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Abstract

This paper provides new insights into how financial globalization relates to international trade. Exploiting unique, time-varying, bilateral data on foreign bank ownership for many countries, we show that, for emerging markets, greater local foreign bank presence, especially from the importing country, is associated with higher exports in sectors more dependent on external finance. The association does not arise for advanced countries and is stronger when institutions are weaker. The presence of a bank from the importing country is also associated with higher exports in sectors with more opaque products. Results are robust to controlling for domestic financial development and a full set of fixed effects. An event study confirms findings and shows impacts to be more pronounced when a foreign bank enters through an M&A. Imports also increase after entry, but less so. Overall, results suggest that foreign banks facilitate trade in emerging markets by increasing the availability of external finance and helping overcome information asymmetries.

Key words: Foreign banks, international trade, credit constraints, financial development.

JEL classification: F14, F15, F21, F36, G21.

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1. Introduction

The global financial crisis severely disrupted international bank lending (Cetorelli and Goldberg, 2011; Giannetti and Laeven, 2012; De Haas and Van Horen, 2013) and was followed by an unprecedented collapse in international trade (Levchenko, Lewis and Tesar, 2010; Alessandria, Kaboski and Midrigan, 2011; Bems, Johnson and Yi, 2013). It highlighted the strong financial and economic interdependence of countries and raised questions about the relationship between financial globalization and trade integration. While substantial evidence indicates that greater domestic financial development and access to finance can facilitate international trade (see Contessi and de Nicola, 2012 and Foley and Manova, 2015 for surveys) and that shocks to banks' health can impede trade (e.g., Amiti and Weinstein, 2011; Chor and Manova, 2012), surprisingly little is known as to whether financial globalization generally, and banking integration specifically, positively affect international trade and through which channels.

This paper attempts to shed light on this issue. It provides new evidence on the relationship between global banking integration and international trade by examining how the local presence of foreign banks affects trade. It exploits unique, time-varying, bilateral data on foreign bank ownership for a large group of advanced countries and emerging markets. It presents several sets of evidence which together indicate that for the latter group foreign banks in general and those from the importing country in particular facilitate exports (and to a lesser extent imports) by increasing external finance available to exporters and by overcoming information asymmetries. These findings suggest that in emerging markets financial globalization through foreign direct investment by banks enables trade integration.

One can think of a number of reasons why foreign bank presence might benefit exporting firms and thereby positively affect trade. First, foreign banks might increase the availability of external finance in a country. They can do so directly by moving funds into the exporting country from their parent banks or international financial markets, or by raising (hitherto untapped) funds locally. Or they can do so indirectly by introducing new and better technologies and increasing competition in the local banking system, which can raise the quality and reduce the cost of financial intermediation overall, especially in countries at lower levels of institutional and financial development (see Claessens and Van Horen, 2013, for a review). This increase in

external finance likely benefits especially firms that (want to) export as the external financing needs for such firms tend to be greater compared to those of domestic producers.[1]

Second, foreign banks might be especially well positioned to provide the financial products that exporters need, such as letters of credit to overcome credit risks or derivatives to hedge currency risk. Providing these products is a specialized business mostly done by a limited set of banks with the required size, global focus and reach; yet these banks are headquartered in only a limited number of countries (Del Prete and Federico, 2014; Niepmann and Schmidt-Eisenlohr, 2016). As they can utilize their parents' expertise, the foreign affiliates of these banks likely have an advantage providing such specialized products, especially compared to domestic banks in financially less developed countries.

Third, foreign banks might be more willing to lend to exporters if they can reduce contracting problems specific to trade more effectively than domestic banks can. Due to the imperfect enforcement of international contracts and payments, selling products overseas comes with greater risks, which in turn impedes trade (Rodrik, 2000; Anderson and Marcouiller, 2002). Various mechanisms exist that can help reduce these risks. These include reputation (Banerjee and Duflo, 2000), customized contract terms (Antràs and Foley, 2015), and bank guarantees such as letters of credit (Schmidt-Eisenlohr, 2013). Having foreign banks present locally can offer another mechanism. By being present in multiple countries, foreign banks are likely better able to deal with international enforcement issues in general. And when present in both the importing and exporting country they can more easily assure contracts on both sides of the transaction. The existence of such (bilateral) bank linkages can also enhance the credibility of payment guarantees (Olsen, 2016).

Fourth, foreign banks might be more willing to lend to firms that (want to) trade as they can more easily overcome certain information asymmetries.[2] Portes and Rey (2005) conjecture that the presence of foreign banks from the importing country in the exporting country facilitates

[1] Compared to selling goods domestically, selling products overseas often involves substantial upfront sunk and fixed costs, like learning about profitable export opportunities and setting up foreign distribution networks. In addition, long time lags associated with international transactions often imply higher working capital needs.

[2] Some evidence indicates that, especially at low levels of financial development, foreign banks tend to lend more to firms that are larger and informationally less opaque (Mian, 2006; Gormley, 2010), which can even lead to a reduction in overall credit in a country (Detragiache, Tressel and Gupta, 2008). However, even with such outcomes, the local presence of foreign banks can still positively impact the availability of external finance for exporting firms.

the flow of information regarding risks on both the importer and exporter side of the transaction.[3] Michalski and Ors (2012) formalize this idea and argue in the context of the United States that a bank can charge a lower premium for financing projects related to trade between two states when the bank is present in both states, as it allows for better collecting and sharing information, and thus better assessment of risks. Foreign banks might similarly be more willing to finance exporting firms, especially those that export to the country in which they are headquartered.

Based on these arguments, one can expect the presence of foreign banks in an exporting country, in general and specifically when from the importing country, to positively correlate with exports. To test these conjunctures, we exploit unique, time-varying, bilateral data on foreign bank ownership for 99 countries that trade with 117 countries and match that with sectoral, bilateral export data for 28 manufacturing sectors for the period 1995-2007. This dataset provides a unique opportunity to examine the role of foreign banks in trade and the channels through which they do so.

Our foreign bank ownership data are particularly suitable for this analysis for several reasons. First, the database contains a large number of exporting countries that differ widely in terms of foreign bank presence and in many instances experienced large changes in foreign bank presence over the sample period (Figure 1). This allows us to exploit in our analysis both cross-section and time-series variation in foreign bank presence. Second, the exporting countries differ substantially in their level of financial development, yet financial sector development is not very correlated with foreign bank presence (Figure 2). As such, we can study the impact of foreign bank presence over and above that of general financial sector development.[4] Third, the fact that the countries in our sample are at varying levels of development enables us to examine which specific country characteristics most affect the relationship between foreign bank presence and exports. Fourth, the dataset allows us to examine the impact of both the presence of foreign banks in general and the presence of a foreign bank from the importing country in the exporting country. This helps us shed further light on the channels through which foreign banks facilitate

[3] The role of bank branches in transmitting information has also been suggested by Choi, Tschoegl and Yu (1986, 1996) and by Jeger, Haegler and Theiss (1992). In the literature several other mechanisms have been identified that can mitigate informational barriers impeding trade. These include ethnic networks (Rauch and Trindade, 2002), building trust (Guiso, Sapienza and Zingales, 2009), establishing business relationships (Cristea, 2011 and Poole, 2016), the use of letters of credit (Ahn, 2011) and banking relationships formed through bank-to-bank syndicated lending (Caballero, Candelaria and Hale, 2016).

[4] Claessens and van Horen (2014) show that foreign bank presence can be explained by various factors, only one of which is a country's financial development.

trade. Finally, since we know exactly the year in which a foreign bank from a specific home country enters a country, we can conduct an event study around these entries and examine the direct and indirect effects of foreign bank entry on exports (and on imports) and study as well to what extent bank heterogeneity plays a role.

In our empirical setup, we exploit industry variation with respect to a firm's dependency on external finance. For technological reasons, producers in certain industries typically incur higher up-front financing needs that cannot be generated internally and thus require more external finance (Rajan and Zingales, 1998). As this industry characteristic is innate to the manufacturing process, it is unlikely determined by the presence of foreign banks.[5] If foreign banks (directly or indirectly) increase the availability of external finance and trade finance related products in a country, then their presence should have a stronger impact on exporters in external finance dependent industries. Also, if foreign banks overcome information and contracting risks and therefore are more willing to lend to exporters, then their presence should again disproportionally affect exporters in industries with high external finance needs. Importantly, our use of sectoral data allows us to control for exporting country, importing country and pair characteristics that might simultaneously influence foreign bank presence and exports, and thus importantly reduces concerns that our results are biased due to omitted variables.

We present several sets of results that collectively shed light on how foreign bank presence and trade relate. Our first set of results is based on panel regressions. We find a positive relationship between foreign bank presence and exports in sectors more dependent on external finance, with this relationship particularly strong when a foreign bank from the importing country is present. This result controls for the impact of domestic financial development and is robust to including a full set of fixed effects (exporter-year, importer-year, industry and pair). We also show that foreign bank presence is only associated with trade in the subset of emerging markets and not in advanced countries and that in emerging markets the effect of presence of a foreign bank from the importing country is especially strong when institutions are weak.

The economic effects we find are substantial. For the subset of emerging markets, an increase in foreign bank presence by one standard deviation means exports in sectors at the 75th

[5] Exploiting variation across 28 manufacturing sectors in the expected impact of increased availability of external finance is frequently done in the literature studying the impact of financial development on economic growth and trade (see, among others, Cetorelli and Gambera; 2001; Fisman and Love, 2007; Manova, 2013).

percentile of the distribution of external finance dependency are 8.1 percentage points higher than in sectors at the 25th percentile. A similar increase in the presence of foreign banks from the importing country implies an increase of 10.1 percentage points. These economic effects are in magnitude about half of the impact of general financial sector development (22.0 percentage points).

Next, to specifically examine the role of foreign banks in facilitating the exchange of information, we differentiate between sectors naturally suffering more or less from information asymmetries (Rauch, 1999). If foreign banks facilitate the flow of information and reduce information asymmetries, foreign bank presence should especially benefit exports in more opaque sectors. Interestingly, we find that while both general foreign bank presence and the presence of a bank from the importing country are positively correlated with exports in external finance dependent industries, only the presence of foreign banks from the importing country matters for exports in opaque industries. This result is consistent with the idea that the role of information transmitter is primarily performed by foreign banks from the importing country, whereas the role of provider of finance can be performed by all foreign banks.

Finally, we conduct an event study, where we study (trend corrected) growth rates before and after the entry of a foreign bank, thus effectively controlling for all variations in initial conditions at the country pair-industry level at the time of entry. We show that, in emerging markets, after entry of a bank from the importing country, bilateral exports grow disproportionately faster in sectors more dependent on external finance and more opaque. In addition, we show that the entry of a bank from importing country *j* in exporting country *i* also has a stronger impact on exports from country *i* to third countries in which a bank from importing country *j* was already present in both sectors more dependent on external finance and more opaque (the latter effect, however, is much weaker compared to that due to the establishment of a direct link). These results confirm the dual role of foreign banks as providers of trade related finance and as information transmitters, with the latter logically smaller for indirect links.

Studying the heterogeneity of bank entries, we find that the positive relationship between entry and exports in external finance dependent industries largely comes about when foreign banks enter through an M&A. Furthermore, we find (weak) evidence that the entry of a foreign bank from the importing country has a stronger impact on exports in opaque sectors when the distance between the two countries is large. Finally, studying how foreign bank entry affects

imports, we find that imports by firms in external finance dependent industries grow faster after entry, but with effects (much) weaker compared to the ones we find for exports and not extending to more opaque sectors.

Establishing a causal relationship between the presence of foreign banks and trade is challenging: globally active banks do not choose the countries in which they invest randomly and their decisions could be affected by current or expected trade flows between the countries. As the various estimation strategies employed cannot fully overcome all possible sources of endogeneity, results need to be interpreted as evidence of correlations rather than causality.[6] Nevertheless, the many pieces of evidence we provide all point towards the same explanation: foreign banks facilitate trade by increasing external finance available to exporters (and importers) and by overcoming information asymmetries. This is the main contribution of our paper.

Our paper adds to two main strands in the literature. First, it contributes to the growing literature on finance and trade and especially to the recent literature studying the impact of financial integration on trade. Substantial empirical evidence indicates that domestic financial development importantly facilitates trade, both at the country- (Beck, 2002, 2003; Svaleryd and Vlachos, 2005; Hur, Raj and Riyanto, 2006; Manova, 2013; Becker, Chen and Greenberg, 2013) and firm-level (Greenaway, Guariglia and Kneller, 2007; Muûls, 2015; Manova, Wei and Zhang, 2015; Berman and Hericourt, 2010; Minetti and Zhu, 2011). [7] However, only a few papers focus specifically on the impact of financial integration on trade. Focusing on within-country banking integration, Michalski and Ors (2012) show that in the United States, greater interstate bank ownership linkages are associated with higher interstate trade. In an international context, Portes and Rey (2005) show for a sample of 14 advanced countries that the presence of foreign bank branches from the importing country in the exporting country is significantly correlated with trade in goods and assets at the country-level. Bronzini and D'Ignazio (2012) find that Italian firms more likely export to a country if their bank has an affiliate in that country. Caballero, Candelaria and Hale (2016) find that the establishment of a bank linkage between two countries through participation in an international loan syndicate is positively correlated with trade flows

[6] Note that, besides our various controls, studying sectoral differences in opaqueness reduces concerns of reverse causality: while foreign banks may enter a country in expectation of export growth in sectors more dependent on external finance, this concern does not apply to industry levels of product opaqueness as (expected) growth in exports in these sectors is unlikely to trigger foreign bank entry.

[7] Some papers (Do and Levchenko, 2007; Braun and Raddatz, 2008), however, point out the possibility of reverse causality: higher export demand could lead to higher observed levels of private credit.

between these countries, especially when export risk is high. Studying financial market integration, Manova (2008) shows that after equity market liberalization, as opposed to banking integration, exports increase disproportionately in external finance dependent industries. We add to this literature by studying the impact of (bilateral) foreign bank presence on trade for a large subset of countries. We not only show that foreign bank presence is positively associated with trade, but also provide insights into the channels through which it may do so.

Second, our paper relates to the literature on the impact of banking integration in general and foreign bank presence in particular. Not surprisingly in light of the global financial crisis, the recent literature has mainly focused on the risks of spillovers associated with global banking (see, among others, Kalemli-Ozcan, Papioannou and Perri, 2013; De Haas and Van Lelyveld, 2014; Ongena, Peydro and Van Horen, 2015). However, earlier studies showed that banking integration can have substantial advantages. For example, foreign banks have been found to increase local competition (Claessens, Demirguc-Kunt and Huizinga, 2001), improve access to financial services for (some) firms and households (Clarke, Cull, Martinez Peria and Sanchez, 2003, Martinez-Peria and Mody, 2004), and increase real economic growth (Bruno and Hauswald, 2013). And banking integration in tranquil times allows funds to be channeled more efficiently and business cycles to diverge (Kalemli-Ozcan, Papioannou and Peydro, 2013). Our paper contributes to this literature by showing that through foreign ownership, a globalized banking system can play a positive economic role by facilitating international trade.

The remainder of the paper is structured as follows. The next section describes the different data sources we use and combine. Section 3 presents results based on our panel regressions, including a number of robustness tests. In Section 4 we employ event studies in order to add additional robustness to our findings and to shed further light on the channels through which foreign banks affect trade. Section 5 concludes.

2. Data

We want to examine whether the local presence of foreign banks affects trade. To this end, we exploit time-varying, bilateral data on foreign bank ownership in combination with bilateral, sectoral data on exports. We also use sectoral data on external financial dependency and product

opaqueness. We describe these data in detail here, leaving the description of the control variables we use to the next section.

2.1 Foreign bank presence

Our primary data source is the bank ownership database constructed by Claessens and Van Horen (2015). The database contains ownership information of 5,324 banks that were active for at least one year between 1995 and 2013 and that reported financial statements to Bankscope.[8] It covers 137 countries and coverage is very comprehensive, with banks included accounting for 90 percent or more of each country's banking system assets. A bank is considered foreign owned if 50 percent or more of its shares is owned by foreigners.[9] The residence of its main owner is determined as the country which holds in total the highest share among foreigners.[10] We match the ownership data with balance sheet data provided by Bankscope. We use data up to 2007 to ensure that our results are not affected by the global financial crisis.

The bank ownership database has three features important for our analysis. First, the ownership information is time-varying. This means that we can determine the importance of foreign banks in the banking system in the exporting country for each year in our sample period. Second, for each foreign bank and for each year, we know the country in which its main foreign shareholder is headquartered (the exact parent bank itself is not known, however). This means we can determine the importance of foreign banks from each importing country in overall financial intermediation in the exporting country for each year. Third, since we know exactly the year in which each foreign bank enters a country, we can conduct an event study around those entries.

We define foreign bank presence (FB_{it}) as the share of the assets of all foreign banks active in exporting country *i* in total bank assets in the country at time *t*. The asset share is our preferred measure as it captures the importance of foreign banks in financial intermediation in an

[8] As the database only includes banks that report financial statements to Bankscope, it mainly covers foreign-owned subsidiaries and not branches or representative offices, which (in general) do not report separate balance sheet information. This however works against us as it implies an underestimation of the presence of foreign banks.

[9] As with any data collection effort, some choices had to be made. As it is virtually impossible to collect exact shareholder information and changes therein over time for such a large sample of banks and long period, the database only provides information of foreign ownership at the 50 percent cut-off. While this cut-off is generally used in the literature on foreign banks, it does imply that we are unable to analyze foreign bank presence based on different cut-offs.

[10] This implies that a foreign bank may be considered French owned, even though French investors only hold 20 percent while German and UK shareholders each hold 15 percent. In most cases, however, a foreign bank is majority owned by one parent bank. For further details see Claessens and Van Horen (2015).

exporting country (i.e., there can be many foreign banks present, but if they are small, niche players then their role in overall financial intermediation would be marginal). In order to examine whether the presence of foreign banks from importing country *j* has an additional effect over and above general foreign bank presence, we create a variable capturing the importance of importing country foreign banks (IFB_{ijt}). This variable is defined the same way as FB_{it}, except that now only foreign banks from the importing country are taken into consideration in the nominator. Unfortunately, bank asset information is only reliable available from 2005 onwards, reducing our sample period for the panel regressions to 2005-2007.

We exclude a number of countries from our sample: offshore centers, since very specific factors may drive a bank's decision to enter those;[11] and exporting countries for which the share of banks with asset information available from Bankscope is less than 60 percent in at least one year between 2005 and 2007 (since foreign bank presence cannot be reliably determined if asset information is missing for too many banks).[12] This leaves us with a final sample of 99 exporting and 117 importing countries. Appendix Table 1 provides a list of all exporting countries in our sample, with their share of foreign banks, the number of foreign banks present, and from how many different home countries they come from (all as of 2007).

In 2007, 1,043 foreign banks headquartered in 77 different home countries were active in the sample of 99 exporting countries. The importance of foreign banks in that year varies greatly by exporting country and ranges from zero (e.g., Ethiopia) to 100 percent, as for some other African countries. On average, 11 foreign banks from six different home countries are present in an exporting country. In most countries where foreign banks are present, banks from several different home countries are active and only in very few countries (only 11 out of 99) are foreign banks from only one country present. In other words, the correlation between FB_{it} and IFB_{ijt} is very low (only 0.16). Also, while in 91 percent of the 9,913 possible exporting-importing combinations in our sample at least one foreign bank is present, in only eight percent of these pairs this involves a bank headquartered in the importing country.

[11] We define the following countries as offshore centers: Andorra, Antigua and Barbuda, Bahamas, Bahrain, Barbados, Bermuda, British Virgin Islands, Cayman Islands, Cyprus, Liechtenstein, Mauritius, Netherlands Antilles, Panama, Seychelles and Singapore.

[12] Because of this, China is not included in our list of exporting countries.

2.2 Industry classifications

Our empirical methodology follows the literature and exploits industry differences with respect to dependency on external finance. For technological reasons innate to the manufacturing process, producers in certain industries typically incur higher up-front financing needs that cannot be generated internally, thus requiring more external finance (Rajan and Zingales, 1998). This industry characteristic is widely viewed as sector-specific, technologically-determined and innate to the manufacturing process, and unlikely determined by the presence of foreign banks. At the same time, if foreign banks (directly or indirectly) increase the availability of external finance and trade finance related products in a country, then their presence should have a stronger impact on exports in external finance dependent industries. Also, if foreign banks overcome information and contracting risks, and therefore are more willing to lend to exporters, then their presence should again disproportionally affect exports in industries with high external finance needs. Hence, a positive relationship between foreign bank presence and exports should be especially prevalent for external finance dependent industries.

To further shed light on the information role of foreign banks, we also differentiate sectors by their opaqueness. Information asymmetries are larger in sectors that produce goods that are more differentiated or whose value is harder to assess as reference prices are not available compared to products that are more homogenous and easier to price and value (Rauch, 1999).[13] Again, the level of an industry's opaqueness is innate to the manufacturing process and unlikely determined by foreign bank presence. If foreign banks facilitate the flow of information and reduce information asymmetries, foreign bank presence should especially benefit exports in more opaque sectors. We would thus expect a more positive relationship between foreign bank presence and exports in more opaque industries.

Sectors are defined at the 3-digit ISIC industry classification system and our sample includes 28 manufacturing sectors. External finance dependency is defined as the fraction of total capital expenditure not financed by internal cash flows from operations for which we use the measure provided by Manova (2013), in turn based on Braun (2003). This measure is constructed using data for all publicly-listed US-based companies available in Compustat and averaged over

[13] For example, petroleum products are generally traded on (international) markets and easy to price. In contrast, the sectoral classification "apparel" applies to a much more differentiated group of products whose values are hard to assess.

1986-1995 for the median firm in each industry.[14] To determine a sector's opaqueness, we use the data from Rauch (1999) and proxy relative opaqueness by the share of products in the sector that has a reference price (i.e., are traded on organized exchanges or have a price listed in trade publications). If the share of products that is reference priced is high, then the sector is deemed to be less differentiated and therefore less opaque. The original Rauch measure of non-differentiated products is at the 3-and 4-digit level SITC, but we use one aggregated to the 3-digit level ISIC-level.[15] Appendix Table 3 lists for all 28 sectors in our sample the ratios used for external finance dependency and opaqueness.

2.3 Trade data

We obtain data on bilateral trade flows for 134 countries at the 3-digit ISIC industry level for our 28 manufacturing sectors from the UN COMTRADE database for the period 1989-2007.[16] As expected, the value of exports and number of trade partners differ greatly across countries and sectors. Appendix Table 2 reports for each exporting country the total exports for the 28 manufacturing sectors, the number of different sectors in which a country exports, and the number of trading partners (all as of 2007). We then merge these data with our foreign bank presence and sectoral data, as well as various data that we use as country control variables (discussed in the next section).

3. The role of foreign banks in trade: panel analysis

Our empirical analysis consists of two parts. In this section we use panel regressions to examine to what extent and under what conditions foreign bank presence, both in general and from the importing country, correlate with bilateral sectoral exports. In the next section we use an event

[14] Even though sectoral characteristics could differ across countries, these measures are typically constructed using US data for three reasons. First, as the US has one of the most advanced financial systems, the behavior and choices of firms likely reflect optimal choice of external financing, and not financing constraints. Second, detailed firm-level data needed to construct the variables are not available for many countries. Finally, for our empirical strategy only a relative ranking of sectors is needed; therefore using US data is not a problem if industries' relative ranking is the same across countries even if the exact magnitudes may vary.

[15] We thank Prof. James E. Rauch for sharing the percentage of opaque products at our 3-digit ISIC industry level.

[16] The trade data start earlier in order to be able to calculate export growth rates for the event studies in Section 5 for those entries taking place early in the sample period.

study to examine how the entry of a foreign bank from the importing country relates to growth in sectoral exports to that country, as well as with imports from that country.

3.1 Empirical methodology

We start our analysis by examining, in a panel regression framework, whether a greater presence of foreign banks is associated with a higher level of exports in sectors more dependent on external finance. To this end, we regress the log of the value of exports from country *i* to country *j* in 3-digit ISIC sector *s* at year *t*, on our measures of general and bilateral foreign bank presence both interacted with the sectoral measure of external finance dependency. Our identification thus rests on allowing the impact of foreign bank presence to vary by sectors that differ with respect to their dependency on external finance. If foreign banks facilitate trade by increasing the availability of external finance and trade related financial product and by reducing information and contracting risks, then their presence should disproportionally benefit exports in those sectors more dependent on external finance. As Manova (2013) and others have already shown, countries with a higher level of financial development tend to export relatively more in sectors that require more outside capital. We allow for this effect as well by interacting the level of domestic financial development with the sector's measure of external finance dependency. Our specification therefore examines the role of foreign banks in facilitating trade over and above the impact of domestic financial development.

Our baseline model is as follows:

$$lnE_{ijst} = \beta_1 FB_{it} \cdot findep_s + \beta_2 IFB_{ijt} \cdot findep_s + \beta_3 FD_{it} \cdot findep_s + \kappa' X + \varepsilon_{it} + \mu_{jt} + \varphi_s + k_{ij} + \eta_{ijst},$$

where subscripts *i* and *j* denote exporting and importing country respectively, and *s* and *t* denote sector and year respectively. The dependent variable E_{ijst} equals the (log of) exports from country *i* to country *j* in sector *s* in year *t*; FB_{it} the share of foreign banks in the exporting country *i* at time *t* in terms of assets; IFB_{ijt} is defined the same way as FB_{it} except that only foreign banks from importing country *j* are taken into account; FD_{it} measures the financial development in the exporting country *i* at time *t* as captured by private credit to GDP*;* $findep_s$ measures the external finance dependency of sector *s;* k' is a coefficient vector, and X is a matrix of control

variables which includes in all specifications IFB_{ijt} and, depending on the set of fixed effects, also (the log of) the distance between the exporting and importing country, FB_{it} and FD_{it} on their own, and the (log of dollar) GDPs of the exporting and importing country; ε_{it} is a vector of exporter-year fixed effects; μ_{jt} is a vector of importer-year fixed effects; φ_s is a vector of industry-fixed effects; k_{ij} is a vector of pair fixed effects; and η_{ijst} is the error term. Regressions are estimated using OLS and standard errors are clustered by exporting-importing pair-years. The sample period is 2005-2007. To make sure our results are not affected by extreme observations, we drop outliers at the 99th percentile.[17] Table 1 provides some summary statistics on the key dependent and independent variables, while Appendix Table 4 provides the detailed description and the sources of all the variables used.

3.2 Baseline results

In Table 2 we provide the results based on our baseline regression model and using different combinations of fixed effects. We find (column 1) that countries with greater foreign bank presence export relatively more in sectors more dependent on external finance. We also find that a greater presence of foreign banks from the importing country has a positive effect for sectors more dependent on external finance, in addition to the effect of general foreign bank presence. Importantly, these effects are in addition to the positive impact of domestic financial sector development (i.e., we confirm the findings of previous studies). We also confirm the importance of the standard gravity variables, GDP in the exporting and importing country, and distance.

The rest of the table demonstrates that the results are robust to adding exporter, importer and year fixed effects (column 2), exporter-year and importer-year fixed effects (column 3), exporter-year, importer-year and industry fixed effects (column 4) and a full set of fixed effects including pair fixed effects (column 5). The inclusion of exporter fixed effects allows us to control for all time invariant exporting country factors that might simultaneously influence foreign bank presence (or financial development) and the level of exports, while the fixed effects at the importer level control for general importing country characteristics. The year fixed effects control for general shifts in exports, including through global factors affecting demand. The inclusion of exporter-year and importer-year fixed effects means we control for all time-varying

[17] Results are robust to winsorizing at the 99th percentile.

and time-invariant exporting country factors that might simultaneously influence foreign bank presence (or financial development) and the level of exports, and for time-varying changes in demand at the importer side. GDP in both exporting and importing country as well as foreign bank presence and financial development, are subsumed in these fixed effects. Industry fixed effects allow us to control for other (time-invariant) sector characteristics that might affect trade patterns, and these fixed effects subsume the sectoral external finance dependency. The pair fixed effects control for distance and any differences or similarities in culture or other institutional factors between importer and exporter country that might simultaneously affect trade (costs) and the presence of foreign banks from the importing country.

We find in all four specifications that the interactions between general and bilateral foreign bank presence and external financial dependency remain significant at the one percent level. Furthermore, the coefficients largely remain of the same magnitude, except for the interaction between bilateral foreign bank presence and external financial dependency which declines somewhat when we add the industry fixed effects and (not surprisingly) even more so when we add the pair fixed effects.

Effects are economically significant. In the most saturated (and therefore preferred) specification of column 5 our point estimates indicate that an increase in foreign bank presence (in terms of assets) by one standard deviation means exports in the sector at the 75th percentile of the external finance dependency distribution are 4.2 percentage points higher than in the sector at the 25th percentile of the distribution. An increase in the presence of a foreign bank from the importing country by one standard deviation implies an increase of 5.3 percentage points comparing the 25th and the 75th percentiles. While economically a smaller effect compared to general domestic financial development (28.9 percentage points for one standard deviation), these increases are by no means marginal. Furthermore, as we will show in Section 3.4, these effects double in economic magnitude when we consider the subsample of emerging markets.

The results so far suggest that the presence of foreign banks provides for additional financing for firms that trade, which allows them to increase their exports. In the next sections we examine the robustness of this finding and set out to refine it.

3.3 Robustness tests

We conduct a number of robustness tests in which we include additional fixed effects and various other country variables that may also affect exports, including through interactions with the industry measure of external finance dependency. Results are reported in Table 3, where column 1 repeats the regression results of Table 2, column 5. In general, the results show that our findings are robust to adding more fixed effects and control variables.

In the first robustness regression (column 2), we replace the importer-year and industry fixed effects with importer-year-industry fixed effects, i.e., a full matrix of all 117 importers times 28 sectors times the three years. This way we control for any demand and price effects that may vary by importer, by sector and over time. The statistical significance and size of the coefficient of the interaction of external finance dependence with the presence of foreign banks from the importing country remains virtually unchanged, while the coefficient of the interaction term with general foreign bank presence increases somewhat. In the second robustness test (column 3), we include importer-exporter times year fixed effects, i.e., a full matrix of pairwise dummies interacted with the three years, thus allowing all bilateral factors that might simultaneously affect trade and the presence of foreign banks (from the importing country) to vary between years. Here, we exclude the bilateral foreign bank presence variable as it is subsumed in the fixed effects. The significance and size of the interactions of external finance dependency with general and bilateral foreign bank presence remain again essentially unchanged.

Countries differ, besides in their domestic financial development and the presence of foreign banks, in other ways that can affect their export performance. While the various fixed effects we use already control for any time-invariant and time-varying exporting country characteristics, there could be country characteristics that affect exports in external finance dependent sectors differently and that confound the correlation with foreign bank presence. As a further robustness test, we therefore include the exporting country's level of credit information and the cost of enforcing contracts as two key institutional development indicators and interact these two variables with the sectoral measure of external finance dependency. We find (column 4) that better export performance also comes about in part through general easier access to external finance due to an environment with better information and a less costly legal system. Importantly, however, the significance of the coefficients related to the role of foreign bank presence is not affected. The coefficient for the interaction of general foreign bank presence and

financial development with external finance dependency become somewhat smaller though, likely because the other two country variables take on some of the beneficial effects of foreign bank presence and financial development. Interestingly, the effect of the presence of foreign banks from the importing country becomes larger.

Countries might also differ in their natural endowments which can affect their export performance. For example, a country rich in human capital may have a comparative advantage to export more in a sector that relies naturally more on human capital. Similar to Manova (2013), we use the following three country factor endowments: human capital intensity, physical capital intensity, and natural resource intensity. We interact these with the corresponding sectoral intensities, where the benchmarks are, similar to the external finance dependency measure, obtained from US corporate data. Regression results (column 5) show indeed that more human capital and natural resource intensive sectors export more in countries that are more endowed with capital and natural resources. Importantly, however, even with these extensive controls and interactions, the positive relationships between (bilateral) foreign bank presence and export performance in sectors more dependent on external finance are reconfirmed, with the two interaction coefficients equally statistically significant and only the interaction with general foreign bank presence somewhat smaller compared to the base regression.

Next, we address the concern that our result may be driven by other financial linkages that also help firms to export more. To this end, we include the stock of general FDI in and cross-border bank loans to the exporting country (both as a share of its GDP) and interact these variables again with our sectoral measures of external finance dependency. Results (column 6) show that in countries with relatively greater FDI and cross-border loans to GDP, exports are indeed larger in sectors more dependent on external finance. The effects of foreign bank presence on export performance, however, are reconfirmed, albeit with the coefficient on general foreign bank presence somewhat smaller.[18] Interestingly, since the ratio of cross-border loans to GDP interacted with sectoral external finance dependency is also positive, it suggests that while more

[18] The reduction in the parameter suggests that the share of foreign banks and the stock of general FDI are somehow related. Indeed, Poelhekke (2015) shows that the presence of a foreign bank tends to attract non-financial multinational enterprises (MNEs) from the same home country (i.e., firms follow their banks), with this effect especially strong in countries where investing is more hazardous. If these MNEs subsequently export back to their home country, this can be another channel through which foreign banks can facilitate trade. Unfortunately, for our large sample of countries bilateral FDI data are not available so we cannot examine whether this channel is also present.

substantial cross-border lending can be valuable too for promoting export, having foreign banks present locally still provides an important additional boost.

We also want to explicitly control for the possibility that foreign bank presence might not directly provide financing for exports (for those firms in sectors that are more dependent on external finance), but rather helps to increase the general economic activity of firms, both those domestically- and internationally-oriented. It could for example be that the entry of a foreign bank reduces credit constraints for (large) firms in general, as found in some papers (Mian, 2006; Giannetti and Ongena, 2009), and does not disproportionally scale up exports. We therefore include the (log of) the number of local establishments in the country by sector and year (the sample becomes substantially smaller as this information is not available for all countries). The results (column 7) show that the size of the interaction of overall foreign bank presence with financial dependency becomes slightly lower than in the base regression, but its significance does not change, indicating that we do not just capture exports increasing similar to domestic sales. The coefficient for the interaction of the presence of foreign banks from the importing country is again positive, but somewhat smaller and less precisely estimated (now only significant at the 10 percent level).[19]

Until now we only focused on the intensive margin as we dropped all pair-sector observations with no trade in a particular year. We did this for two reasons. The first one is conceptual. It should not necessarily be the case that the presence of a foreign bank has an impact, at the sector level, on the type of manufacturing products that a country exports. The selection of exports into certain sectors is affected by a country's comparative advantage and the availability of all production factors, of which access to finance is only one. Therefore, it is more likely that the presence of a foreign bank has an impact on growth in those sectors in which the country has already shown to have a comparative advantage. In fact, by studying the intensive margin at the sector level, we capture the impact of the presence of foreign banks on both the intensive and extensive margin at the firm-level, i.e., the amount of exports when exporting and the decision to export.[20]

[19] This is partly the result of the sample now being much more skewed towards advanced countries for which, as we show in the next section, foreign bank presence interacted with external finance dependency is not positively correlated with trade. When we exclude advanced countries from this regression, the interaction with general foreign bank presence is significant at the one percent level and with bilateral foreign bank presence at the five percent level (p-value 0.019).

[20] Without firm-level export data it is not possible to differentiate between the two sources of export growth.

The second reason is methodological. The variation in our variable capturing the share of foreign banks from the importing country is very limited as it is, as one would expect, often zero. In fact, if we take into account all possible pair-sector-year observations (i.e., including those with zero export) it is zero in 96 percent of the observations. Combined with a large number of fixed effects (exporter-year, importer-year, industry and pair) it becomes challenging to reliably estimate a model which captures the impact of bilateral foreign bank presence on both the intensive and extensive margin at the sector level.

Nevertheless, to assure that our results are not biased due to excluding the pair-sector-year observations that are zero, we conduct a Poisson regression which allows us to consider observations, including those without any trade, i.e., we investigate both the extensive margin, whether or not to export, and the intensive margin, the amount of exports. In order to achieve convergence, however, we have to drop exporter-importer pairs with non-zero trade for less than 10 percent of the observations.[21] The regression results remain similar (column 8), in that both general as well as bilateral foreign bank presence are positively related to exports in sectors more dependent on external finance. The presence of foreign banks from the importing country does not seem to have an additional impact above the impact of general foreign bank presence, as this interaction, albeit positive, it is less precisely estimated.

Finally, in unreported regressions, we examined whether our findings capture the impact of foreign banks or the impact of large banks (either foreign or domestic), which may be more international and therefore better able to promote exports. To this end, we calculate the combined market share of the five largest foreign, the five largest domestic, and the five largest (domestic and foreign) banks. We find that a higher market share of the top five foreign banks is positively related to exports in sectors more dependent on external finance. However, for the top five domestic banks we actually find the opposite result, i.e., the higher the share of these domestic banks, the lower exports are in external finance dependent industries. We find the same result when we take the market share of the five largest banks regardless of whether they are foreign or

[21] This lowers the share of zeros in the dependent variable from 50 to 36 percent. However, it is telling that it is very hard to receive convergence when estimating this model.

domestic owned. This shows that our findings are driven by the presence of foreign banks and not by large banks in general.[22]

3.4 Exporting country heterogeneity

We can expect the effects of foreign bank presence to be greater in emerging markets than in more advanced countries. For one, the means through which foreign banks are expected to facilitate trade (increasing the availability of external finance and trade finance related products in a country and overcoming information and contracting problems) should especially affect countries at lower levels of economic and financial development. In advanced countries where financial systems are more developed and financial constraints fewer, the added value of having foreign banks present, in terms of increasing the availability of external finance for exporters, is likely to be smaller. Also, in these countries, as they tend to be more sophisticated themselves, at least some domestic banks will be specialized in providing products specifically useful to financing trade, like letters of credit and foreign currency swaps. Furthermore, exporters in these countries tend to be less opaque and (credit) information on them is more readily available. Moreover, legal systems are better developed and the costs of enforcing contracts tends to be lower in advanced countries than in emerging markets. As such information asymmetries between lender and exporter are likely smaller and contracting risks lower in advanced countries. Related, exporters in emerging markets, especially when exporting to advanced countries, are more likely to (have to) supply goods through open account finance (Schmidt-Eisenlohr, 2013; Antras and Foley, 2015), implying these exporters need more working capital to finance those exports.

To test whether the impact of foreign banks differs between these two groups of countries, we split our sample of 99 exporting countries in emerging markets and advanced countries. The advanced country group includes the core OECD countries and the emerging markets group includes countries that were classified as middle or low income by the World Bank in 2000.[23]

When analyzing the impact of foreign bank presence in the group of advanced countries, we find that a larger foreign bank presence is not significantly related to exports in sectors more dependent on external finance (Table 4, column 1). Using our baseline model, we even find a

[22] Results do not change when we consider the market share of the top three largest banks.

[23] This implies that current OECD countries like Hungary, Czech Republic, Korea, Poland, Slovakia and Slovenia are included in the emerging market group. Results do not change when excluding them from the group.

significant negative instead of a positive relationship between bilateral foreign bank presence and exports in external finance dependent sectors. However, this result appears to be driven by an omitted factor. Specifically, when we control for trade among countries in the euro zone, which is a highly integrated trade as well as financial area, this result becomes insignificant. We therefore conclude that in advanced countries foreign banks are much less likely to have an additional impact over and beyond general financial sector development.[24]

Studying emerging markets only, we find that the relationship between foreign bank presence and exports in sectors more dependent on external finance is very strong (column 2), with the interactions with both general as well as bilateral foreign bank presence significant at the 1 percent level. In terms of economic significance, the results are quite striking: an increase in foreign bank presence in terms of asset shares by one standard deviation means exports in sectors at the 75th percentile of the distribution of external finance dependency are 8.1 percentage points higher than in sectors at the 25th percentile. A similar increase in the presence of foreign banks from the importing country implies an increase in exports of 10 percentage points. This increase is in economic magnitude equal to about half the impact of general domestic financial development (21.9 percentage points for one standard deviation in emerging markets). It appears thus, as expected, that the overall finding of a positive correlation between foreign bank presence (from the importing country) and exports in external finance dependent sectors is very much due to these banks' role in emerging markets.

We next examine within the group of emerging markets to what extent certain exporting countries' characteristics affect the relationship between foreign banks and exports. This will provide further insight into the circumstances that positively or negatively affect the role foreign banks can play in facilitating trade. Consistent with our earlier discussion, we differentiate between financial development, economic development, and institutional weaknesses, the latter

[24] This result does not necessarily contradict the findings of Portes and Rey (2005) who find a positive correlation between exports from country *i* to country *j* and the number of bank branches from country *j* present in country *i*. First, they study exports at the country level, while we study exports at the industry level. Without controlling for the euro zone effect, we also find that bilateral foreign bank presence (i.e., not interacted with external finance dependency) is positively correlated with aggregate exports. Second, their sample period is 1989-1996, a period in which some of the countries in their sample were much less developed than they are today. It also does not necessarily contradict the findings of Michalski and Ors (2012) who find that within the United States, trade shares are higher between states that allow for interstate bank branching. These authors also study aggregate and not sectoral trade patterns and focus on a much earlier time period (1977-1993) when information sharing mechanisms, even in a developed country like the United States, were less well developed.

captured by the availability of information and enforcement of contracts. For the reasons listed before, we can on one hand expect that within the subset of emerging markets the presence of foreign banks especially boosts exports in the lesser developed countries with weaker institutions and limited financial development. In these countries, foreign banks' specialized skills and technology may be especially valuable, allowing them to address and overcome such weaknesses and constraints, and thus to extend more external financing to firms and thereby help boost exports. On the other hand, foreign banks may find it harder to work in such environments, as they may need some basic financial and economic development as well as institutional infrastructure to operate. Overall therefore, the impact of these country characteristics could be ambiguous.

To examine how these differences matter and affect the general results, we use again our panel setup, but allow the impact of foreign bank presence, interacted again with sector dependency on external finance, to differ across exporting country characteristics. To capture differences in financial development, we use (as is done throughout the paper) the ratio of private sector credit to GDP. To differentiate by economic development, we distinguish between emerging markets and developing countries, the latter covering those countries not included in the Standard and Poor's Emerging Market and Frontier Market index. To capture differences in institutional environments, we use the availability of credit information and the cost of enforcing contracts, both obtained from the World Bank Doing Business Indicators. For each of the three continuous characteristics, we split the sample of exporting countries in two groups, low (bad) and high (good), using the 25th percentile of the respective distributions as cut-off.[25] Note that the correlations between these three variables range from -0.22 (between financial development and the cost of enforcing contracts) to 0.5 (between financial development and credit information), indicating that the splits capture different groups of countries.

The results, shown in Table 5, indicate that the impact of foreign banks varies by some of these characteristics. The interaction terms in the first column show that foreign bank presence, both in general and from the importing country, is more correlated with exports in sectors more dependent on external finance in countries with limited financial development. This is in line

[25] In the case of the cost of enforcement this means we take the distribution of the reciprocal of the costs, so that the lowest 25th percentile includes the countries whether the cost of enforcing contracts is the highest.

with the notion that foreign banks can especially play a positive role in providing finance for firms that trade when the domestic financial system is less developed.

The results in the next column show that our main result – that general foreign bank presence is correlated with a disproportional increase in exports in sectors more dependent on external finance – is less due to the least developed countries, as the interaction term is negative, suggesting that foreign banks in general may have a harder time operating and being effective in these countries (column 2). Similarly, we find that general foreign bank presence is less correlated with exports if the country's availability of credit information is more limited (column 3). There is also an indication of less effects if the ability to enforce contracts is lower (column 4), but this coefficient is not statistically significant. It thus appears that in such countries, foreign banks in general can less easily identify firms with trade opportunities and are less willing to lend to such firms. While general foreign bank presence may be less beneficial in emerging markets with weaker economic development, lower credit information and worse enforcement of contracts, we find that the impact on exports of the presence of a foreign bank from the importing country is especially large exactly in those markets as all three interaction terms (columns 2-4) with bilateral foreign bank presence are highly statistically significant positive. This striking result suggests that foreign banks from the importing country play an important role in helping exports especially in countries where informational and contracting problems are severe.

Overall, our results are consistent with the idea that foreign banks can facilitate export by reducing information asymmetries, by reducing contracting risks and by providing additional finance and financial products specifically useful to firms that trade or consider trading. The fact that the impact of foreign banks importantly depends on the financial, economic and institutional development of the exporting country is also consistent with other research which finds an important role for country heterogeneity as regard to the impact of foreign banks (see, among others, Claessens and van Horen, 2013).

3.5 Industry opaqueness

We next explore the relationship between foreign bank presence and the degree to which the sector's export products are more opaque. We conduct this additional analysis for two reasons. One, it sheds some light on one of the channels by which foreign banks can boost exports, namely overcoming information asymmetries. If the local presence of foreign banks facilitates

the flow of information, then it should especially benefit exports in sectors with more opaque products. Furthermore, as this flow of information is especially (or perhaps only) possible when a foreign bank from the importing country is present in the exporting country, we can expect the (additional) impact of the presence of such foreign banks to be particularly large. Second, it helps to address concerns that our results are affected by endogeneity. While it could be the case that foreign banks are present in (or enter) a country with high (expected) export growth in those sectors more dependent on external finance, it is much less likely that they are present in (or enter) a country because of (future) growth opportunities in sectors that are more opaque since there are much less obvious ways for foreign banks to capitalize on this.

We use the same setup as in the base regression, column 5 of Table 2, except that we consider now as (additional) sectoral characteristic the degree to which the sector exports opaque products. We measure relative opaqueness of the sector by the share of products for which reference prices are available (Rauch, 1999). Given the findings in the previous section, we only focus on the group of emerging markets.

The regression results are reported in Table 6, where, for ease of comparison, column 1 repeats our baseline result. We find, as the coefficients on the interaction terms are negative, that exports tend to be higher in more opaque sectors when the presence of foreign banks in general and those of the importing country in particular is higher (column 2). This suggests that overcoming information asymmetries is an important (additional) channel by which foreign banks help boost exports. As before, these effects are in addition to the impact of domestic financial development, as we include that variable also interacted with the sectoral opaqueness measure (not shown).

Interestingly, in column 3, where we include the interactions with both the sector's dependence on external finance and the opaqueness measure, we find that while both general foreign bank presence and the presence of a bank from the importing country are positively correlated with exports in external finance dependent industries, for exports in opaque industries only the presence of foreign banks from the importing country relates.[26] This result is consistent with the idea that the role of transmitting information and overcoming information asymmetries

[26] While the coefficient for IFB_{ijt} is insignificant for the interaction with external finance dependency, the impact of foreign banks from the importing country is still positive significant as captured by the coefficient for FB_{it}. There is just no differential impact between foreign banks headquartered in the importing country and foreign banks not headquartered in the importing country.

is primarily done by foreign banks from the importing country, whereas the role of provider of finance for exporters can be performed by all foreign banks.

4. The role of foreign banks in trade: event study

In the previous section, we established for the group of emerging markets a positive relation between the local presence of foreign banks, especially when from the importing country, and exports in sectors more dependent on external finance. Furthermore, we showed that the presence of a foreign bank from the importing country positively relates to exports in more opaque industries. In this section we set out to confirm these findings and explore them further by examining how the growth rate of exports in more external finance dependent and more opaque sectors reacts to the entry of a bank from the importing country in the exporting country, exploiting the long time-series of the foreign bank presence data. This event study approach further allows us to reduce the possibility that are results are biased due to endogeneity. We also use it to examine heterogeneity with respect to the type of foreign bank and to test whether the entry of a foreign bank affects the growth rate of imports.

4.1 Empirical methodology

In almost all exporting countries in our sample, at least one foreign bank was already active in 1995, the first year for which comprehensive foreign bank ownership data are available. Over the course of our sample period (1995-2007), however, in many exporting countries banks entered that were headquartered in countries from which no bank was yet present in that country. As such, the entry of the foreign bank meant a new bilateral bank link was established between the two countries.[27] We conduct an event study around these entries in which we compare the growth in sectoral exports to the importing country in the years after a bank from the importing country enters the exporting country for the first time with the growth in exports before entry. We exploit again the idea that bilateral exports in sectors more dependent on external finance and more opaque should be especially sensitive to the entry of a bank from the importing country.

[27] Since we do not observe the presence of branches or representative offices, the entry of a foreign subsidiary might not be the first time a bank from the importing country entered the exporting country, i.e., a bilateral bank link might already have been present through a branch or representative office. This biases our results downwards as one would expect the impact of the entry of the foreign subsidiary to be less if a branch or representative office is already present.

Comparing growth rates after entry with those before entry effectively amounts to including sector-country pair fixed effects and thus controls for differences in initial conditions at the sector-country pair level at the time of entry.

To assure we have sufficient years of export data after the event (at least three), and also to avoid the trade collapse in the wake of the global financial crisis to affect our results, we only consider foreign bank entries that took place between 1995 and 2004. For our sample of exporting countries, we identified 162 cases in which through such entry a new bilateral link was established.[28] These entries took place in 70 exporting countries and involved banks headquartered in 57 importing countries. Since it can take some time for the impact of foreign bank entry on exports to materialize, we define the dependent variable as the difference in (the log of) the average values of sectoral exports from country *i* to country *j* in the 3-digit ISIC sector over the three year window after the entry of the bank from country *j* in country *i* compared to the exports for the same bilateral combination in the three year window before.[29] By taking the three-year averages after and before the event, we also reduce the risks that our results are affected by transitory movements in exports. In addition, we want to be sure that in investigating the differences in exports we not just pick up the pre-entry sectoral trend growth. We therefore rebase the pre-entry growth in exports by subtracting the growth prevailing in 6 to 4 years prior to the entry of the bank. Finally, we drop outliers at the 1th and 99th percentile.[30]

The baseline model for the event study is thus as follows:

$$\Delta E_{ijs} = \alpha + \beta_1 X_s + \epsilon_t + \eta_{ijs},$$

where subscripts *i* and *j* denote exporting and importing country respectively, and *s* denotes sector. The dependent variable ΔE_{ijst} equals the log difference of exports from country *i* to country *j* in sector *s* between (*t-1, t-3)* and *(t-4, t-6)* and between (*t+1, t+3)* and *(t-1, t-3);* X_s

[28] Over the sample period a lot more entries took place in our sample of countries but these were entries of banks headquartered in a country of which another bank was already present. For example, in 1996 the Dutch ING Bank opened a subsidiary in Poland. However, as a subsidiary of Dutch ABN-Amro was already present in Poland at that time, the entry of ING Bank did not lead to the establishment of a new bilateral link between the Netherlands and Poland and therefore it is not included in our events.

[29] An issue with any event study is that one has to take a stance on the amount of time it takes for the impact of the event to materialize. To make sure our results are not dependent on this choice, we also examined the growth of exports four years after the event and in the year leading up to the event and found similar results (not reported).

[30] Results are also robust to winsorizing at the 1st and 99th percentile.

measures either the external finance dependency ($findep_s$) or the opaqueness ($opaque_s$) of sector s; and η_{ijs} is the error term. Since the foreign bank entries from the various importing country take place in different years in which exports may be growing in general at different rates, we also include entry-year fixed effects (ϵ_t). Regressions are estimated using OLS and standard errors are clustered at the exporter-importer pair level.

4.2 Impact of foreign bank entry

Table 7 provides the results based on our event study. We split the sample of exporting countries again in advanced countries and emerging markets to test whether the entry of a bank from the importing country has a stronger effect in the latter group. In the sample of (13) advanced countries, only 32 new bilateral links were established by banks from 21 importing countries. Entries establishing new bilateral links were more plentiful in emerging markets. In the sample of (57) emerging markets, 130 new bilateral links were established by banks from 53 importing countries.

The results in Table 7 confirm the findings of our previous panel analysis. While exports in sectors more dependent on external finance or more opaque do not experience higher growth after the establishment of a new bilateral link in advanced countries, we find for emerging markets a significantly positive coefficient on the sectoral external financing variable (column 2). The additional effect is economically very significant: moving from a sector in the 25th percentile of external finance dependency distribution to one in the 75th percentile, export growth is 9.8 percentage points larger after the foreign bank enters, which, compared to the mean (de-trended) growth rate of 8.2 percent is very substantial. Similarly, in emerging markets exports tend to grow faster in more opaque sectors after the entry of a bank from the importing country (column 4). Again, this additional effect is economically very significant: comparing a sector in the 25th percentile of opaqueness distribution to one in the 75th percentile, export growth is 21 percentage points higher after the foreign bank enters.

In some countries, foreign banks entered directly after a banking crisis, often as countries opened up their financial systems and banks were sold to foreigners. Therefore, it is possible that our result is upward biased if the crisis led to a reduction in exports in external finance dependent industries in the pre-entry period. If this were the case, the export increase that we observe is not due to the entry of a foreign bank from the importing country, but rather reflects past problems in

the domestic banking sector that depressed exports earlier. Using the crisis dating of Laeven and Valencia (2013), we identify all entries which took place within three years after a crisis. When we drop these (20) entries, the significance of external financial dependence and opaqueness does not change and the parameters become only slightly smaller (unreported).[31]

One of the important benefits of conducting an event analysis is that it effectively controls for variations in initial conditions at the sector-country pair level at the time of entry. This includes export growth already being high in sectors more dependent on external finance due to, for example, the presence of multinationals from the bank's home country in the exporting country. However, it is still possible that a foreign bank decides to enter a country because it expects future growth to be higher in external finance dependent sectors and it wants to take advantage of this growth opportunity, rather than that it causes this higher growth. While we cannot rule out this possibility, it is unlikely that it fully drives our results. For one, this expected future growth needs to be higher compared to the pre-entry trend growth. In addition, we document higher growth rates for more opaque sectors as well, and it is unlikely that expected future (and above trend) growth in more opaque industries would incentivize a bank to start operations in a country.

Nevertheless, we cannot fully rule out reverse causality. Therefore, as further evidence that foreign banks facilitate trade by increasing the availability of external finance and helping overcome information asymmetries, we conduct another event study. Specifically, we investigate how the entry of a bank from importing country *j* in exporting country *i* impacts exports between exporting country *i* and all other countries in which banks from importing country *j* are already present. In other words, we examine the impact of the creation of a new link between the exporting country and a third importing country. An example can clarify here. Suppose a bank from the United States enters Brazil for the first time (i.e., a new bilateral link is established). Also suppose that at the time of entry, foreign banks from the United States are already present in Canada and Mexico, but there are no banks from Canada and Mexico present in Brazil. In this situation, we can say that the entry of the US bank creates an indirect link between Brazil and

[31] Another potential driver of our results could be that entries coincide with the liberalization of the equity market in the exporting country which allows foreign capital to enter the country easier and which in itself has been found to have a positive impact on trade (Manova, 2008). However, if we drop those exporting countries where the equity market was liberalized in the three years before or after the entry of the foreign bank from the importing country, our results still hold.

Canada, and between Brazil and Mexico, as exporters in Brazil can now benefit from the fact that the bank from the United States also is present in Canada and Mexico. This is very close to an exogenous event, in that the newly established indirect relationships are very unlikely due to any pair-wise factors (in terms of anticipated bilateral trade or new investments), but rather due to an investment driven by almost completely orthogonal reasons.

To examine the impact of these newly established indirect links, we estimate the same model as for the direct event study, except that the dependent variable is now defined as the growth in sectoral exports between the newly, indirectly linked countries (e.g., Brazil and Canada, and Brazil and Mexico) comparing the three year period before and three year period after the event (i.e., the entry of a bank from the United States in Brazil), again compared to the growth rate prevailing in the period 6 to 4 years prior to the entry of the bank. In total, the 162 newly created bilateral links generate an additional 1,022 new indirect links, 265 for advanced countries and 757 for emerging markets.

The results in Table 8 show again (as expected) that there are no significant differences in export growth in external finance dependent or more opaque sectors after the establishment of a new indirect banking link for advanced countries (columns 1 and 3). For emerging markets on the other hand, we find that the entry of a bank from importing country *j* in exporting country *i* has a strong impact on exports to third countries in which a bank from importing country *j* was already present in both those sectors more dependent on external finance and more opaque (columns 2 and 4). Interestingly, we find that compared to the establishment of a direct link analyzed above, the parameter for external finance dependency is only 15 percent smaller, while the one on opaqueness about halves. These findings are in line with the idea that the entry of a foreign bank in general reduces financing constraints and that a foreign bank from the importing country especially reduces information asymmetries, with the latter benefit logically smaller in case of indirect links.

Summarizing, the event study results confirm the findings in the panel regressions and suggest a dual role of foreign banks as providers of (trade related) external finance and as agents overcoming information asymmetries. We next examine to what extent different types of foreign bank entry affect these results.

4.3. Heterogeneity of foreign bank entry

So far, we have explored variations among exporting countries as to the effects of foreign bank presence and entry, but not among the type of foreign banks. We could expect, however, that some types of foreign banks have a greater effect on exports. We therefore redo the analysis but differentiate whether entry was done along one of three dimensions: through a greenfield investment or a M&A; by a globally active or a non-globally active bank; or by a bank that is headquartered in a country that is close by or one far away from the exporting country.

We expect more benefits from an M&A entry on exports as in such a case the foreign bank can quickly capitalize on its presence to target (trade-related) financing to the acquired local bank's existing customers and more generally benefit from its knowledge of the local environment. We could expect an entry of a global bank to be more beneficial (in some countries) as those banks could bring specialized skills, say in trade finance and risk management, that are lacking in the local market, as well as a global network. But the scope for these gains would depend likely also on the local banking environment as global banks, which tend to be banks from advanced countries, might find it more difficult to do business in more challenging local environments (Van Horen, 2007). In terms of distance, often interpreted as a proxy for the degree of information asymmetries, we would expect that exports in more opaque sectors would increase more if the foreign bank is headquartered in a country which is further away as the scope for reducing information asymmetries is especially large in this case. For exports in sectors more dependent on external finance, the role of distance is a priori less clear. On the one hand, a foreign bank from a country that is further away could be more beneficial, as asymmetric information between importer and exporter is larger and contracting risks might be higher, which makes the presence of a foreign bank more important. On the other hand, foreign banks tend to find it more difficult to operate in a country that is further away (Mian, 2006), and as such, foreign banks from an importing country that is farther away might extend less financing to exporting firms.

In terms of data, information on greenfield investment vs. M&A entry is derived from the bank ownership database (Claessens and Van Horen, 2015) that we use throughout the paper.[32]

[32] There does not exist a mode of entry dummy in the database, but it can be inferred directly from it. For a greenfield investment the year of establishment is the same as the year of entry. The year of entry of an M&A is the year a bank switched from being domestic to being foreign owned or, if foreign owned, the year the home country

Using information on the home country, we define a globally active foreign bank as a bank that is headquartered in a country that has a foreign presence in more than ten countries at the time of entry.[33] And a country is deemed "close by" when its distance to the exporting country is less than the median distance of all country pairs in the sample. We split the sample along these dimensions and re-estimate the model previously outlined.[34] We use again sectors' external finance dependence and opaqueness. We focus exclusively on emerging markets as we previously showed that the entry of a foreign bank from the importing country only has a significant effect for this group of countries. As these are event studies, they all control for (any observable or unobservable) variations in initial conditions at the sector-country pair level at the time of entry.

Table 9 provides the regression results. In the first six columns we examine how the three bank characteristics affect the relationship between entry and growth in exports in more external finance dependent industries. We find the effect of entry through M&A to be much stronger compared to entry via a greenfield investment, with this difference statistically significant (column 2 vs. 1). This confirms our prior that by acquiring a bank instead of starting a new bank from scratch, a foreign bank benefits from the knowledge of the local environment embodied in the acquired entity, which makes it easier for the bank to extend financing to firms that export.[35]

The result on global versus non-global foreign bank is at first sight somewhat surprising (column 3 vs. 4). For all emerging markets we find only a significant positive impact for the non-

changed. Foreign to foreign M&A's are relatively rare during our sample period and only 5 percent of our new bilateral links are the result of a foreign to foreign M&A.

[33] As the database only provides information on the home country and not the parent bank, we do not know how globally active the parent bank itself is. However, since in general only the largest banks in a country engage in foreign direct investments, our country-measure of being globally active is a good proxy for how globally active the actual parent is.

[34] A subset of the sectors has a value of zero for opaqueness (i.e., there are no products in this sector for which reference pricing is available). Therefore, it is not meaningful to interact the sector measure of opaqueness with the three entry characteristics. For example, if we would interact opaqueness with the M&A dummy we would effectively compare export growth of the group of very opaque industries regardless of whether the investment is done through an M&A or greenfield and of less opaque industries with greenfield entry to the export growth of the group of less opaque sectors with M&A entry. As entry matters more for opaque industries, as we showed in Section 4.2, the parameter would pick up both this effect and the impact of the mode of entry, i.e., it is not able to differentiate between the two. We can therefore only study the impact of different types on entry on export in opaque industries using sample splits. This problem does not arise for the interaction with external finance dependency as none of its industry values are zero. If we run regressions for this sector classification using interactions instead of splitting the sample, the results are very similar to the ones we reported in Table 9.

[35] Note that we only study export growth in the first three years after entry. It is very well possible that over time, as a greenfield foreign bank gets more accustomed to the local lending environment, this difference becomes less pronounced.

global foreign banks. One could expect especially global banks to more likely bring specialized skills and trade finance related products and hence have a stronger impact. However, this result reflects important differences within emerging markets. When we split the group of emerging markets between those with very low and those with higher economic development, a different pattern emerges (results not shown for brevity): only in the group of emerging markets with the lowest economic development does the entry of a non-global foreign bank have a positive impact on exports in external finance dependent industries. In the group of more developed emerging markets, the impact of the entry of a global foreign bank is more pronounced (albeit not statistically significantly different from the impact of the non-global foreign bank). These results suggest that in the least developed markets where institutions are weak, global banks add somewhat less value through providing external financing. Non-global banks, which tend to be banks from within the same region, seem to be better equipped to deal with these markets, a result in line with the findings of Van Horen (2007).

When studying the difference in entry between a foreign bank headquartered in an importing country that is close by and far away, we do not find any difference in the impact on exports in external finance dependent sectors. Possibly the advantage of being headquartered in an importing country that is far away in terms of reducing information asymmetries and (possibly) contract enforcement risk is canceled out by the fact that it is more difficult to operate at a longer distance.

In the next six columns, we examine how the three bank characteristics affect the relationship between entry and growth in exports in more opaque industries. Again we find that entry through an M&A has a stronger impact compared to a greenfield investment, albeit the difference is not statistically different this time (column 8 vs. 7). This finding suggests that it is easier for a foreign bank to generate information about the exporter side of the transaction when taking over an existing bank. Whether the foreign bank is global or non-global does not seem to matter for its ability to reduce information asymmetries as both coefficients are significant and do not statistically differ from each other (column 9 vs. 10). Finally in terms of distance, the entry of foreign banks tends to have only a statistically significant impact on the growth in exports of more opaque sectors when the importing and exporting countries are far away, with the difference between the two groups close to being statistically significant (column 11 vs. 12). This finding is in line with the interpretation that the entry of a foreign bank from the importing

country can facilitate exports by overcoming information asymmetries as one would expect this beneficial impact to be larger the further away the exporting country is.

In unreported regressions we also examined to what extent bank size and business model affect the relationship between foreign bank entry and the growth in exports in external finance dependent and opaque industries. This comparison is complicated by the fact that we do not have reliable balance sheet information for banks prior to 2005. This effectively means that we can only compare foreign banks still active as of 2005 (i.e., the survivors) and have to assume that a particular foreign bank's balance sheet characteristics relative to those of the other entrants has not changed over time. Taking these caveats into account, we split the foreign banks into those with high (above median) and low (below median) market share, loan to deposit ratio and deposit to asset ratio and again run regressions on the various split samples. We found no evidence of a differential impact on export growth in more external finance dependent or opaque sectors related to the foreign bank's market share or funding model.

4.4. Foreign bank entry and imports

So far we only studied to what extent the presence or the entry of a foreign bank is related to export (growth) in more external finance dependent or opaque sectors. As a final test, we now look at the other side of the coin: the impact of foreign banks on imports. We use again the 162 entries that took place between 1995 and 2004 that led to the establishment of a new bilateral link between the two countries. Instead of examining how the entry of, for example, a US bank in Brazil is correlated with export growth in external finance dependent and opaque sectors from Brazil to the United States, however, we now study how it relates to the growth in imports by Brazil from the United States (or equivalently, how it relates to exports from the United States to Brazil).

There are a number of reasons why the entry of a foreign bank can positively impact imports from the country in which the foreign bank is headquartered in sectors more dependent on external finance. First, as theoretically modelled by Schmidt-Eisenlohr (2013) and empirically shown by Antras and Foley (2015), different payment contracts are utilized between importers and exporters depending on financial market characteristics and contracting environments in both the importing and exporting country. When firms export to a country with weak contract enforcement, they are more likely to demand that goods are paid for in advance (cash in advance

or importer finance). On the other hand, when firms export to a country with strong enforcement, payment is more likely made after the goods have been received (open account or exporter finance). As foreign banks can bring additional finance to firms that trade, this can also benefit importers, especially those importers more likely to have to pay cash in advance and thus more in need of working capital. In addition, if foreign banks can reduce information asymmetries at both sides of the transaction and diminish risks related to contract enforcement, the entry of a foreign bank can further beneficially impact imports.

To examine the impact of foreign bank entry on imports, we use the same model as in Section 4.1, except that the dependent variable now equals the log difference of imports by firms in country *i* (the country in which the foreign bank enters) from country *j* (the country in which the bank is headquartered) in sector *s* between (*t-1, t-3)* and *(t-4, t-6)* and between (*t+1, t+3)* and *(t-1, t-3).* Again we differentiate between sectors based on their external finance dependency and opaqueness. We also split again the sample by advanced countries and emerging markets to test whether the entry of a foreign bank in an advanced country has a different impact on imports by firms in an advanced country, compared to how imports in an emerging market react upon foreign entry. For the sample of (13) advanced countries we examine 32 entries by banks from 21 (exporting) countries. For the sample of (57) emerging markets we examine 130 entries by banks from 53 (exporting) countries. Table 10 provides the results.

We find that after the establishment of a new bilateral link imports from the country in which the foreign bank is headquartered in those sectors more dependent on external finance do not experience higher growth in advanced countries (column 1). We do find evidence, however, of higher import growth for emerging markets (column 2). This result is completely in line with the predictions of Schmidt-Eisenlohr (2013) and the empirical findings of Antras and Foley (2015). Importers in emerging markets, where contract enforcement is weaker, more likely have to pay cash in advance and therefore need more working capital. The entry of a foreign bank can mean more provision of finance (for working capital needs), thereby boosting imports in those sectors more dependent on external finance. In advanced importing countries, firms are less likely to be financially constrained in the first place and also more likely to import on open account terms (especially from countries with weaker contracting enforcement). Interestingly, the coefficient is substantially smaller compared to that for exports (see Table 8), indicating that the

entry of foreign bank has a stronger impact on exports to the country in which the foreign bank is headquartered compared to on imports from this country.

The results in columns 3 and 4 suggest that imports of more opaque products also grow faster when a foreign bank enters an emerging market, but this effect is only significant at the 16% level (and again there is no significant impact of entry in advanced countries). This result is in line with the findings of Caballero, Candelaria and Hale (2016) who show a similar effect when a new bank linkage is formed between two countries as banks from the exporting country start lending (via syndicated loans) for the first time to the importing country.

5. Conclusions

This paper investigates empirically whether the benefits of foreign bank presence also extend to trade. It develops a number of arguments why foreign banks may play a special role in enhancing trade and investigates these using unique, time-varying, bilateral data on foreign bank ownership combined with data on bilateral sectoral exports for 99 exporting to 117 importing countries. We find that sectors with greater external finance dependency tend to export more when more banks are foreign owned, and even more so when a bank from the importing country is present. Foreign bank presence is, however, only (statistically significant) positively associated with trade in emerging markets and not in advanced countries. In emerging markets, the effect of presence of a foreign bank from the importing country is especially strong when the exporting country is financially and economically less developed, or when its institutions (as captured by the availability of creditor information and the cost of contract enforcement) are weak. Importing country's foreign bank presence also disproportionally affects trade in sectors with more opaque products. Results are robust to controlling for domestic financial development and a full set of fixed effects and a number of alternative explanations.

These findings are confirmed when studying the impact of the entry of a bank from an importing country. If a bank from the importing country for the first time enters the exporting country, bilateral exports grow significantly more in external finance dependent and more opaque sectors. This effect is also found for countries that are indirectly linked through this entry, with, as expected, the economic impact for opaque sectors substantially smaller. Studying the heterogeneity of bank entries, we find that the positive relationship between entry and exports is

much more pronounced when the foreign bank enters through an M&A, especially in external finance dependent industries. Furthermore, we find (weak) evidence that entry is more related to exports in more opaque sectors when the importing and exporting country are far apart.

Our results suggest that foreign banks facilitate trade to and from emerging markets by increasing external finance available to an exporter and by overcoming information asymmetries, with the latter more exclusively the role of a foreign bank from the importing country. Given the importance of trade for economic development, our findings indicate that foreign banks can have a positive impact on a country beyond their (already well-documented) impact on lowering the cost and increasing the quality of domestic financial intermediation, and improving risk-sharing internationally. We also find, however, that these benefits importantly vary by the characteristics of the exporting country in which the bank invests and the mode of entry. The importance of heterogeneity in both exporting and importing countries is consistent with recent research that shows that home and host country characteristics and foreign banks' business model affect their impact on the efficiency of financial intermediation and stability during financial turmoil episodes. Our findings also shed new light on the debate regarding the pros and cons of financial globalization by showing that financial globalization through the local presence of foreign banks can positively affect real integration, something to be taken into account when debating the costs and benefits of financial globalization.

References

Ahn, JaeBin, 2011, "A Theory of Domestic and International Trade Finance," *IMF Working Paper No. 11/262*.

Alessandria, George, Joseph P. Kaboski, and Virgiliu A. Midrigan, 2011, "US Trade and Inventory Dynamics," *The American Economic Review*, 101(3): 303-307.

Amiti, Mary, and David E. Weinstein, 2011, "Exports and Financial Shocks", *The Quarterly Journal of Economics*, 126(4): 1841-1877.

Anderson, James E., and Douglas Marcouiller, 2002, "Insecurity and The Pattern Of Trade: An Empirical Investigation," *The Review of Economics and Statistics*, 84(2): 342-352.

Antràs, Pol, and Fritz C. Foley, 2015, "Poultry in Motion: A Study of International Trade Finance Practices", *Journal of Political Economy*, 123(4): 809-852.

Banerjee, Abhijit V. and Esther Duflo, 2000, "Reputation Effects and the Limits of Contracting: A Study of the Indian Software Industry," *The Quarterly Journal of Economics*, 115 (3): 989-1017.

Beck, Thorsten, 2002, "Financial Development and International Trade. Is there a Link?" *Journal of International Economics*, 57(1): 107-131.

_____, 2003, "Financial Dependence and International Trade," *Review of International Economics*, 11(2): 296-316.

Becker, Bo, Jinzhu Chen, and David Greenberg, 2013, "Financial Development, Fixed Costs, and International Trade," *Review of Corporate Finance Studies*, 2(1): 1-28.

Bems, Rudolfs, Robert C. Johnson, and Kei-Mu Yi, 2013, "The Great Trade Collapse," *Annual Review of Economics*, 5(1): 375-400.

Berman, Nicolas, and Jerome Hericourt, 2010, "Financial Factors and the Margins of Trade: Evidence from Cross-Country Firm-Level Data," *Journal of Development Economics*, 93(2): 206-217.

Braun, Matias, 2003, "Financial Contractibility and Assets' Hardness," Mimeo: University of California – Los Angeles.

Braun, Matias, and Claudio Raddatz, 2008, "The Politics of Financial Development: Evidence from Trade Liberalization," *Journal of Finance*, 63(3): 1469-1508.

Bronzini, Rafaello, and Alessio D'Ignazio, 2012, "Bank Internationalization and Firm Exports: Evidence from Matched Firm-Bank Data," *EFIGE Working Paper No 59*.

Bruno, Valencia, and Robert Hauswald, 2013, "The Real Effects of Foreign Banks," *Review of Finance*, 18(5): 1683-1716.

Caballero, Julian, Christopher Candelaria, and Galina Hale, 2016, "Bank Linkages and International Trade" *Federal Reserve Bank of San Francisco Working Paper, 2013-14.*

Cetorelli, Nicola, and Michele Gambera, 2001, "Banking Market Structure, Financial Dependence and Growth: International Evidence from Industry Data." *The Journal of Finance*, 56(2): 617-648.

Cetorelli, Nicola, and Linda Goldberg, 2011, "Global Banks and International Shock Transmission: Evidence from the Crisis," *IMF Economic Review*, 59(1): 41-76.

Chor, Davin, and Kalina Manova, 2012, "Off the Cliff and Back? Credit Conditions and International Trade during the Global Financial Crisis." *Journal of international economics*, 87(1): 117-133.

Choi, Sang-Rim, Adrian Tschoegl, and Chwo-Ming Yu, 1986, "Banks and the World's Major Financial Centers, 1970–1980," *Review of World Economics*, 122(1): 48-64.

_____, 1996, "Banks and the World's Major Banking Centers, 1990," *Review of World Economics*, 132(4): 774-793.

Claessens, Stijn, Asli Demirgüç-Kunt, and Harry Huizinga, 2001, "How does Foreign Entry Affect the Domestic Banking Market?" *Journal of Banking and Finance*, 25(5): 891–911.

Claessens, Stijn, and Neeltje Van Horen, 2013, "The Impact of Foreign Banks," *Journal of Financial Perspectives*, 1(1): 1-18.

_____, 2014, "Foreign Banks: Trends and Impact," *Journal of Money, Credit and Banking*, 46(1): 295-326.

_____, 2015, "The Impact of the Global Financial Crisis on Banking Globalization," *IMF Economic Review*, 63(4): 868-918.

Clarke, George, Robert Cull, María Soledad Martínez Peria, and Susana Sánchez, 2003, "Foreign Bank Entry: Experience, Implications for Developing Countries, and Agenda for Further Research," *World Bank Research Observer*, 18(1): 25-59.

Contessi, Silvia and Francesca de Nicola, 2012, "What Do We Know about the Relationship between Access to Finance and International Trade?" *Federal Reserve Bank of St. Louis Working Paper 2012-054B.*

Cristea, Anca D., 2011, "Buyer-Seller Relationships in International Trade: Evidence from U.S. States' Exports and Business-Class Travel," *Journal of International Economics*, 84(2): 207-220.

De Haas, Ralph and Neeltje Van Horen, 2013, "Running for the exit? International Bank Lending during a Financial Crisis," *Review of Financial Studies*, 26(1): 244-285.

De Haas, Ralph and Iman Van Lelyveld, 2014, "Multinational Banks and the Global Financial Crisis: Weathering the Perfect Storm?" *Journal of Money, Credit, and Banking*, 46(1), 333-364.

Del Prete, Silvia and Stefano Federico, 2014, "Trade and Finance: Is There More Than Just 'Trade Tinance'? Evidence from Matched Bank-Firm Data," *Banco de Italia Working Paper No. 948*.

Detragiache, Enrica, Thierry Tressel, and Poonam Gupta, 2008, "Foreign Banks in Poor Countries: Theory and evidence," *Journal of Finance*, 63(5): 2123-2160.

Do, Quy-Toan, and Andrei Levchenko, 2007, "Comparative Advantage, Demand for External Finance, and Financial Development," *Journal of Financial Economics*, 86(3): 796-834.

Fisman, Raymond, and Inessa Love, 2007, "Financial Development and Growth Revisited," *Journal of the European Economic Association*, 5(2-3): 470-479.

Foley, C. Fritz, and Kalina Manova, 2015, "International Trade, Multinational Activity, and Corporate Finance," *Annual Review of Economics* 7, 119-146.

Giannetti, Mariassunta, and Luc Laeven, 2012, "The Flight Home Effect: Evidence from the Syndicated Loan Market during Financial Crises," *Journal of Financial Economics*, *104*(1): 23-43.

Giannetti, Mariassunta, and Steven Ongena, 2009, "Financial Integration and Firm Performance: Evidence from Foreign Bank Entry in Emerging Markets," *Review of Finance*, 13(2): 181-233.

Gormley, Todd A., 2010, "The Impact of Foreign Bank Entry in Emerging Markets: Evidence from India," *Journal of Financial Intermediation*, 19(1): 26-51.

Greenaway, David, Alessandra Guariglia, and Richard Kneller, 2007, "Financial Factors and Exporting Decisions," *Journal of International Economics*, 73(2): 377-395.

Guiso, Luigi, Paola Sapienza, and Luigi Zingales, 2009, "Cultural Biases in Economic Exchange?" *The Quarterly Journal of Economics*, 124 (3): 1095-1131.

Hur, Jung, Manoj Raj, and Yohanes E. Riyanto, 2006, "Finance and Trade: A Cross-Country Empirical Analysis on the Impact of Financial Development and Asset Tangibility on International Trade," *World Development*, 34(10): 1728-1741.

Jeger, Mathiass, Urs Haegler, and Roland Theiss, 1992, "On the Attractiveness of Financial Centers," *In* Blattner, Niklaus, Hans Genberg, and Alexander Swoboda (eds), *Competitiveness in Banking*, New York: Springer-Verlag.

Kalemli-Ozcan, Sebnem, Elias Papaioannou and Fabrizio Perri, 2013, "Global Banks and Crisis Transmission," *Journal of International Economics*, 89(2): 495-510.

Kalemli-Ozcan, Sebnem, Elias Papaioannou and José-Luis Peydró, 2013, "Financial Regulation, Financial Globalization, and the Synchronization of Economic Activity," *Journal of Finance*, 68(3): 1179-1228.

Laeven, Luc, and Fabian Valencia, 2013, "Systemic Banking Crisis Database," *IMF Economic Review*, 61(2): 225-270.

Levchenko, Andrei A., Logan T. Lewis, and Linda L. Tesar, 2010, "The Collapse in International Trade during the 2008-09 Crisis: In Search of a Smoking Gun," *IMF Economic Review*, 58(2): 214-253.

Manova, Kalina, 2008, "Credit Constraints, Equity Market Liberalizations and International Trade," *Journal of International Economics*, 76(1): 33-47.

_____, 2013, "Credit Constraints, Heterogeneous Firms, and International Trade," *The Review of Economic Studies*, 80(2): 711-744.

Manova, Kalina, Shang-Jin Wei, and Zhiwei Zhang, 2015, "Firm Exports and Multinational Activity under Credit Constraints," *Review of Economics and Statistics*, 97(3): 574-588.

Martínez Pería, Maria Soledad, and Ashoka Mody, 2004, "How Foreign Participation and Market Concentration Impact Bank Spreads: Evidence from Latin America," *Journal of Money, Credit and Banking*, 36(3): 511-537.

Mian, Atif, 2006, "Distance Constraints: The Limits of Foreign Lending in Poor Countries," *Journal of Finance*, 61(3): 1465–1505.

Michalski, Tomasz, and Evren Ors, 2012, "(Interstate) Banking and (Interstate) Trade: Does Real Integration Follow Financial Integration?" *Journal of Financial Economics*, 104: 89-117.

Minetti, Raoul, and Susan Chun Zhu, 2011, "Credit Constraints and Firm Export: Microeconomic Evidence from Italy," *Journal of International Economics*, 83(2): 109-125.

Muûls, Mirabelle, 2015, "Exporters, Importers and Credit Constraints," *Journal of International Economics*, 95(2): 333-343.

Niepmann, Friederike, and Tim Schmidt-Eisenlohr, 2016, "No Guarantees, No Trade: How Banks Affect Export Patterns," *International Finance Discussion Papers No. 1158*.

Olsen, Morten, 2016, "How Firms Overcome Weak International Contract Enforcement: Repeated Interaction, Collective Punishment, and Trade Finance," *IESE Business School Working Paper No. 1111-E.*

Ongena, Steven, Jose-Luis Peydro, and Neeltje Van Horen, 2015, "Shocks Abroad, Pain at Home? Bank-Firm Level Evidence on the International Transmission of Financial Shocks," *IMF Economic Review*, 63 (4): 698-750.

Poelhekke, Steven, 2015, "Do Global Banks Facilitate Foreign Direct Investment?" *European Economic Review*, 76: 25-46.

Poole, Jennifer, 2016, "Business Travel as an Input to International Trade," Mimeo: American University.

Portes, Richard, and Helene Rey, 2005, "The Determinants of Cross-Border Equity Flows," *Journal of international Economics*, 65(2): 269-296.

Rauch, James, 1999, "Networks Versus Markets in International Trade," *Journal of International Economics*, 48 (1): 7–35.

Rauch, James, and Vitor Trindade, 2002, "Ethnic Chinese Networks in International Trade," *Review of Economics and Statistics*, 84(1): 116-130.

Rajan, Raghuram G., and Luigi Zingales, 1998, "Financial Dependence and Growth," *American Economic Review*, 88(3): 559-586.

Rodrik, Danny, 2000, "How Far will International Economic Integration Go?" *The Journal of Economic Perspectives*, 14(1): 177-186.

Schmidt-Eisenlohr, Tim, 2013, "Towards a Theory of Trade Finance," *Journal of International Economics*, 91 (1): 96–112.

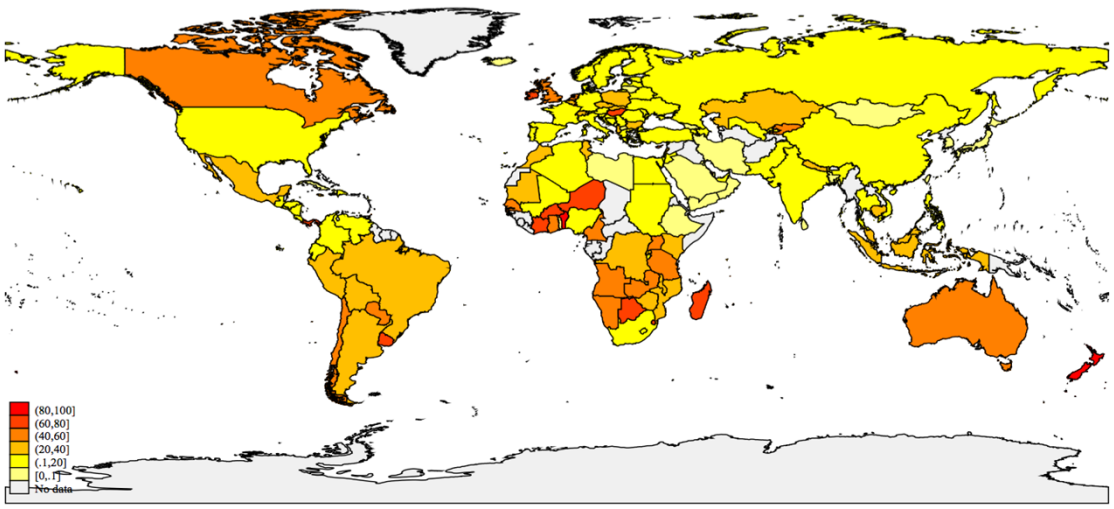
Svaleryd, Helena, and Jonas Vlachos, 2005, "Financial Markets, the Pattern of Industrial Specialization and Comparative Advantage: Evidence from OECD Countries," *European Economic Review*, 49(1): 113-144.

United Nations Industrial Development Organization, 2006, *UNIDO* Industrial Statistics Database at the 4-digit level of ISIC (Rev. 3). Vienna, Austria.

Van Horen, Neeltje, 2007, "Foreign Banking in Developing Countries; Origin Matters," *Emerging Market Review*, 8(1): 81-105.

Figure 1
Foreign bank presence in 1995 and 2007

Percentage of foreign banks to total banks (number), 1995



Percentage of foreign banks to total banks (number), 2007

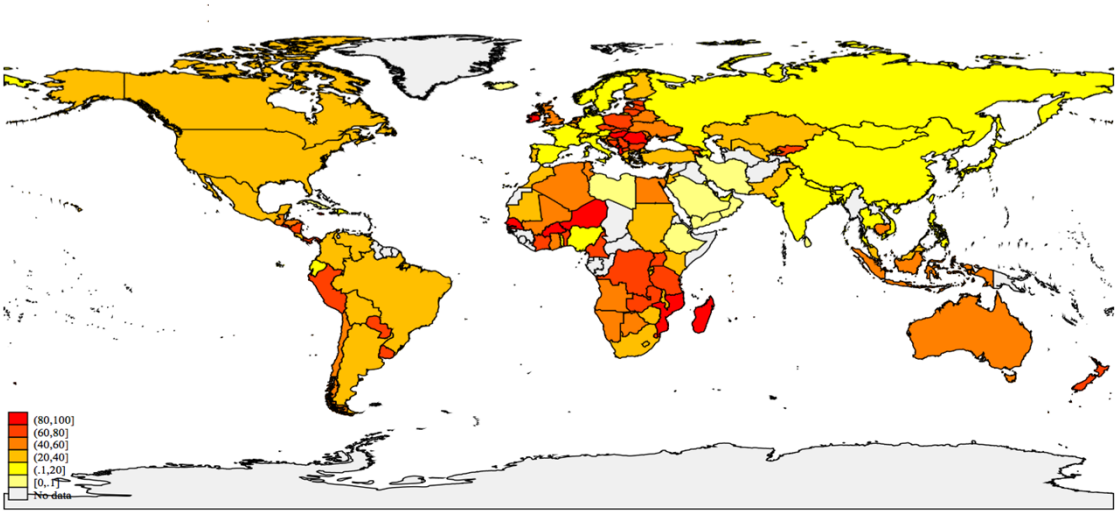


Figure 2
Financial development and and foreign bank presence

This figure plots private credit to gdp in the 99 exporting country in our sample against the share of foreign bank assets in the exporting country in 2007.

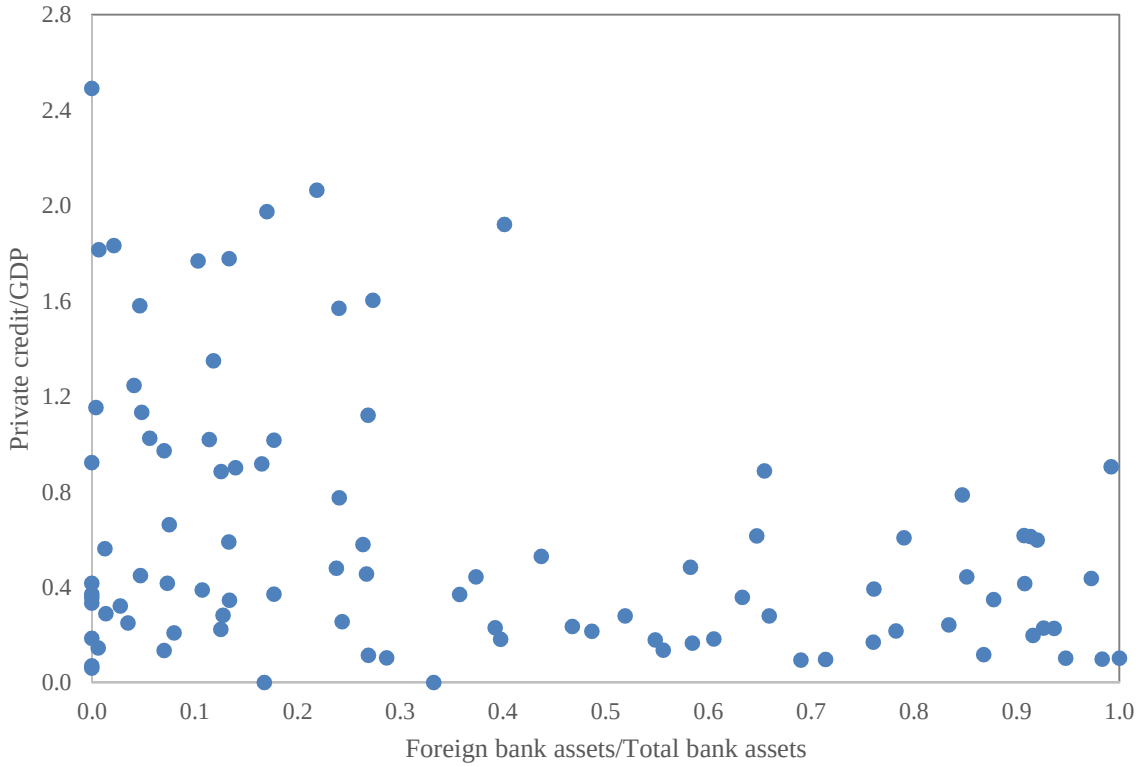


Table 1
Summary statistics

This table shows the summary statistics of the key variables used in the analysis (based on the 2005-2007 sample) .

Variable	Obs	Mean	Median	St. Dev.	Min	Max
Export (log)	423,511	12.71	12.91	3.88	0	25.06
Export (including zeros)	639,100	9,347	19.27	38,121	0	434,008
Foreign banks (FB)	423,511	0.30	0.17	0.31	0	1
Importing country foreign banks (IFB)	420,361	0.01	0.00	0.04	0	0.94
Financial development (FD)	419,502	0.82	0.66	0.57	0.06	3.11
External finance dependency (findep)	423,511	0.28	0.23	0.32	-0.45	1.14
Opaqueness (opaque)	423,511	0.24	0.07	0.30	0	0.97
Distance	423,511	8.25	8.44	0.94	4.57	9.87
GDP exporter	423,511	26.01	26.13	1.83	20.83	30.27
GDP importer	423,511	25.45	25.57	1.95	21.47	30.27
Human capital index * Industry H intensity	399,139	2.78	2.72	0.89	0.62	5.95
Capital stock per capita * Industry K intensity	413,127	0.73	0.67	0.38	0.13	2.43
Resource Rent (%GDP) * Industry N intensity	423,511	1.66	0	7.12	0	68.17
FDI stock	419,662	0.36	0.31	0.26	0	1.76
Cross-border lending	423,511	0.18	0.11	0.20	0	1.34
Domestic production (log)	298,372	6.54	6.82	2.20	0	11.73
Credit info	422,114	4.09	5.00	1.74	0	6.00
Enforcement	422,114	24.42	22.00	13.61	7.70	142.40

Table 2
Foreign banks and export - Panel analysis

This table shows regressions to estimate the relationship between foreign bank presence and export. The dependent variable is the (log of) exports from country *i* to country *j* in a 3-digit ISIC sector *s* at year *t*. *FB* (foreign banks) is the asset share of foreign banks active in exporting country *i* and *IFB* (importing country foreign banks) is the asset share of foreign banks from importing country *j* active in exporting country *i*. *FD* (financial development) is measured by private credit to GDP. *Findep* captures the industry's dependency on external finance and is defined in the text. Distance is the (log of) the kilometer distance between the exporting and importing country and GDP (export/import) captures the (log of) GDP in the exporting and importing country, respectively. The sample period is 2005-2007 and the country sample includes 99 exporting and 117 importing countries. All regressions are estimated using OLS and robust standard errors are clustered by exporter-importer pair-year. ***, **, * correspond to the 1%, 5%, and 10% level of significance, respectively. Table A4 in the Appendix contains all variable definitions.

	[1]	[2]	[3]	[4]	[5]
FB * findep	0.335***	0.234***	0.237***	0.324***	0.432***
	(0.053)	(0.052)	(0.052)	(0.051)	(0.049)
IFB * findep	1.978***	1.914***	1.911***	1.485***	0.945***
	(0.303)	(0.303)	(0.303)	(0.297)	(0.287)
FD * findep	1.438***	1.445***	1.445***	1.502***	1.480***
	(0.028)	(0.026)	(0.026)	(0.025)	(0.025)
IFB	2.445***	1.726***	1.734***	2.035***	0.053
	(0.275)	(0.332)	(0.327)	(0.340)	(0.311)
Distance	-1.392***	-1.712***	-1.712***	-1.830***	
	(0.013)	(0.016)	(0.016)	(0.016)	
Findep	-0.248***	-0.132***	-0.131***		
	(0.034)	(0.033)	(0.033)		
FB	-0.109***	-0.249			
	(0.041)	(0.210)			
FD	-0.263***	-0.512***			
	(0.023)	(0.111)			
GDP (export)	1.081***	-0.207			
	(0.007)	(0.173)			
GDP (import)	0.688***	0.448***			
	(0.006)	(0.147)			
Exporter and importer FE	no	yes	no	no	no
Year FE	no	yes	no	no	no
Exporter-year and importer-year FE	no	no	yes	yes	yes
Industry FE	no	no	no	yes	yes
Pair FE	no	no	no	no	yes
Obs	420,371	420,371	420,371	420,371	419,869
R2	0.384	0.448	0.449	0.555	0.659

Table 3
Robustness tests

This table examines the robustness of the relationship between foreign bank presence and export. The dependent variable is the (log of) exports from country *i* to country *j* in a 3-digit ISIC sector *s* at year *t*, unless otherwise specified. Regression [1] is our baseline model (regression [5] in Table 2). Regression [2] includes importer*year*sector fixed effects and regression [3] exporter-importer pair *year fixed effects. Regression [4] includes measures of institutional development interacted with external finance dependency. Regression [5] includes exporter country's factor endowments. Regression [6] includes the stock of FDI and cross-border loans in the exporting country interacted with external finance dependency. Regression [7] controls for selection into domestic production. In regression [8] the dependent variable is the volume of exports from country *i* to country *j* in a 3-digit ISIC sector *s* at year *t,* i.e. zero observations are included. *FB* (foreign banks) is the asset share of foreign banks active in exporting country *i* and *IFB* (importing country foreign banks) is the asset share of foreign banks from importing country *j* active in exporting country *i*. *FD* (financial development) is measured by private credit to GDP. *Findep* captures the industry's dependency on external finance and is defined in the text. The sample period is 2005-2007 and the country sample includes 99 exporting and 117 importing countries, except in regression [6] where the sample includes only 64 exporting countries. All regressions, except the one in column [8] which is estimated using Poission, are estimated using OLS and robust standard errors are clustered by exporter-importer pair-year. ***, **, * correspond to the 1%, 5%, and 10% level of significance, respectively. Table A4 in the Appendix contains all variable definitions.

	Base	Importer * year * industry FE	Pair-year FE	Institutions	Factor endowments	Financial integration	Domestic production	Extensive + intensive margin
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
FB * findep	0.432***	0.501***	0.436***	0.274***	0.321***	0.276***	0.305***	1.583***
	(0.049)	(0.048)	(0.049)	(0.049)	(0.051)	(0.050)	(0.053)	(0.366)
IFB * findep	0.945***	0.940***	0.876***	1.211***	1.015***	1.035***	0.619*	1.086
	(0.287)	(0.276)	(0.286)	(0.280)	(0.303)	(0.286)	(0.390)	(1.409)
FD * findep	1.480***	1.464***	1.459***	1.172***	1.307***	1.307***	0.905***	0.997***
	(0.025)	(0.024)	(0.025)	(0.030)	(0.025)	(0.028)	(0.028)	(0.119)
IFB	0.053	0.054		-0.001	0.139	0.077	-0.209	4.556***
	(0.311)	(0.315)		(0.310)	(0.334)	(0.311)	(0.360)	(0.806)
Credit info * findep				0.158***				
				(0.009)				
Enforcement * findep				-0.004***				
				(0.001)				
Human capital *					1.636***			
industry H intensity					(0.049)			
Physical capital *					-0.083			
industry K intensity					(0.160)			
Natural resources *					0.034***			
industry N intensity					(0.001)			
FDI * findep						0.537***		
						(0.058)		
Cross-border * findep						0.343***		
						(0.097)		
Domestic production							0.449***	
							(0.007)	
Fixed effects	Exporter-year, importer-year, industry and pair							
Obs	419,869	419,867	418,132	419,869	395,712	417,550	298,441	697,256
R2	0.659	0.685	0.668	0.659	0.665	0.660	0.691	

Table 4
Advanced countries vs emerging markets

This table examines how the relationship between foreign bank presence and export differs between advanced countries and emerging markets. *Advanced countries* include the core OECD countries and *Emerging markets* includes all other countries. The dependent variable is the (log of) exports from country *i* to country *j* in a 3-digit ISIC sector *s* at year *t*. *FB* (foreign banks) is the asset share of foreign banks active in exporting country *i* and *IFB* (importing country foreign banks) is the asset share of foreign banks from importing country *j* active in exporting country *i*. *FD* (financial development) is measured by private credit to GDP. *Findep* captures the industry's dependency on external finance and is defined in the text. The sample period is 2005-2007 and the country sample includes 99 exporting (of which 20 advanced countries and 79 emerging markets) and 117 importing countries. All regressions are estimated using OLS and robust standard errors are clustered by exporter-importer pair-year. ***, **, * correspond to the 1%, 5%, and 10% level of significance, respectively. Table A4 in the Appendix contains all variable definitions.

	Advanced countries	Emerging markets
	[1]	[2]
FB * findep	-0.314	0.766***
	(0.210)	(0.053)
IFB * findep	-3.629**	1.263***
	(1.490)	(0.282)
FD * findep	0.360***	2.092***
	(0.043)	(0.056)
IFB	1.114**	0.044
	(0.528)	(0.324)
Fixed effects	Exporter-year, importer-year, industry and pair	
Obs	150,959	268,910
R2	0.757	0.585

Table 5
Emerging market heterogeneity

This table shows regressions to estimate how the relationship between foreign bank presence and export differs across country types for the sample of emerging markets. Countries with low economic development are exporting countries classified as developing countries as defined in the main text. Countries with low financial development, low creditor information or low enforcement are exporting countries with values for each respective variable below the 25th percentile of the distribution. The dependent variable is the (log of) exports from country *i* to country *j* in a 3-digit ISIC sector *s* at year *t*. *FB* (foreign banks) is the asset share of foreign banks active in exporting country *i* and *IFB* (importing country foreign banks) is the asset share of foreign banks from importing country *j* active in exporting country *i*. *Findep*, captures the industry's dependency on external finance and is defined in the text. All regressions include the same control variables as those included in the baseline model (Table 2, column [5]) and the appropriate double interactions. These are not shown for the sake of brevity. The sample period is 2005-2007 and the country sample includes 79 exporting and 117 importing countries. All regressions are estimated using OLS and robust standard errors are clustered by exporter-importer pair-year. ***, **, * correspond to the 1%, 5%, and 10% level of significance, respectively. Table A4 in the Appendix contains all variable definitions.

Country type (X) -->	Low financial development	Low economic development	Low credit information	Low enforcement
	[1]	[2]	[3]	[4]
FB * findep	0.715***	0.866***	1.021***	0.892***
	(0.055)	(0.055)	(0.060)	(0.057)
FB * findep * X	0.428**	-0.583***	-1.210***	-0.284
	(0.182)	(0.122)	(0.118)	(0.210)
IFB * findep	1.065***	0.890**	0.691**	1.057***
	(0.342)	(0.355)	(0.351)	(0.348)
IFB * findep * X	1.557**	2.853***	3.452***	1.803***
	(0.668)	(0.555)	(0.671)	(0.572)
Fixed effects	Exporter-year, importer-year, industry, and pair			
Control variables	FD*findep, FD*findep*X, IFB, IFB * X, Distance, Distance*X and findep * X			
Obs	266,633	268,910	266,633	266,633
R2	0.585	0.587	0.586	0.585

Table 6
Industry opaqueness

This table examines the relationship betwen foreign bank presence and export differentiating between transparent and opaque industries. The dependent variable is the (log of) exports from country *i* to country *j* in a 3-digit ISIC sector *s* at year *t*. FB is a dummy variable which is one if there is at least one foreign bank present in exporting country *i* in year *t* and IFB is a dummy variable which is one if at least one foreign bank from importing country *j* is present in the exporting country *i* at time *t*. *FD* (financial development) is measured by private credit to GDP. *Findep* captures the industry's dependency on external finance and o*paque* captures the share of products in the industry for which reference pricing is available. Both industry classifications are defined in the text. The sample period is 2005-2007 and the country sample includes 79 exporting countries (all emerging markets) and 117 importing countries. All regressions are estimated using OLS and robust standard errors are clustered by exporter-importer pair-year. ***, **, * correspond to the 1%, 5%, and 10% level of significance, respectively. Table A4 in the Appendix contains all variable definitions.

	External finance dependency	Opaqueness	Both
	[1]	[2]	[3]
FB * findep	0.766***		0.794***
	(0.053)		(0.051)
IFB * findep	1.263***		0.120
	(0.282)		(0.284)
FB * opaque		-0.276***	0.071
		(0.077)	(0.079)
IFB * opaque		-2.964***	-2.934***
		(0.357)	(0.372)
Fixed effects	Exporter-year, importer-year, industry, and pair		
Control variables	FD*opaque/findep, IFB		
Obs	268,910	268,910	268,910
R2	0.585	0.584	0.586

Table 7
Foreign banks and export - Event study

This table examines the relationship between the entry of a foreign bank from importing country *j* in exporting country *i* and export growth between the two countries. The dependent variable equals the difference in growth rate of exports from country *i* to country *j* in sector *s* between (*t-1, t-3)* and *(t-4, t-6)* and between (*t+1, t+3)* and *(t-1, t-3),* where *t* is the year in which a foreign bank from country *j* entered country *i*. In columns [1] and [2] industries are classified based on their dependency on external finance and in columns [3] and [4] based on their opaqueness as captured by the share of products in the industry for which reference pricing is available. Both industry classifications are defined in the main text. The regressions study foreign bank entries that took place between 1996 and 2004. Columns [1] and [3] examine 32 entries by banks from 21 importing countries in 13 exporting countries (all advanced countries). Columns [2] and [4] study 130 entries by banks from 53 importing countries in 57 exporting countries (all emerging markets). All regressions are estimated using OLS and robust standard errors are clustered by country pair. ***, **, * correspond to the 1%, 5%, and 10% level of significance, respectively. Table A4 in the Appendix contains all variable definitions.

Industry classification (X) -->	External finance dependency		Opaqueness	
Exporting country type -->	Advanced countries	Emerging markets	Advanced countries	Emerging markets
	[1]	[2]	[3]	[4]
X	-0.037	0.312**	0.027	-0.392***
	(0.074)	(0.125)	(0.102)	(0.129)
Fixed effects	event-year fixed effects			
Obs	835	2,045	835	2,045
R2	0.141	0.029	0.141	0.031

Table 8
Indirect effect of entry

This table examines the relationship between the entry of a foreign bank from importing country *j* in the exporting country *i* and export growth between countries that become indirectly linked due to this entry. The dependent variable equals the difference in growth rate of exports from country *i* to country *m (m≠j)* in sector *s* between (*t-1, t-3)* and *(t-4, t-6)* and between (*t+1, t+3)* and *(t-1, t-3),* where *t* is the year in which a foreign bank from country *j* entered country *i,* and *m* are all other countries in which banks from *j* are already present at time *t*. In columns [1] and [2] industries are classified based on their dependency on external finance and in columns [3] and [4] based on their opaqueness as captured by the share of products in the industry for which reference pricing is available. Both industry classifications are defined in the main text. The regressions study foreign bank entries that took place between 1996 and 2004. Columns [1] and [3] examine 32 entries by banks from 21 importing countries in 13 exporting countries (all advanced countries) which created 265 new indirect links. Columns [2] and [4] study 130 entries by banks from 53 importing countries in 57 exporting countries (all emerging markets), which created 757 new indirect links. All regressions are estimated using OLS and robust standard errors are clustered by country pair. ***, **, * correspond to the 1%, 5%, and 10% level of significance, respectively. Table A4 in the Appendix contains all variable definitions.

Industry classification (X) -->	External finance dependency		Opaqueness	
Exporting country type -->	Advanced countries	Emerging markets	Advanced countries	Emerging markets
	[1]	[2]	[3]	[4]
X	0.049	0.269***	-0.095	-0.188*
	(0.066)	(0.081)	(0.087)	(0.105)
Fixed effects	event-year fixed effects			
Obs	6,028	5,864	6,028	5,864
R2	0.030	0.024	0.030	0.023

Table 9
Heterogeneity across foreign bank entry

This table examines the relationship between the entry of a foreign bank from importing country *j* in exporting country *i* and export growth between the two countries taking heterogeneity into account. The dependent variable equals the difference in growth rate of exports from country *i* to country *j* in sector *s* between (*t-1, t-3)* and *(t-4, t-6)* and between (*t+1, t+3)* and *(t-1, t-3),* where *t* is the year in which a foreign bank from country *j* entered country *i*. In columns [1]-[6] industries are classified based on their dependency on external finance and in columns [7]-[12] based on their opaqueness as captured by the share of products in the industry for which reference pricing is available. Both industry classifications are defined in the main text. In columns [1]-[2] and [7]-[8] we differentiate between entries through a greenfield investment and through a M&A. In columns [3]-[4] and [9]-[10] we differentiate between entries done by globally active banks and by non-globally active banks. A globally active bank is a bank that is headquartered in a country that has foreign banks present in more than ten countries at the time of entry. In columns [5]-[6] and [11]-[12] we differentiate between entries by banks that are headquartered in a country that is close by and those that are headquartered in a country that is far away from the exporting country. A country is deemed close by when it is closer to the exporting country compared to the median distance of all country pairs in the sample. The t-test provides the p-value of a test on the equality of the parameters in the two sub-samples. The regressions examine 130 entries by banks from 53 importing countries in 57 exporting countries (all emerging markets) over the period 1996-2004. All regressions include a constant (not shown). All regressions are estimated using OLS and robust standard errors are clustered by country pair. ***, **, * correspond to the 1%, 5%, and 10% level of significance, respectively. Table A4 in the Appendix contains all variable definitions.

Industry classification (X) -->	External finance dependency						Opaqueness					
	Mode of entry		Foreign bank type		Distance		Mode of entry		Foreign bank type		Distance	
	Greenfield	M&A	Global	Non-Global	Close	Far	Greenfield	M&A	Global	Non-Global	Close	Far
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
X	0.060	0.526***	0.128	0.505***	0.312*	0.319*	-0.277	-0.471***	-0.319*	-0.452**	-0.237	-0.587***
	(0.221)	(0.138)	(0.168)	(0.186)	(0.160)	(0.198)	(0.216)	(0.158)	(0.189)	(0.177)	(0.175)	(0.195)
T-test (p-value)	0.070		0.129		0.979		0.463		0.604		0.179	
Fixed effects	event-year fixed effects											
Obs	900	1,145	1,060	985	1,102	943	900	1,145	1,060	985	1,102	943
R2	0.031	0.027	0.014	0.067	0.052	0.020	0.033	0.023	0.017	0.065	0.050	0.027

Table 10
Foreign banks and import

This table examines the relationship between the entry of a foreign bank from exporting country *j* in importing country *i* and export growth between the two countries. The dependent variable equals the difference in growth rate of imports by country *i* from country *j* in sector *s* between (*t-1, t-3)* and *(t-4, t-6)* and between (*t+1, t+3)* and *(t-1, t-3),* where *t* is the year in which a foreign bank from country *j* entered country *i*. In columns [1] and [2] industries are classified based on their dependency on external finance and in columns [3] and [4] based on their opaqueness as captured by the share of products in the industry for which reference pricing is available. Both industry classifications are defined in the main text. The regressions study foreign bank entries that took place between 1996 and 2004. Columns [1] and [3] examine 32 entries by banks from 21 exporting countries in 13 importing countries (all advanced countries). Columns [2] and [4] study 130 entries by banks from 53 exporting countries in 57 importing countries (all emerging markets). All regressions are estimated using OLS and robust standard errors are clustered by country pair. ***, **, * correspond to the 1%, 5%, and 10% level of significance, respectively. Table A4 in the Appendix contains all variable definitions.

Industry classification (X) -->	External finance dependency		Opaqueness	
Importing country type -->	Advanced countries	Emerging markets	Advanced countries	Emerging markets
	[1]	[2]	[3]	[4]
X	0.087	0.130**	0.014	-0.122
	(0.068)	(0.697)	(0.096)	(0.088)
Fixed effects	event-year fixed effects			
Obs	770	3,146	770	3,146
R2	0.103	0.136	0.102	0.136

Appendix Table A1
Overview of exporting countries' foreign bank presence (2007)

This table lists all 99 exporting countries in our sample. *Share foreign banks* equals the assets of all foreign banks active in the exporting country as a share of all banking assets in the exporting country. *Nr. foreign banks* is the total nr of foreign banks active in the exporting country. *Nr. home countries* reflects the number of different countries the parent banks of foreign banks active in the exporting country are headquartered in. All variables are measured in 2007.

Country	Share foreign banks	Nr. foreign banks	Nr. home countries
Algeria	0.07	9	5
Argentina	0.27	22	11
Armenia	0.56	9	5
Austria	0.27	11	8
Azerbaijan	0.01	2	1
Bangladesh	0.03	1	1
Belgium	0.13	12	6
Benin	0.92	7	4
Bolivia	0.18	4	4
Bosnia Herzegovina	0.91	15	5
Botswana	0.94	5	3
Brazil	0.24	51	16
Bulgaria	0.79	18	11
Burkina Faso	0.76	8	3
Burundi	0.58	1	1
Cambodia	0.61	6	4
Cameroon	0.71	7	4
Canada	0.04	21	9
Costa Rica	0.37	11	4
Croatia	0.91	16	4
Czech Republic	0.85	14	6
Denmark	0.17	8	4
Dominican Republic	0.08	2	2
Ecuador	0.13	4	4
Egypt	0.27	13	8
El Salvador	0.97	9	6
Estonia	0.99	6	4
Ethiopia	0.00	0	n.a.
Finland	0.85	2	2
France	0.06	5	4
Georgia	0.66	7	7
Germany	0.11	14	10
Greece	0.14	5	3
Guatemala	0.13	8	5
Honduras	0.44	10	6
Hungary	0.65	27	9
Iceland	0.00	0	n.a.
India	0.05	8	4
Indonesia	0.24	31	12
Ireland	0.40	25	9
Israel	0.00	0	n.a.
Italy	0.07	10	5
Japan	0.01	2	1
Jordan	0.17	3	3
Kazakhstan	0.13	11	7
Kenya	0.39	9	7
Korea (South)	0.12	3	2
Kuwait	0.08	1	1
Latvia	0.65	13	8
Libya	0.00	0	n.a.
Lithuania	0.92	7	6
Macedonia	0.63	9	7
Madagascar	1.00	6	1
Malawi	0.29	2	1
Malaysia	0.18	14	9

Appendix Table A1 - cont'd

Country	Share foreign banks	Nr. foreign banks	Nr. home countries
Mali	0.40	4	1
Mauritania	0.04	2	1
Mexico	0.78	18	8
Moldova	0.36	7	4
Mongolia	0.07	1	1
Namibia	0.58	3	1
Netherlands	0.10	14	9
Niger	0.69	6	4
Norway	0.17	2	2
Oman	0.00	0	n.a.
Pakistan	0.52	9	5
Paraguay	0.55	8	7
Peru	0.49	9	6
Philippines	0.01	7	4
Poland	0.76	36	15
Portugal	0.24	9	6
Qatar	0.00	0	n.a.
Romania	0.88	21	9
Russian Federation	0.11	39	17
Rwanda	0.33	3	2
Saudi Arabia	0.00	0	0
Senegal	0.93	11	5
Slovakia	0.91	12	6
Slovenia	0.24	7	3
South Africa	0.27	6	5
Spain	0.02	7	6
Sri Lanka	0.00	0	n.a.
Swaziland	0.83	4	2
Sweden	0.00	1	1
Switzerland	0.05	22	12
Tanzania	0.87	16	11
Thailand	0.05	3	1
Trinidad and Tobago	0.13	5	3
Tunisia	0.26	8	5
Uganda	0.95	11	8
United Arab Emirates	0.01	3	2
United Kingdom	0.13	50	21
United States	0.22	18	8
Uruguay	0.47	24	10
Yemen	0.00	0	n.a.
Zambia	0.98	8	7

Appendix Table A2
Overview of exporting countries' trade activity (2007)

This table lists all 99 exporting countries in our sample. *Total exports* equals the sum of all exports to all destination countries in all 28 manufacturing sectors (in billion USD). *Nr. sectors* equals the number of different sectors the country exports in and *Nr. trading partners* equals the number of different destination countries the exporting countries trades with. All variables are measured in 2007.

Country	Total export	Nr. sectors	Nr. trading partners
Algeria	10.85	28	68
Argentina	41.16	28	115
Armenia	0.94	28	68
Austria	146.28	28	115
Azerbaijan	2.21	28	70
Bangladesh	12.45	28	110
Belgium	405.15	28	115
Benin	0.21	26	48
Bolivia	1.20	26	68
Bosnia Herzegovina	3.46	28	87
Botswana	4.78	28	66
Brazil	119.78	28	114
Bulgaria	16.13	28	114
Burkina Faso	0.30	27	43
Burundi	0.03	27	38
Cambodia	2.86	27	89
Cameroon	1.34	27	73
Canada	310.05	28	115
Costa Rica	5.82	28	86
Croatia	10.09	28	109
Czech Rep.	121.19	28	115
Denmark	82.06	28	115
Dominican Republic	4.88	28	86
Ecuador	4.06	28	95
Egypt	7.00	28	112
El Salvador	3.83	28	75
Estonia	11.07	28	107
Ethiopia	0.23	26	88
Finland	87.09	28	115
France	501.69	28	115
Georgia	0.76	28	74
Germany	1263.37	28	115
Greece	18.60	28	115
Guatemala	4.70	28	79
Honduras	1.36	28	73
Hungary	84.72	28	115
Iceland	4.62	28	97
India	119.87	28	115
Indonesia	67.21	28	115
Ireland	116.64	28	115
Israel	39.01	28	110
Italy	498.75	28	115
Japan	615.84	28	115
Jordan	3.37	28	105
Kazakhstan	14.19	28	91
Kenya	1.83	28	100
Korea (South)	324.58	28	115
Kuwait	2.97	28	98
Latvia	7.11	28	110
Libya	6.07	14	41
Lithuania	15.61	28	105
Macedonia	2.51	28	80
Madagascar	1.09	28	79
Malawi	0.62	28	83
Malaysia	121.31	28	114

Appendix Table A2 - cont'd

Country	Total export	Nr. sectors	Nr. trading partners
Mali	0.23	27	55
Mauritania	0.04	1	9
Mexico	222.23	28	110
Moldova	1.16	28	70
Mongolia	0.27	28	54
Namibia	3.15	28	89
Netherlands	390.50	28	116
Niger	0.04	27	50
Norway	52.26	28	116
Oman	3.04	28	84
Pakistan	15.89	28	114
Paraguay	1.46	28	90
Peru	12.52	28	101
Philippines	37.87	28	110
Poland	136.62	28	116
Portugal	45.33	28	116
Qatar	6.26	28	89
Romania	38.12	28	115
Russian Federation	142.43	28	113
Rwanda	0.02	26	39
Saudi Arabia	44.20	28	110
Senegal	0.70	28	88
Slovakia	57.29	28	114
Slovenia	26.15	28	110
South Africa	48.93	28	114
Spain	231.84	28	115
Sri Lanka	6.12	28	113
Swaziland	1.28	28	26
Sweden	161.23	28	116
Switzerland	163.09	28	115
Tanzania	0.82	28	88
Thailand	121.02	28	115
Trinidad and Tobago	5.37	28	78
Tunisia	11.77	28	103
Uganda	0.51	28	81
United Arab Emirates	29.58	28	113
United Kingdom	374.14	28	115
United States	1014.92	28	116
Uruguay	3.59	28	109
Yemen	1.07	28	69
Zambia	4.31	28	70

Appendix Table A3
Industry characteristics

This table lists all 28 sectors used in our empirical analysis and their measures of external finance dependence is defined as the share of capital expenditures not financed with cash flows from operations as provided by Manova (2013, Table A2) and opaqueness is defined as the share of products in the sector for which reference pricing as provided by Rauch (1999)

ISIC code	Industry	External finance dependence	Opaqueness
311	Food products	0.137	0.690
313	Beverages	0.077	0.539
314	Tobacco	-0.451	0.917
321	Textiles	0.401	0.264
322	Wearing apparel, except footwear	0.029	0.000
323	Leather products	-0.140	0.000
324	Footwear, except rubber or plastic	-0.078	0.024
331	Wood products, except furniture	0.284	0.492
332	Furniture, except metal	0.236	0.000
341	Paper and products	0.176	0.508
342	Printing and publishing	0.204	0.000
351	Industrial chemicals	0.205	0.535
352	Other chemicals	0.219	0.065
353	Petroleum refineries	0.042	0.967
354	Misc. petroleum and coal products	0.334	0.949
355	Rubber products	0.227	0.000
356	Plastic products	1.140	0.000
361	Pottery, china, earthenware	-0.146	0.000
362	Glass and products	0.529	0.079
369	Other non-metallic products	0.062	0.540
371	Iron and steel	0.087	0.473
372	Non-ferrous metals	0.006	0.658
381	Fabricated metal products	0.237	0.154
382	Machinery, except electrical	0.445	0.000
383	Machinery, electric	0.768	0.031
384	Transport equipment	0.307	0.004
385	Prof and scient equipment	0.961	0.000
390	Other manufactured products	0.470	0.000

Table A4
Variable Definitions and Sources

This table shows variables definitions and data sources for all the variables used in the empirical analysis.

Variable	Definition	Source
Export	Exports from country i to country j in sector s at year t in US dollars. Converted to 3-digit ISIC sectors	Comtrade
Import	Import by country i from country j in sector s at year t in US dollars. Converted to 3-digit ISIC sectors	Comtrade
Foreign banks (FB)	Share of the assets of all foreign banks active in exporting country i in total bank assets in the country.	Claessens and Van Horen (2015)/Bankscope
Importing country foreign banks (IFB)	Share of the assets of foreign banks from importing country j active in exporting country i in total bank assets in the country.	Claessens and Van Horen (2015)/Bankscope
Financial development (FD)	Private credit by deposit money banks and other financial institutions as a percentage of GDP.	Global Financial Development, World Bank
External finance (findep)	Sector reliance on external financing, measured as the share of capital expenditures not financed with cash flows from operations. Calculated for US-based companies using Compustat over the period 1986-1995.	Manova (2013), based on Braun (2003)
Opaqueness (opaque)	Share of products in an industry for which reference pricing is available, where these prices can be quoted either in organized exchanges or in trade publications (non-differentiated products). Original measure at the 3 and 4 digit level SITC, aggregated to 3-digit level ISIC.	Rauch (1999)
GDP	Nominal GDP of the importing or exporting country in dollars (in log).	Global Financial Development, World Bank
Distance	Distance in km between exporting and importing country according to the great circle distance formula (in log).	CIA World Factbook (2005)
Credit info	Credit information index which captures the rules affecting scope, access, and quality of credit.	Doing Business indicators
Enforcement	The cost of enforcing claims (% of claim)	Doing Business indicators
Human capital (H)	Human capital index based on years of schooling.	Penn World Tables 8.0
Physical capital (K)	Capital stock measured in 2005 US dollars divided by population size.	Penn World Tables 8.0
Natural resources (N)	Natural resources rents as measured by the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents as percentage of GDP.	World Development Indicators, World Bank
Industry H intensity	Sector human capital intensity.	Manova (2013), based on Braun (2003)
Industry K intensity	Sector physical capital intensity.	Manova (2013), based on Braun (2003)
Industry N intensity	Sector natural resource intensity.	Manova (2013), based on Braun (2003)
FDI stock	Inward stock of FDI as percentage of GDP.	UNCTAD
Cross-border lending	Total cross-border liabilities as percentage of GDP, ultimate risk basis.	BIS consolidated statistics
Domestic production	Number of establishments by sector (in log).	UNIDO
Greenfield/M&A entry	Foreign bank entry is M&A if foreign bank merges with or acquires an existing domestic or foreign bank in the exporting country, greenfield otherwise.	Claessens and Van Horen (2015)
Global/non-global entry	Global foreign bank entry is entry of a bank that is headquartered in a country that has a foreign presence in more than ten countries at the time if entry, non-global otherwise.	Claessens and Van Horen (2015)