important role as providers of both funds and information to their client firms.

Trying to provide a theoretical underpinning for such long-term relationships between main banks and borrower firms, Patrick (1994) argues that such relationships enable banks to gain access to "soft information" on borrower firms, which helps to raise the efficiency of loan screening and borrower monitoring. The argument that repeated bank loan transactions lead to the accumulation of soft information on client firms has also been voiced in more recent studies such as Degryse *et al*. (2009).

Such soft information on borrower firms and banks' own ability to collect information on industry-, region-, and nation-wide businesses has helped Japanese main banks to provide effective and useful financial and consulting services to their client firms, and thereby has contributed both to main banks' profits and the growth of their client firms' business. Particularly in recent years, aware of the fact that the growth prospects for Japan's domestic market are not necessarily promising and domestic manufacturing production has in fact been shrinking, banks have been promoting various services to support client firms' international activities. With more and more large Japanese firms relocating production overseas, smaller domestic firms have been forced to reduce output, resulting in sluggish demand for bank lending, which in turn has reduced business opportunities for banks in Japan. Moreover, if banks' existing client firms went out of business, banks would not only lose their current business but also future business in which to utilize the firm-specific soft information they have accumulated. Thus, faced with a potentially shrinking market at home, many banks in recent years have put greater emphasis on providing support

services for client firms seeking to exploit growth opportunities overseas.

Concrete examples of such kind of support services that banks provide to their borrowers to help them with regard to international activities are provided by a Japanese Bankers Association (JBA) report (Japanese Bankers Association 2011). According to the report, other than traditional banking services such as the usual loan business, deposit services, payment services, lease and leaseback deals, or the issue of stand-by letters of credit, main banks often provide client firms with information on potential business partners overseas as well as advice on employee recruitment, advertising, tax systems, and administrative issues such as accounting systems, laws, and regulations. These examples indicate that banks provide not only financial transactions but also information services. In the report, the JBA cites a survey it conducted according to which 38 out of 43 Japanese banks with activities in Asia say they provide services other than loan, deposit, and payment services. Specifically, 32 out of the 38 banks with activities in Asia say they provide information related to investment (i.e., tax and accounting systems, etc.), while 31 banks provide opportunities for business matching (e.g., organizing business matching events for Japanese firms and potential local partners). In addition, many banks provide information on firms located in destination regions (14 banks), loan guarantees (12 banks), and support with export and import procedures (8 banks).

3.2 Empirical Model

This section explains the empirical strategy we employ to investigate the determinants of export dynamics. We are particularly interested in the impact of information provided by main banks on firms' export dynamics as represented by (i) the initiation of exports, (ii) the expansion of export destinations, (iii) the termination of exports, and (iv) the intensity of exports. To examine the first three, i.e., (i) to (iii), concerning the extensive margin, we focus on the probabilities that a firm starts

exporting, expands its export destinations, or stops exporting, while we use the export-to-sales ratio to represent the intensive margin of exports (iv).

Following previous empirical studies on the determinants of the extensive margin (e.g., Koenig *et al*. 2010, Minetti and Zhu 2011), we assume that firm *i* starts exporting, expands its export destinations, or stops exporting if its profits are larger when doing so than when not doing so. Let π_{it1}^{*},π_{it2}^{*}, and π_{it3}^{*} respectively represent the difference between the profits of firm *i* when it starts exporting, expands its export destinations, or stops exporting at time *t* and its profits when not doing so. The differences are determined by the firm's characteristics, its financial condition, the characteristics of its main bank, and the availability of information on export markets to the firm. The availability of information on export markets is assumed to substantially lower the uncertainty of profits from starting to export, expanding export destinations, or continuing to export, and hence to lower either the variable or the fixed costs associated with exporting. While information spillovers from nearby exporter firms are also taken into account, we are particularly interested in information provided through the main bank and the non-main banks of the firm. Therefore, we parameterize π_{itk}^{*} as follows:

$$\pi_{itk}^{*} = \alpha_{1k} + Z_{it-1}\beta_{1k} + I_{it-1}\gamma_{1k} + \varepsilon_{it} \quad \square h \square\square\square\square = 1,2,3 \qquad (1)$$

Z_{it-1} is a vector of controls for firm characteristics and firms' financial condition which may affect their differential profits π_{itk}^{*}; I_{it-1} is a vector of variables representing information available to firms; and ε_{it} captures unobserved firm characteristics and other unknown factors that may also affect differential profits.

We assume that firm *i* starts exporting, expands its export destinations, or stops exporting if differential profits $\pi_{itk}^{*}>0$. Under the assumption that ε_{it} is a normally distributed random error with zero mean and unit variance, the probabilities that firm *i* starts exporting, expands its export destinations, or continues exporting can be written

as follows:

$$\mathrm{Prob}_{itk} = \mathrm{Prob}(\alpha_{1k} + Z_{it-1}\beta_{1k} + I_{it-1}\gamma_{1k} + \varepsilon_{it} > 0) \quad \text{□}h\text{□□□ □} = 1, 2, 3 \qquad (2)$$

In the first instance, we estimate equation (2) with a random effect panel probit approach. In order to take any potential endogeneity into account, we lag all right-hand side variables by one year. The dependent variable $Prob_{itk}$ denotes the change in export status at the firm-level and takes a value of 1 if a firm starts exporting at time *t* (*k*=1), increases the number of export destinations at time *t* (*k*=2), or stops exporting at time *t* (*k*=3). We define a firm as an export starter ($Prob_{it1}$ takes a value of one) if it did not export during the preceding three years (i.e., from *t-3* to *t-1*) but exports at time *t*. On the other hand, $Prob_{it1}$ takes a value of zero if a firm did not export during the three years prior to year *t* and does not export in year *t*. Firms which always export are not included in the estimation of $Prob_{it1}$. For the estimation of $Prob_{it2}$ and $Prob_{it3}$, we only use firms which exported at *t-1*.

For the intensive margin, we estimate the following model using panel estimation assuming firm-level fixed effects:

$$\mathrm{EXP\_SALES}_{it} = \alpha_{14} + Z_{it-1}\beta_{14} + I_{it-1}\gamma_{15} + \eta_i + \varepsilon_{it} \qquad (3)$$

where the dependent variable EXP_SALES_{it} denotes the ratio of exports to total sales measured at the firm level. For this estimation, we only use firms which exported at time *t*. Regarding control variables for firm characteristics and firms' financial condition (Z_{it}), we include the TFP level of the firm, which is measured using the multilateral TFP index method developed by Good *et al*. (1997). Based on the results of both theoretical and empirical studies, we expect firms' decision to start exporting to be positively correlated with their TFP level. Further, to take the impact of liquidity constraints on firms' export behavior into account, we include a variable representing

firms' financial characteristics, namely, the ratio of liquidity assets to total assets (*F_CASH*). The reason for including this variable is that, as highlighted by, e.g., Manova *et al*. (2011), Feenstra *et al*. (2013), and Minetti and Zhu (2011), financial constraints are likely to prevent firms from exporting because firms need sufficient liquidity in order to meet the entry costs associated with starting exporting. Therefore, we expect that firms with more liquidity are more likely to start exporting.

We also control for the financial health of main banks. Feenstra *et al*. (2013), for example, find that the health of banks providing trade finance is an important determinant of firm level exports. As proxy variables for main banks' financial health, we employ bank size (the log of the total assets of the bank, *B_SIZE*), the equity ratio (*B_CAP*), and the loan-deposit ratio (*B_LTD*).

Regarding information available to a firm (I_{it}), we include variables representing the availability of information on export markets accumulated by lender banks (i.e., both main and non-main banks) as well as information spillovers from nearby firms. The explanatory variables of main interest are those representing information on export markets potentially available to a firm through its main bank and other lender banks, which are proxies for the amount of information firm *i*'s main bank and other lender banks have accumulated. Specifically, to gauge the information potentially available to a firm, we use (i) the ratio of the number of exporting client firms to the total number of the main bank's client firms, i.e., the intensity of each main bank's dealings with exporting firms, *BANKINFO*; (ii) the average of the same variable for all the lender banks, *BANKINFO_AVR*; (iii) the number of foreign branches of the main bank, *BANKBR*; and (iv) the average of the same variable for all the lender banks, *BANKBR_AVR*.

We conjecture that banks which have a higher share of exporters in their total number of client firms (*BANKINFO* or *BANKINFOR_AVR*) and/or have a larger number of overseas branches (*BANKBR*) likely accumulate more information on

overseas markets. For instance, if banks' allocation of internal managerial resources is related to the importance of a particular type of lending activity in the banks' overall business, we would expect banks that have extensive dealings with exporting firms to devote more management resources to such lending activity, including the gathering of overseas market information, etc.

Note that using the averages of the variables representing lender banks' information is likely to mitigate potential bias from any systematic matching between firms and main banks. Suppose, for example, that firms that are about to start exporting tend to choose a bank with more information on export markets. If this is the case, causality would run from firms' export decision to the main bank information variables, which would give rise to bias in our estimation of the coefficients associated with the main bank information variables. Given that it is very unlikely that all the major lender banks listed in the *COSMOS2* database for a particular firm will change completely just because the firm is planning to start exporting, using the averages of the lender bank information variables should mitigate the potential endogeneity from this reverse causality. Thus, the purpose of estimating the empirical model using the averages of the information variables across all banks that a firm borrows from instead of just its main bank is to check the robustness of our results.

Given that our main interest is the role of information spillovers from lender banks to SMEs, we run the regressions based on equations (2) and (3) for the sample as a whole and separately for subsamples consisting of large firms and SMEs. In addition, to examine the importance of information spillovers for SMEs in more detail, we further divide SMEs into small and medium-sized firms and again run regressions based on equations (2) and (3).

In addition to information provided by banks, information spillovers from nearby exporters may also play a role. In order to examine whether this is the case, we include the two variables for nearby firms, *F_NEARBYFIRM* and *F_NEARBYINDEXP*,

defined in Section 2.2. Industry dummies (for fifteen manufacturing industries) and year dummies are also included in order to control for industry- and time-specific fixed effects. Summary statistics for all the variables used in our empirical analysis and the distribution of *BANKINFO* over banks in our dataset in the year 2000 are provided in Appendixes 1 and 2, respectively.

4. Estimation Results

Tables 4 to 7 summarize the results of our estimation of the extensive and intensive margins of exports based on equations (2) and (3). In each table, the columns labeled (a), (b), and (c) show the estimation results for the sample of all firms, large firms, and SMEs, respectively. Further, columns (c1) and (c2) show the results for medium-sized and small firms, respectively. For each size category, columns (i) and (ii) respectively show the results using the main bank information variables and those using the average of the information variables across all of a firm's lender banks.

Starting with the results regarding whether firms start exporting (*NEW_EXP*), Table 4 shows that the extent to which lender banks transact with other exporting firms (*BANKINFO* or *BANKINFO_AVR*) plays an important role in whether firms start exporting. However, examining the role of such information spillovers from lender banks for SMEs and large firms separately shows that they have a strong positive impact in the case of the former but not in the case of the latter. This implies that the information provided by banks is an important determinant of whether SMEs start exporting. Moreover, this result holds regardless of whether we focus on information spillovers from the main bank only or for all lender banks of a firm (columns (i) and (ii)), confirming the robustness of the estimation results. In line with the discussion above, the results obtained can be interpreted as indicating that, in contrast with larger firms, SMEs lack the internal resources and access to other external information to

gather sufficient information on overseas markets on their own, so that lender banks appear to be important sources of such information, which enables firms to become exporters.

Next, the number of lender banks' overseas branches (*BANKBR* or *BANKBR_AVR*) also has a positive impact on whether firms start exporting. One interesting difference between large firms and SMEs is that for the former the average number of lender banks' overseas branches (*BANKBR_AVR*) matters, while for the latter only the main bank's number of overseas branches (*BANKBR*) matters. Given that banks' overseas branches play an important role in processing client firms' overseas payments, a possible interpretation of this difference is that SMEs solely rely on their main bank to process overseas transactions, while large firms tend to use the overseas branches of several lender banks rather than using their main bank only. When SMEs start exporting, the transaction volume involved is likely to be relatively small and their overseas financial transactions can be handled by their main bank. On the other hand, when large firms start exporting, they are likely to have a larger number of transaction partners overseas, so that they may need to utilize a greater number of overseas branches in numerous countries. This may be the reason for the significant positive coefficient on *BANKBR_AVR* for large firms.

Turning to the results for TFP, this, as predicted by theory, has a positive impact on whether firms start exporting (see column (a)). However, in the various subsamples, the coefficient on TFP is not significant, suggesting that the impact of TFP to a great extent overlaps with the impact of firms' size. That is, the significant positive coefficient in column (a) is explained by the fact that larger firms tend to have higher TFP than smaller firms, but TFP differences within each subsample do not play a significant role in explaining whether a firm starts exporting or not. Further, also as predicted by theory, firms' liquidity (*F_CASH*) has a positive impact on whether they start exporting. Interestingly, this matters only for SMEs but not for large firms. As

exporting is riskier than selling products domestically, firms need to have sufficient cash flow in order to take the risk of starting exporting, and the result suggests that particularly for SMEs, for which fund-raising or borrowing is usually more difficult than for large firms, having sufficient liquidity is an important determinant of whether they can deal with the uncertainties of entering foreign markets.

Looking at the results for other variables, we find that firms with a higher overseas investment ratio (*FFORINV*) or import ratio (*IMPORTRATIO*), which we use as proxies for the degree of firms' exposure to overseas markets, are more likely to start exporting. On the other hand, information spillovers from nearby firms or nearby exporters (*F_NEARBYFIRM* or *F_NEARBYINDEXP*) do not seem to play a significant role. This finding conflicts with the result obtained by Koenig *et al*. (2010), but is consistent with the results found in several other studies, including Aitken *et al*. (1997), Barrios *et al*. (2003), and Bernard and Jensen (2004). Finally, banks' balance sheet variables (i.e., *B_SIZE*, *B_CAP*, and *B_LTD*) also do not have any significant impact on whether firms start exporting.

Table 4: Estimation results for NEW_EXP

Random-effect panel logit	(a) All firms				(b) Large firms				(c) SMEs				(c1) Medium-sized firms				(c2) Small firms			
Dependent variable: NEW_EXP(t)	(i) Main bank		(ii) Average		(i) Main bank		(ii) Average		(i) Main bank		(ii) Average		(i) Main bank		(ii) Average		(i) Main bank		(ii) Average	
	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.
BANKINFO (t-1)	2.070	0.614 ***			-1.761	1.673			2.624	0.671 ***			2.384	0.779 ***			2.971	1.404 **		
BANKINFO_AVR (t-1)			3.480	0.765 ***			-2.664	2.189			4.419	0.838 ***			3.946	0.982 ***			5.252	1.720 ***
BANKBR (t-1)	0.006	0.003 **			0.005	0.007			0.007	0.003 **			0.007	0.003 **			0.006	0.006		
BANKBR_AVR (t-1)			0.002	0.004			0.022	0.010 **			-0.002	0.004			-0.001	0.005			-0.007	0.009
FFORINV (t-1)	6.213	1.060 ***	6.136	1.057 ***	7.651	2.767 ***	7.729	2.804 ***	5.684	1.178 ***	5.609	1.177 ***	2.919	1.427 **	2.897	1.429 **	10.731	2.087 ***	10.545	2.079 ***
JBIC (t-1)	0.189	0.802	0.106	0.797	0.263	1.326	0.219	1.350	-0.098	1.085	-0.247	1.085	-0.074	1.099	-0.182	1.099	-17.566	1.8E+04	-18.947	2.9E+04
B_SIZE (t-1)	-0.052	0.038	0.005	0.031	0.012	0.108	-0.061	0.096	-0.082	0.041 **	0.008	0.034	-0.079	0.048 *	0.012	0.040	-0.115	0.083	-0.017	0.068
B_CAP (t-1)	-4.072	3.090	-2.792	3.021	-12.629	9.742	-13.638	9.530	-3.118	3.294	-1.496	3.223	-2.655	3.879	-0.993	3.792	-3.335	6.515	-1.599	6.371
B_LTD (t-1)	-0.172	0.217	-0.151	0.210	-0.058	0.409	-0.170	0.400	-0.233	0.265	-0.199	0.256	-0.322	0.290	-0.290	0.277	-0.137	0.741	-0.073	0.733
F_NEARBYFIRM (t-1)	1.0E-04	9.2E-05	7.3E-05	9.2E-05	2.6E-04	2.1E-04	2.8E-04	2.1E-04	-4.5E-05	1.1E-04	-7.7E-05	1.1E-04	-3.2E-05	1.3E-04	-5.5E-05	1.3E-04	-1.9E-04	2.6E-04	-2.4E-04	2.6E-04
F_NEARBYINDEXP (t-1)	0.009	0.007	0.010	0.007	0.009	0.011	0.008	0.011	0.010	0.009	0.010	0.009	0.008	0.010	0.008	0.010	0.028	0.024	0.029	0.024
IMPORTRATIO (t-1)	3.628	0.583 ***	3.604	0.583 ***	3.256	1.501 **	3.366	1.513 **	3.873	0.643 ***	3.875	0.644 ***	3.742	0.765 ***	3.745	0.764 ***	5.502	1.339 ***	5.455	1.331 ***
FOREIGN (t-1)	0.001	0.001 *	0.001	0.001 *	0.000	0.002	0.000	0.002	0.001	0.001	0.001	0.001 *	0.001	0.001	0.001	0.001	0.001	0.003	0.001	0.002
TFP (t-1)	0.584	0.280 **	0.543	0.280 *	0.154	0.909	0.138	0.923	0.358	0.302	0.316	0.303	-0.068	0.351	-0.103	0.351	0.562	0.657	0.504	0.657
F_CASH (t-1)	0.504	0.247 **	0.512	0.247 **	1.175	0.773	1.166	0.783	0.637	0.267 **	0.647	0.268 **	0.540	0.308 *	0.544	0.308 *	1.385	0.577 **	1.407	0.577 **
Firm random effect	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Industry effect	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Year effect	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Number of obs.	37,798				2,770				35,028				22,507				12,521			
Number of groups	9,370				815				8,803				6,013				3,762			
Obs. per group: Min	1				1				1				1				1			
Average	4				3.4				4				3.7				3.3			
Max	10				10				10				10				10			
Wald chi2	301.34		304.7		47.11		48.3		257.44		260.82		184.58		185.19		89.78		92.66	
Prob > chi2	0.0000		0.0000		0.1018		0.0826		0.0000		0.0000		0.0000		0.0000		0.0000		0.0000	
Log likelihood	-4196.0		-4194.0		-491.4		-489.2		-3662.3		-3660.2		-2680.8		-2680.8		-933.9		-932.2	
Likelihood-ratio test of rho=0																				
Chibar2	34.41		34.63		5.18		5.63		28.76		29.44		21.66		21.90		7.70		7.48	
Prob >= chibar2	0.0000		0.0000		0.0110		0.0090		0.0000		0.0000		0.0000		0.0000		0.0030		0.0000	

Note: ***, **, and * indicate significance at the 1, 5, and 10% level, respectively.

Next, let us consider the quantitative implications of our estimation results. Specifically, let us focus on the results for the SME subsample (i.e., column (c)). The estimated marginal effects of *BANKINFO* and *BANKINFO_AVR* are 2.624 and 4.419, respectively. Suppose that for the subsample of non-exporter SMEs these variables representing information spillovers through lender banks increase by one standard deviation (i.e., 0.073 and 0.056 in panel (c) in Appendix 1) in year *t-1*. Given the estimated marginal effects, the model predicts that the probabilities that a non-exporter SME will start exporting are $2.642 \times 0.073 = 19.3$ percentage points and $4.419 \times 0.056 = 24.7$ percentage points higher than in the case that there is no change in the banks information variables. Considering that the sample mean and the standard deviation of the probability that an SME will exporting are 3.2% and 17.6% respectively, this implies that information spillovers through lender banks have an economically sizable impact on whether firms will start exporting.

Let us now examine the estimation results when focusing on the expansion of export destinations (*NEW_REGION*), which are shown in Table 5. Information spillovers from lender banks have a positive and significant impact, particularly for SMEs, which is consistent with the results for *NEW_EXP* shown in Table 4. This means that the information provided by lender banks plays an important role not only for the initiation of exports but also for the expansion of export destinations. We further find that firms' liquidity (*F_CASH*) has a positive impact on the expansion of export destinations, which is also consistent with the results for *NEW_EXP*. However, while *F_CASH* does not have a statistically significant impact for large firms when focusing on *NEW_EXP*, it does have a positive and significant impact for large firms in the case of *NEW_REGION*, suggesting that even for large firms expanding export destinations requires a certain level of liquidity. Finally, information spillovers from nearby firms have a positive, although only weakly significant, impact on the expansion of destinations in the full sample consisting of firms of all sizes (see column (a)).

Table 5: Estimation results for NEW_REGION

Random-effect panel logit	(a) All firms				(b) Large firms				(c) SMEs				(c1) Medium-sized firms				(c2) Small firms			
Dependent variable: NEW_REGION(t)	(i) Main bank		(ii) Average		(i) Main bank		(ii) Average		(i) Main bank		(ii) Average		(i) Main bank		(ii) Average		(i) Main bank		(ii) Average	
	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.
BANKINFO (t-1)	1.393	0.390 ***			0.733	0.633			1.536	0.502 ***			1.494	0.551 ***			2.074	1.226 *		
BANKINFO_AVR (t-1)			1.580	0.469 ***			0.489	0.801			1.820	0.589 ***			1.858	0.652 ***			1.747	1.419
BANKBR (t-1)	0.002	0.001			-0.001	0.002			0.004	0.002 **			0.005	0.002 **			0.003	0.005		
BANKBR_AVR (t-1)			0.003	0.002			0.007	0.004 *			0.001	0.003			0.001	0.003			0.001	0.006
FFORINV (t-1)	-0.646	0.436	-0.664	0.436	-0.518	0.704	-0.554	0.705	-0.850	0.568	-0.859	0.568	-0.572	0.601	-0.567	0.602	-2.769	1.583 *	-2.815	1.582 *
JBIC (t-1)	0.349	0.305	0.272	0.306	0.473	0.355	0.460	0.358	-0.270	0.599	-0.375	0.599	-0.340	0.596	-0.450	0.597	N.A.	N.A.	N.A.	N.A.
B_SIZE (t-1)	0.008	0.024	0.024	0.020	0.055	0.045	0.000	0.039	-0.032	0.028	0.020	0.024	-0.033	0.032	0.026	0.027	-0.035	0.066	0.006	0.055
B_CAP (t-1)	-1.415	1.991	-1.095	1.944	1.422	3.878	-0.325	3.761	-2.173	2.344	-1.187	2.296	-2.215	2.626	-1.003	2.566	-3.017	5.324	-2.658	5.267
B_LTD (t-1)	0.104	0.100	0.135	0.097	-0.120	0.142	-0.067	0.135	0.258	0.144 *	0.265	0.140 *	0.258	0.149 *	0.260	0.145 *	0.191	0.552	0.229	0.548
F_NEARBYFIRM (t-1)	9.7E-05	5.5E-05 *	1.0E-04	5.5E-05 *	1.3E-04	8.9E-05	1.3E-04	8.9E-05	1.7E-05	7.0E-05	2.0E-05	7.0E-05	-1.0E-05	7.5E-05	-6.4E-06	7.5E-05	1.1E-04	2.0E-04	1.3E-04	2.0E-04
F_NEARBYINDEXP (t-1)	0.000	0.004	0.000	0.004	-0.003	0.009	-0.002	0.009	0.002	0.005	0.002	0.005	0.004	0.005	0.004	0.005	-0.011	0.018	-0.011	0.018
IMPORTRATIO (t-1)	0.016	0.279	-0.001	0.279	-0.112	0.526	-0.133	0.525	0.009	0.339	-0.005	0.340	-0.351	0.387	-0.368	0.388	1.485	0.763 *	1.490	0.765 *
FOREIGN (t-1)	0.000	0.000 *	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001
TFP (t-1)	0.212	0.170	0.200	0.170	-0.430	0.318	-0.441	0.317	0.232	0.209	0.221	0.209	0.255	0.232	0.240	0.232	-0.230	0.502	-0.221	0.502
F_CASH (t-1)	0.435	0.187 **	0.423	0.187 **	1.145	0.351 ***	1.153	0.350 ***	0.425	0.229 *	0.416	0.229 *	0.356	0.257	0.350	0.257	0.825	0.517	0.800	0.518
Firm random effect	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Industry effect	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Year effect	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Number of obs.	19,942				5,406				14,536				11,367				3,169			
Number of groups	4,780				1,245				3,816				3,064				1,077			
Obs. per group: Min	1				1				1				1				1			
Average	4.2				4.3				3.8				3.7				2.9			
Max	10				10				10				10				10			
Wald chi2	163.29		160.48		83.94		86.53		124.25		116.71		115.27		108.65		41.89		39.95	
Prob > chi2	0.0000		0.0000		0.0000		0.0000		0.0000		0.0000		0.0000		0.0000		0.1966		0.2596	
Log likelihood	-8405.8		-8407.3		-2484.6		-2483.4		-5877.5		-5881.4		-4709.0		-4712.4		-1146.8		-1147.9	
Likelihood-ratio test of rho=0																				
Chibar2	271.33		273.28		29.16		28.69		246.21		249.96		171.58		174.79		62.58		62.54	
Prob >= chibar2	0.0000		0.0000		0.0000		0.0000		0.0000		0.0000		0.0000		0.0000		0.0000		0.0000	

Note: ***, **, and * indicate significance at the 1, 5, and 10% level, respectively.

Next, Table 6 shows the results for the exit from exporting. They indicate, first, that for SMEs, *BANKINFO_AVR* lowers the probability that a firm will stop exporting. In other words, firms are more likely to continue exporting when their lender banks have more information on export markets, implying that maintaining relationships with such lender banks reduces firms' recurring fixed costs associated with exporting, such as updating information on overseas markets.[8] Second, in contrast with the results for *NEW_EXP* and *NEW_REGION*, in the estimation here main banks' loan-to-deposit ratio (*B_LTD*) plays a significant role, lowering the likelihood that firms exit from exporting. This means that firms whose main bank provides loans more readily are more likely to remain exporters. A possible interpretation is that such firms may find it easier to borrow funds from their main bank for trade financing and other export-related expenses and therefore are more likely to continue exporting. And third, a higher *FFORINV* and a higher *IMPORTRATIO* significantly reduce the probability that firms will stop exporting, suggesting that a firm's own international transactions such as foreign investments and imports help the firm to continue exporting.

Table 6: Estimation results for STOP_EXP

Random-effect panel logit	(a) All firms				(b) Large firms				(c) SMEs											
													(c1) Medium-sized firms				(c2) Small firms			
Dependent variable: STOP_EXP(t)	(i) Main bank		(ii) Average		(i) Main bank		(ii) Average		(i) Main bank		(ii) Average		(i) Main bank		(ii) Average		(i) Main bank		(ii) Average	
	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.
BANKINFO (t-1)	-0.334	0.642			-1.571	1.204			0.016	0.794			0.056	0.931			-0.339	1.603		
BANKINFO_AVR (t-1)			-1.491	0.795 *			-0.182	1.519			-2.227	0.974 **			-2.588	1.163 **			-1.186	1.840
BANKBR (t-1)	-0.002	0.002			-0.002	0.005			-0.002	0.003			0.000	0.003			-0.005	0.006		
BANKBR_AVR (t-1)			-0.006	0.004			-0.008	0.008			-0.004	0.004			0.002	0.005			-0.019	0.009 **
FFORINV (t-1)	-4.426	0.863 ***	-4.357	0.862 ***	-3.042	1.570 *	-3.039	1.575 *	-4.765	1.066 ***	-4.705	1.062 ***	-4.716	1.249 ***	-4.674	1.246 ***	-4.419	1.988 **	-4.450	2.003 **
JBIC (t-1)	-0.697	0.806	-0.609	0.806	-0.785	1.154	-0.787	1.155	-0.566	1.174	-0.459	1.174	-0.422	1.190	-0.311	1.193	N.A.	N.A.	N.A.	N.A.
B_SIZE (t-1)	0.009	0.039	0.011	0.033	-0.020	0.089	-0.004	0.078	0.024	0.044	0.024	0.037	-0.001	0.053	-0.004	0.044	0.061	0.086	0.088	0.070
B_CAP (t-1)	5.853	3.120 *	5.559	3.052 *	12.594	7.316 *	13.155	7.183 *	4.575	3.552	4.132	3.479	1.748	4.246	1.510	4.145	10.718	6.731	10.308	6.682
B_LTD (t-1)	-0.489	0.225 **	-0.469	0.221 **	-0.136	0.327	-0.198	0.322	-0.689	0.323 **	-0.623	0.316 **	-1.230	0.442 ***	-1.154	0.434 ***	0.483	0.597	0.543	0.593
F_NEARBYFIRM (t-1)	-8.8E-05	1.1E-04	-6.6E-05	1.1E-04	4.5E-05	2.1E-04	6.0E-06	2.1E-04	-3.1E-05	1.4E-04	8.4E-06	1.3E-04	6.7E-05	1.5E-04	1.1E-04	1.5E-04	-3.9E-04	3.0E-04	-3.7E-04	3.0E-04
F_NEARBYINDEXP (t-1)	-0.011	0.010	-0.010	0.010	0.015	0.020	0.015	0.020	-0.023	0.013 *	-0.022	0.013 *	-0.028	0.015 *	-0.028	0.015 *	0.002	0.026	0.002	0.026
IMPORTRATIO (t-1)	-1.054	0.515 **	-1.055	0.515 **	-1.599	1.269	-1.583	1.276	-1.056	0.583 *	-1.070	0.582 *	-0.600	0.672	-0.628	0.672	-2.576	1.211 **	-2.465	1.216 **
FOREIGN (t-1)	0.000	0.001	0.000	0.001	0.000	0.001	0.000	0.001	0.000	0.001	0.000	0.001	0.000	0.001	0.000	0.001	-0.011	0.011	-0.011	0.011
TFP (t-1)	-0.819	0.285 ***	-0.787	0.285 ***	-0.413	0.662	-0.436	0.663	-0.628	0.335 *	-0.592	0.334 *	-0.837	0.398 **	-0.804	0.398 **	0.868	0.645	0.870	0.649
F_CASH (t-1)	0.045	0.316	0.061	0.316	-0.031	0.746	-0.040	0.747	-0.124	0.367	-0.094	0.367	-0.046	0.441	-0.029	0.441	-0.660	0.671	-0.577	0.675
Firm random effect	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Industry effect	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Year effect	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Number of obs.	19,942				5,406				14,536				11,367				3,169			
Number of groups	4,780				1,245				3,816				3,064				1,077			
Obs. per group: Min	1				1				1				1				1			
Average	4.2				4.3				3.8				3.7				2.9			
Max	10				10				10				10				10			
Wald chi2	191.07		195.62		57.94		56.58		152.10		157.77		123.6		127.82		60.38		63.25	
Prob > chi2	0.0000		0.0000		0.0117		0.0158		0.0000		0.0000		0.0000		0.0000		0.0049		0.0024	
Log likelihood	-4551.2		-4548.6		-997.0		-997.7		-3519.6		-3516.5		-2570.7		-2568.1		-915.4		-912.9	
Likelihood-ratio test of rho=0																				
Chibar2	275.18		275.03		66.92		67.76		217.45		215.00		170.58		169.54		34.93		35.66	
Prob >= chibar2	0.0000		0.0000		0.0000		0.0000		0.0000		0.0000		0.0000		0.0000		0.0000		0.0000	

Note: ***, **, and * indicate significance at the 1, 5, and 10% level, respectively.

Finally, Table 7 presents the estimation results for the intensive margin (i.e., the export-to-sales ratio, *EXP_SALES*). The table shows the following. First, the most important finding is that although, as seen above, information from lender banks has a positive effect on firms' extensive margin of exports (starting and stopping exporting and expanding export destinations), it does not have any significant impact on firms' intensive margin of exports. This result implies that the information provided by banks mainly reduces the fixed costs (rather than the variable costs) associated with exporting. Second, among the independent variables, firms' overseas investment (*FFORINV*) shows a negative impact on the intensive margin. This suggests that own exporting activities and overseas production may be substitutes. Third, the foreign ownership ratio (*FOREIGN*) in most cases has a positive and significant impact on the intensive margin of exports, suggesting that foreign participation tends to increase export intensity. This result indicates that cooperation with foreign parent firms or investors in export markets plays an important role. However, in the case of small firms, *FOREIGN* has a significant negative impact (column (c2)). A possible reason is that the aims or characteristics of foreign investors investing in small firms differ from those of investor in large firms. This is an interesting result that warrants closer investigation, which, unfortunately, is beyond the scope of the present study. Fourth, while transacting with JBIC did not have any significant effect on the extensive margins (Tables 4 to 6), it does have a weakly significant positive effect on the intensive margin in the sample consisting of all firms. This result suggests that JBIC helps to increase the exports of Japanese firms by financing their export activities, and that this provision of financing from JBIC lowers the variable costs incurred by exporting firms. This is consistent with the fact that firms usually consult with JBIC with regard to trade financing once they have decided to start exporting rather than before deciding to do so. However, the variable *JBIC* is insignificant in all the estimation results using subsamples (columns (b) and (c)). This suggests that the effect

of transacting with JBIC more or less overlaps with the effect of firm size, but another reason may be that only a small number of exporters (especially SMEs) borrow from JBIC. As shown in Table 3 above, only 0.5 percent of exporters report that JBIC is one of their top-ten lender banks. Nevertheless, the results in Table 7 indicate that JBIC plays some part in promoting and increasing exports by Japanese firms.

Table 7: Estimation Results for EXP_SALES

Fixed-effect panel estimation	(a) All firms				(b) Large firms				(c) SMEs											
													(c1) Medium-sized firms				(c2) Small firms			
Dependent variable: EXP_SALES(t)	(i) Main bank		(ii) Average		(i) Main bank		(ii) Average		(i) Main bank		(ii) Average		(i) Main bank		(ii) Average		(i) Main bank		(ii) Average	
	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.	dy/dx	Std. dev.
BANKINFO (t-1)	0.001	0.017			0.026	0.031			-0.004	0.021			0.013	0.023			-0.045	0.049		
BANKINFO_AVR (t-1)			-0.018	0.020			0.023	0.039			-0.029	0.024			-0.011	0.027			-0.105	0.053 **
BANKBR (t-1)	0.000	0.000			0.000	0.000			0.000	0.000			0.000	0.000			0.000	0.000		
BANKBR_AVR (t-1)			0.000	0.000			0.000	0.000			0.000	0.000			0.000	0.000			0.000	0.000
FFORINV (t-1)	-0.084	0.014 ***	-0.084	0.014 ***	0.046	0.049	0.044	0.049	-0.098	0.014 ***	-0.097	0.014 ***	-0.101	0.014 ***	-0.100	0.014 ***	0.022	0.076	0.026	0.076
JBIC (t-1)	0.022	0.013 *	0.023	0.013 *	0.013	0.017	0.012	0.018	0.013	0.020	0.015	0.020	0.013	0.020	0.014	0.020	N.A.	N.A.	N.A.	N.A.
B_SIZE (t-1)	-0.001	0.001	-0.001	0.001	-0.001	0.002	-0.003	0.002 *	-0.001	0.001	-0.001	0.001	-0.001	0.001	-0.001	0.001	0.002	0.002	0.001	0.002
B_CAP (t-1)	-0.039	0.076	-0.059	0.073	-0.125	0.168	-0.190	0.162	-0.003	0.083	-0.004	0.081	-0.007	0.094	-0.010	0.092	0.177	0.179	0.164	0.177
B_LTD (t-1)	0.008	0.004 *	0.008	0.004 *	0.007	0.007	0.009	0.007	0.010	0.006 *	0.010	0.006 *	0.011	0.006 *	0.012	0.006 *	0.002	0.023	0.002	0.023
F_NEARBYFIRM (t-1)	-3.5E-06	7.3E-06	-3.3E-06	7.3E-06	-3.0E-06	1.3E-05	-2.8E-06	1.3E-05	-2.1E-06	9.9E-06	-2.3E-06	9.9E-06	-8.4E-06	1.1E-05	-8.5E-06	1.1E-05	1.6E-05	3.4E-05	1.3E-05	3.4E-05
F_NEARBYINDEXP (t-1)	0.000	0.000	0.000	0.000	-0.001	0.001	-0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.001	0.002	-0.001	0.002
IMPORTRATIO (t-1)	-0.022	0.019	-0.022	0.019	-0.137	0.038 ***	-0.136	0.038 ***	0.003	0.022	0.002	0.022	-0.066	0.025 ***	-0.067	0.025 ***	0.293	0.053 ***	0.292	0.053 ***
FOREIGN (t-1)	3.4E-05	1.2E-05 ***	3.5E-05	1.2E-05 ***	9.0E-05	2.6E-05 ***	8.8E-05	2.6E-05 ***	1.4E-05	1.3E-05	1.5E-05	1.3E-05	2.5E-05	1.4E-05 *	2.6E-05	1.4E-05 *	-7.0E-05	3.8E-05 *	-6.6E-05	3.8E-05 *
TFP (t-1)	0.023	0.010 **	0.023	0.010 **	0.018	0.022	0.017	0.022	0.018	0.011	0.018	0.011	0.003	0.013	0.003	0.013	0.036	0.027	0.036	0.027
F_CASH (t-1)	0.006	0.014	0.007	0.014	-0.001	0.031	0.000	0.031	0.008	0.016	0.009	0.016	-0.007	0.018	-0.007	0.018	0.041	0.039	0.045	0.039
Firm fixed effect	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Year effect	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Number of obs.	19,862				5,326				14,536				11,367				3,169			
Number of Groups	4,778				1,222				3,816				3,064				1,077			
Obs. per group: Min	1				1				1				1				1			
Average	4.2				4.4				3.8				3.7				2.9			
Max	10				10				10				10				10			
F-value	163.78		163.76		63.14		63.24		95.26		95.4		78.01		78.02		18.72		18.91	
Prob > F	0.0000		0.0000		0.0000		0.0000		0.0000		0.0000		0.0000		0.0000		0.0000		0.0000	
R-sq: Within	0.2070		0.2070		0.2708		0.2711		0.1761		0.1763		0.1844		0.1845		0.1722		0.1737	
Between	0.0109		0.0106		0.0231		0.0228		0.0156		0.0154		0.0111		0.0111		0.0323		0.0313	
Overall	0.0482		0.0478		0.0758		0.0754		0.0411		0.0409		0.0354		0.0351		0.0448		0.0463	
Corr (u_i, Xb)	-0.0280		-0.0290		-0.0202		-0.0209		-0.0189		-0.0197		-0.0451		-0.0461		-0.0505		-0.0456	
F test that all u_i=0:																				
F-value	12.56		12.56		12.04		12.06		12.42		12.43		12.01		12.02		11.55		11.57	
Prob > F	0.0000		0.0000		0.0000		0.0000		0.0000		0.0000		0.0000		0.0000		0.0000		0.0000	

Note: ***, **, and * indicate significance at the 1, 5, and 10% level, respectively.

To summarize, the results obtained in the empirical analysis suggest that information on foreign markets provided via various channels, especially through lender banks, substantially reduces the fixed costs of exporting. The findings thus highlight that channels of information spillovers other than those examined in the literature so far may be of considerable importance. Moreover, information spillovers from lender banks appear to be particularly important for SMEs, which typically have fewer transaction partners (suppliers and customers) than larger firms and lack the internal resources to gather information on export markets.

5. Concluding Remarks

This study examined the role of information spillovers through lender banks in the context of firms' export decisions. To do so, we used a unique dataset containing information not only on Japanese firms' export activities and the presence of nearby exporting firms, but also on their lender banks' experience in transacting with other exporting firms and lender banks' own overseas activities. The estimation results indicate that information spillovers through the banks positively affect SMEs' decision to start exporting and expand their export destinations. The information spillovers also reduce the likelihood of firms stopping to export. The export-to-sales ratio of exporters, however, is not affected by such information spillovers. These results imply that information on foreign markets provided by lender banks substantially reduces the fixed entry costs of exporting as well as the costs associated with maintaining firms' export status.

The research presented in this study could be expanded in a number of directions. One such direction would be to extend our analysis to examine other important

dimensions of firms' international activities such as foreign direct investment. A further potentially interesting extension would be to use the model in this study to analyze how the impact of changes in currency exchange rates interacts with information spillovers through lender banks. A depreciation of the yen can be expected to encourage Japanese firms to start exporting or increase their exports. Therefore, information spillovers through lender banks may have a larger positive impact on firms' export decision during a period when the home currency is weak than when it is strong. We believe all of these extensions would provide further insights to gain a better understanding of firms' export dynamics and the role of lender banks.

This study also provides an important policy implication. As mentioned in the introduction, even though export promotion has been a key policy tool in many countries, our knowledge as to what factors are important in determining whether a firm becomes an exporter still remains very limited. With regard to Japan, many firms, particularly SMEs, do not export even though they are sufficiently profitable and/or actively invest in research and development. Promoting exports by these firms is an urgent policy issue for Japan, given demographic trends and the prolonged sluggishness of domestic demand. This study has highlighted the importance of banks' role as providers of information for potential exporters, especially SMEs, suggesting that the government should proactively involve banks in its export promotion policies.

On the other hand, banks may also be interested in providing more support services for firms trying to expand their business abroad. In fact, small banks in particular face a situation in which their client firms are experiencing declining domestic demand and are therefore concerned that their own business may shrink. Helping such banks to build international service networks and building on the support services provided by banks may allow the government to implement its export promotion policies more effectively. Moreover, since banks have accumulated substantial information on their client firms'

business, they may have useful knowledge on what type of firms should receive support from the government and on what type of support is most effective. Of course, government and non-profit organizations already provide various support services for firms' international business and for trading companies. Information provided by such organizations or trading companies is complementary to information collected by banks through lending relationships, and it is important for the government to effectively utilize these various information sources for export promotion policies.

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Appendix 1: Summary Statistics

(a) All firms

	All firms			Exporters			Non-exporters		
Variable	Obs.	Average	Std. dev.	Obs.	Average	Std. dev.	Obs.	Average	Std. dev.
TFP	77,305	0.009	0.156	22,526	0.050	0.162	54,779	-0.008	0.150
F_CASH	77,305	0.553	0.173	22,526	0.580	0.154	54,779	0.542	0.179
F_NEARBYFIRM	77,305	310.452	534.795	22,526	428.008	608.762	54,779	262.111	493.162
F_NEARBYINDEXP	77,305	2.488	5.611	22,526	4.667	7.196	54,779	1.592	4.515
FOREIGN	77,305	5.774	56.487	22,526	14.565	88.610	54,779	2.160	35.062
IMPORTRATIO	70,680	0.019	0.068	21,529	0.046	0.095	49,151	0.008	0.046
FFORINV	77,305	0.012	0.050	22,526	0.033	0.076	54,779	0.004	0.029
BANKINFO	77,305	0.217	0.074	22,526	0.240	0.071	54,779	0.207	0.074
BANKINFO_AVR	77,305	0.214	0.059	22,526	0.237	0.057	54,779	0.204	0.057
BANKBR	77,305	15.049	21.236	22,526	17.932	22.416	54,779	13.863	20.615
BANKBR_AVR	77,305	12.920	12.280	22,526	15.116	12.589	54,779	12.018	12.035
B_SIZE	77,305	16.428	1.539	22,526	16.718	1.496	54,779	16.308	1.541
B_CAPRATIO	77,305	0.044	0.014	22,526	0.043	0.014	54,779	0.044	0.014
B_LTD	77,305	0.578	0.202	22,526	0.599	0.233	54,779	0.570	0.188
JBIC	77,305	0.002	0.047	22,526	0.005	0.067	54,779	0.001	0.036

(b) Large firms

	All firms			Exporters			Non-exporters		
Variable	Obs.	Average	Std. dev.	Obs.	Average	Std. dev.	Obs.	Average	Std. dev.
TFP	9,778	0.083	0.149	5,876	0.101	0.150	3,902	0.056	0.144
F_CASH	9,778	0.525	0.154	5,876	0.537	0.143	3,902	0.507	0.167
F_NEARBYFIRM	9,778	553.905	650.779	5,876	600.068	663.208	3,902	484.389	625.287
F_NEARBYINDEXP	9,778	4.377	6.902	5,876	5.519	6.879	3,902	2.656	6.574
FOREIGN	9,778	16.823	80.969	5,876	22.328	90.707	3,902	8.533	62.653
IMPORTRATIO	9,136	0.036	0.088	5,663	0.049	0.096	3,473	0.014	0.068
FFORINV	9,778	0.034	0.062	5,876	0.051	0.072	3,902	0.009	0.030
BANKINFO	9,778	0.252	0.079	5,876	0.261	0.078	3,902	0.237	0.079
BANKINFO_AVR	9,778	0.246	0.062	5,876	0.255	0.061	3,902	0.232	0.060
BANKBR	9,778	19.247	22.452	5,876	20.354	22.744	3,902	17.580	21.902
BANKBR_AVR	9,778	16.111	12.458	5,876	16.890	12.527	3,902	14.938	12.262
B_SIZE	9,778	16.900	1.448	5,876	17.011	1.410	3,902	16.733	1.489
B_CAPRATIO	9,778	0.042	0.013	5,876	0.041	0.013	3,902	0.043	0.013
B_LTD	9,778	0.640	0.321	5,876	0.645	0.318	3,902	0.632	0.324
JBIC	9,778	0.007	0.085	5,876	0.010	0.099	3,902	0.004	0.060

(c) SMEs

	All firms			Exporters			Non-exporters		
Variable	Obs.	Average	Std. dev.	Obs.	Average	Std. dev.	Obs.	Average	Std. dev.
TFP	67,527	-0.002	0.154	16,650	0.032	0.162	50,877	-0.013	0.150
F_CASH	67,527	0.557	0.175	16,650	0.595	0.155	50,877	0.544	0.179
F_NEARBYFIRM	67,527	275.200	506.236	16,650	367.286	576.229	50,877	245.064	477.287
F_NEARBYINDEX	67,527	2.214	5.343	16,650	4.366	7.281	50,877	1.510	4.306
FOREIGN	67,527	4.175	51.801	16,650	11.825	87.697	50,877	1.671	31.926
IMPORTRATIO	61,544	0.017	0.064	15,866	0.044	0.095	45,678	0.008	0.044
FFORINV	67,527	0.009	0.047	16,650	0.026	0.077	50,877	0.003	0.029
BANKINFO	67,527	0.211	0.072	16,650	0.233	0.066	50,877	0.204	0.073
BANKINFO_AVR	67,527	0.209	0.056	16,650	0.231	0.053	50,877	0.202	0.056
BANKBR	67,527	14.441	20.985	16,650	17.077	22.236	50,877	13.578	20.485
BANKBR_AVR	67,527	12.458	12.185	16,650	14.490	12.552	50,877	11.794	11.988
B_SIZE	67,527	16.359	1.540	16,650	16.614	1.511	50,877	16.276	1.540
B_CAPRATIO	67,527	0.044	0.014	16,650	0.043	0.014	50,877	0.044	0.014
B_LTD	67,527	0.570	0.177	16,650	0.583	0.191	50,877	0.565	0.172
JBIC	67,527	0.001	0.039	16,650	0.003	0.052	50,877	0.001	0.033

(d) Medium-sized firms

	All firms			Exporters			Non-exporters		
Variable	Obs.	Average	Std. dev.	Obs.	Average	Std. dev.	Obs.	Average	Std. dev.
TFP	45,298	0.012	0.154	12,959	0.043	0.160	32,339	0.000	0.150
F_CASH	45,298	0.556	0.174	12,959	0.593	0.151	32,339	0.541	0.180
F_NEARBYFIRM	45,298	291.272	518.487	12,959	377.732	581.793	32,339	256.626	486.549
F_NEARBYINDEX	45,298	2.382	5.699	12,959	4.434	7.554	32,339	1.559	4.502
FOREIGN	45,298	5.417	58.654	12,959	13.465	92.927	32,339	2.192	36.364
IMPORTRATIO	41,357	0.019	0.067	12,354	0.045	0.094	29,003	0.008	0.047
FFORINV	45,298	0.011	0.053	12,959	0.028	0.082	32,339	0.004	0.034
BANKINFO	45,298	0.216	0.073	12,959	0.234	0.067	32,339	0.208	0.073
BANKINFO_AVR	45,298	0.213	0.056	12,959	0.232	0.054	32,339	0.206	0.056
BANKBR	45,298	15.144	21.307	12,959	17.451	22.400	32,339	14.219	20.781
BANKBR_AVR	45,298	13.046	12.211	12,959	14.779	12.497	32,339	12.351	12.024
B_SIZE	45,298	16.438	1.530	12,959	16.651	1.503	32,339	16.352	1.532
B_CAPRATIO	45,298	0.044	0.014	12,959	0.043	0.014	32,339	0.044	0.014
B_LTD	45,298	0.577	0.197	12,959	0.587	0.204	32,339	0.573	0.194
JBIC	45,298	0.002	0.043	12,959	0.003	0.058	32,339	0.001	0.036

(e) Small firms

	All firms			Exporters			Non-exporters		
Variable	Obs.	Average	Std. dev.	Obs.	Average	Std. dev.	Obs.	Average	Std. dev.
TFP	22,229	-0.031	0.150	3,691	-0.008	0.162	18,538	-0.036	0.147
F_CASH	22,229	0.559	0.176	3,691	0.602	0.167	18,538	0.550	0.177
F_NEARBYFIRM	22,229	242.448	478.649	3,691	330.610	554.773	18,538	224.894	460.002
F_NEARBYINDEX	22,229	1.873	4.514	3,691	4.127	6.223	18,538	1.424	3.939
FOREIGN	22,229	1.644	33.633	3,691	6.068	65.821	18,538	0.763	22.120
IMPORTRATIO	20,187	0.013	0.057	3,512	0.043	0.100	16,675	0.007	0.039
FFORINV	22,229	0.005	0.030	3,691	0.020	0.057	18,538	0.002	0.020
BANKINFO	22,229	0.203	0.071	3,691	0.228	0.063	18,538	0.198	0.071
BANKINFO_AVR	22,229	0.200	0.056	3,691	0.225	0.051	18,538	0.195	0.055
BANKBR	22,229	13.009	20.238	3,691	15.764	21.603	18,538	12.461	19.910
BANKBR_AVR	22,229	11.262	12.044	3,691	13.473	12.689	18,538	10.821	11.862
B_SIZE	22,229	16.199	1.548	3,691	16.485	1.532	18,538	16.142	1.545
B_CAPRATIO	22,229	0.045	0.014	3,691	0.044	0.014	18,538	0.045	0.014
B_LTD	22,229	0.554	0.125	3,691	0.571	0.137	18,538	0.551	0.123
JBIC	22,229	0.001	0.027	3,691	0.000	0.016	18,538	0.001	0.028

Appendix 2: BANKINFO Variable

The table shows the distribution of *BANKINFO* for the top 76 banks as of the end of FY2000 in our dataset. Banks are sorted in descending order in terms of *BANKINFO*. *NUM_CLIENT* is the number of total client firms of each bank.

Ranking	*NUM_CLIENT*	*BANKINFO*	Ranking	*NUM_CLIENT*	*BANKINFO*
1	126	0.44	39	780	0.21
2	76	0.41	40	3,033	0.20
3	56	0.38	41	54	0.20
4	62	0.34	42	69	0.20
5	3,347	0.31	43	499	0.20
6	1,670	0.30	44	508	0.20
7	7,035	0.30	45	3,312	0.19
8	1,232	0.30	46	493	0.19
9	58	0.29	47	208	0.18
10	453	0.29	48	4,544	0.18
11	2,110	0.28	49	83	0.18
12	378	0.28	50	504	0.18
13	107	0.27	51	100	0.18
14	616	0.27	52	553	0.18
15	828	0.27	53	73	0.18
16	9,582	0.26	54	377	0.18
17	1,109	0.26	55	97	0.18
18	7,492	0.26	56	263	0.17
19	1,196	0.26	57	975	0.17
20	55	0.25	58	476	0.17
21	402	0.25	59	279	0.17
22	1,044	0.25	60	143	0.17
23	4,705	0.24	61	54	0.17
24	206	0.24	62	186	0.17
25	167	0.24	63	642	0.17
26	71	0.24	64	716	0.16
27	3,234	0.24	65	147	0.16
28	1,384	0.24	66	295	0.16
29	416	0.24	67	136	0.16
30	143	0.23	68	94	0.16
31	561	0.22	69	208	0.16
32	185	0.22	70	1,400	0.16
33	224	0.21	71	57	0.16
34	571	0.21	72	541	0.16
35	260	0.21	73	552	0.15
36	128	0.21	74	145	0.15
37	171	0.21	75	179	0.15
38	627	0.21	76	317	0.15

ENDNOTES

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[1] Other strands in the literature examine the relationship between firms' export status and their innovative capacity, the price and/or quality of their products, various country characteristics, and institutional factors such as free trade agreements, economic diplomacy, and so on.

[2] That financial institutions likely play an important role in determining client firms' export activities has recently been highlighted in studies by Amiti and Weinstein (2011), Paravisini *et al*. (2011), Feenstra *et al*. (2013), and Miyakawa *et al*. (2013).

[3] The survey asks for the amount as well as the destination or origin of exports and imports broken down into seven regions (Asia, Middle East, Europe, North America, Latin America, Africa, and Oceania). Unfortunately, more detailed information on the destination of exports and origin of imports is not available.

[4] Although the survey also asks non-manufacturing firms for information on exports and imports, they are required to provide the amount of trade in goods only. The survey started to ask about international transactions in services in the 2010 survey.

[5] In this study, we calculate firms' TFP level following Fukao *et al*. (2011), using the multilateral TFP index method developed by Good *et al*. (1997). Specifically, the TFP level of firm *i* in industry *j* in year *t*, $TFP_{i,j,t}$ is defined in comparison with the TFP level of a hypothetical representative firm in the benchmark year t_0 in industry *j*. The benchmark year t_0 is set to the year 2000 in this study.

[6] The first nearby-firm variable, *F_NEARBYFIRM*, represents the number of firms located in the same city for each firm. The second nearby-firm variable, *F_NEARBYINDEXP*, represents the number of exporting firms belonging to the same industry and located in the same city for each firm.

[7] For an overview of the origins of the main bank system, see, e.g., Hoshi and Kashyap (2001).

[8] Like Baldwin and Krugman (1989), we assume that once firms have started exporting they need to pay some fixed costs to continue exporting. For example, firms still have to invest in marketing, reputation, distribution, and so on, to remain in export markets. Baldwin and Krugman (1989) call these costs "maintenance cost."

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