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How does regulation affect the organizational form of banks' presence in developing and developed countries?

Annick Pamen Nyola^{1a}, Alain Sauviat^a and Amine Tarazi^a

^a *Université de Limoges, LAPE, 5 rue Félix Eboué BP 3127, 87031 Limoges Cedex 1, France*

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Abstract

Using a unique hand-collected dataset of 1,251 European Union banks and their 20,850 foreign affiliates hosted in 154 countries, this paper investigates how both host country and home country regulation affects their decision on how to go abroad to both developed and developing countries. Controlling for various factors, we find that host country banking regulation is an important factor in explaining organizational form (subsidiaries versus branches), but that such a factor is strongly influenced by the level of development of the host country. While banks are very careful in limiting their expansion to the relatively safest world countries, they are more likely to open branches rather than subsidiaries in countries with stringent activity restrictions and capital requirements; especially when they are relatively less efficient. Additionally, retail-oriented banks tend to prefer to operate subsidiaries in the most developed countries and competitive markets.

JEL classification: F23, G21, G28

Keywords: Bank regulation, Internationalization, cross-border entries, Foreign branch, Foreign subsidiary

¹ *Corresponding author. E-mail address:* annick.pamen-nyola@unilim.fr (A. Pamen Nyola)

E-mail address: alain.sauviat@unilim.fr (A. Sauviat)

E-mail address: amine.tarazi@unilim.fr (A. Tarazi))

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1. Introduction

The liberalization of financial systems in most developing countries has totally reshaped the structure of banking industries worldwide and led to an intensive development of multinational banks [Kindleberger (1983), Berger et al. (2000), McCauley et al. (2010)]. Banking markets which were previously highly protected and regulated, specifically in developing countries, have experienced significant changes with a stronger presence of foreign banks. Over the decades, to benefit from such trends, banks have mastered lending plans through syndicated loans, engaged into mergers and acquisitions of domestic and foreign entities or, opened de novo entities [Focarelli and Pozzolo (2001), Focarelli et al. (2002), Buch and DeLong (2004)]. Yet, foreign bank penetration strategies are dependent on market characteristics and regulations in place in each country [Goddard et al. (2007), Buch et al. (2014)].

This paper investigates the determinants and the organizational forms of foreign bank presence in developed and developing countries by focusing on the regulatory environment in both home and host countries. We hereby build a bridge between two strands of the literature dedicated to banks' international expansion. Some works have looked into how banks go abroad (foreign branch or subsidiary) [Ball and Tschoegl (1982), Dell'Ariccia and Marquez (2010), Fiechter et al. (2011)] and into the impact of international banking regulations [Barth et al. (2001, 2004, 2008a, 2008b, 2013), Cihak et al. (2012)]. Other papers have investigated the presence and the role played by foreign banks in developing countries specifically [Clarke et al. (2003), Cerutti et al. (2007), Cerutti et al. (2010)]. We hence fill a gap by examining the determinants of banks' expansion abroad, in both developed and developing countries, and under which form such expansion takes place. Specifically, we look into why banks operate in a host country rather with branch(es) or with subsidiary(ies). In particular, we construct a unique hand-collected database of banks in the European Union and their activities in 154 countries.

Organizational forms play a major role because they deeply shape the constraints in terms of legal responsibility and financial support for the expanding bank. A subsidiary, which is an entity with 50% or more of its shares owned by another company, competes directly and deeply on the domestic market, abides the laws of that country, owns a full accounting statement, and is a total independent entity from the parent bank. On the contrary, a branch is an extension of the parent bank which undergoes the home country supervision and all its activities are accounted for by the parent bank. The evolution of the organizational structure of a multinational bank can be measured by the number of its foreign subsidiaries and branches.

Ball and Tschoegl (1982), Fisher and Molyneux (1996), Breakley and Kaplanis (1996), Herrero and Martinez Peria (2007), and Dell’Ariccia and Marquez (2010) highlight the differences between running a subsidiary or a branch in a host country. Because each subsidiary operates under limited liability, the parent bank is shielded from great losses, and yet is more exposed to expropriation risk. Conversely, with a branch the parent bank maintains its capital at home and to some extent avoids some of the constraints imposed by foreign regulators.

Previous research on bank internationalization has looked in different directions. Many papers have focused on foreign entry in the U.S. or entry by U.S. banks in foreign countries. Fieleke (1977) surveys the growth of U.S. banking abroad and argues that the observed fast expansion is essentially motivated by the profitability of foreign branches and the stability of lending rates which contributes to lower risk. Other papers have shown that because of former regulatory restrictions and government obstacles to foreign activity, the establishment of foreign banks affiliates had strongly relied on past cross-border experience, the maturity of the foreign banking market, per capita income, foreign direct investment (FDI) and foreign trade [Terrell and Key (1977), Goldberg and Saunders (1980, 1981a), Hultman and McGee (1989), Groose and Goldberg (1991), Heinkel and Levi (1992), Goldberg and Groose (1994), Shiers (2002)]. Other works highlight the importance of expertise in banking services, participation in interbank markets and the concentration of multinational customers and firms [Goldberg and Johnson (1990), Parkhe and Miller (1998)]. Similar conclusions have been reached in studies focusing on other countries such as Indonesia [Cho (1990)], Japan [Yamori (1998)], Germany [Buch (2000)], and China [Xu (2011)].

The numerous reforms of domestic and international banking regulations have continuously raised conflicting questions about the management of foreign-owned institutions and the stabilization of financial markets. Some authors have argued that more stringent regulatory requirements significantly affect cross-border banking. For instance, examining over 3,000 international bank mergers, Buch and DeLong (2008) find that the significant effect of tougher supervisory authorities on mergers differ as it is negative in acquiring / home countries and positive in targeted / host countries. Banks from less supervised country are attracted to countries with strong supervision where they wish to export their domestic loopholes and engage in aggressive competition with local institutions which are constrained by their strong local supervisors. As authorities of such host markets fear an increase of risk from foreign investors, they will discourage mergers. Hence, weak bank supervision could give banks the ability to shift risk from themselves to both home and host supervisors. Moreover, by investigating the effects of banking market structure, governance, and changes in bank

supervision, Chen and Liao (2011) find that the compliance of the host country to the Basel guidelines increases foreign bank operations and profitability. Further, Allen et al. (2012) assess the impact of the Basel III banking regulation reforms and find that in the long-term the structural implications might reduce the supply of credit, and disrupt the economy. Regarding capital and liquidity requirements, they also find that operating a foreign subsidiary will be less likely in the short run. Finally, other papers conclude that depending on bank's ownership structure, home bank regulation in terms of greater capital requirement, tighter restrictions on bank activities, stringent supervisory power, and lower barriers to entry amplifies costs, reduces foreign bank lending standards and leads to an increase of risk-taking activities in foreign markets and cross-border risks spillover [Laeven and Levine (2009), Ongena et al. (2013)].

Another strand of the literature has focused on foreign bank entry in emerging, transition and developing countries and examined the implications on domestic markets. Goldberg and Saunders (1981b), Miller and Parkhe (1998), and Clarke et al. (2003) have documented that besides chasing their customers abroad², foreign banks are principally interested in exploiting local lending opportunities and are more likely to use subsidiaries than branches to provide a wide range of activities. Other studies show that because foreign banks perform better than domestic banks, higher competition either increases the efficiency and financial stability of the host country banking industry [Claessens et al. (2001, 2007, 2014), Lensink and Hermes (2004), Jeon et al. (2011), Giannetti and Ongena (2012)], or accelerates consolidation through mergers or acquisitions [Clarke et al. (2006)]. Additionally, in times of crises, Adams-Kane et al. (2013), de Haas and van Lelyveld (2014), and Cerutti (2015) show that foreign banks that are exposed to their parent home country risk after a crisis and that are not supported by their parent bank through a group internal capital market change their patterns of lending by decreasing credit supply in host countries. However, foreign banks from non-crisis parent home countries increase their lending relatively to domestic institutions. Also, countries that have experienced a crisis tend to face higher foreign bank entry after the crisis than before [Cull and Martinez Peria (2007)].

Our study builds on the existing literature on multinational banks' foreign operations and extends it to account for the organizational forms banks develop abroad given the regulation in place and the degree of development of each country. First, we determine both home and host factors and bank characteristics that influence the presence of banks in the high, middle, or low-income foreign country. Second, after controlling for the factors that explain foreign expansion,

² See Williams (2002) for a review of the literature on the “follow the customers” internationalization hypothesis.

we analyze whether banks penetrate the host market only with subsidiaries or branches or with both forms. From this perspective, our work is closely linked to Cerutti et al. (2007) who show that the world's top 100 banks look at legal differences when operating either as branches or as subsidiaries in Latin America and Eastern Europe.

We construct for the year 2013 a sample of 1,251 banks from the 28 European Union countries. 289 of these banks conduct foreign activities under 20,850 foreign subsidiaries and branches in 154 host countries. Our findings show that rather than countries with weak regulation, banks prefer a presence in countries with strong bank regulation and supervision. Such a result is amplified in low-income countries where severe entry conditions and stringent capital requirements and supervisory power increase the likelihood for banks to operate foreign entities. Nevertheless, bank activity restrictions make low-income countries less likely to host foreign banks activities. We also find that banks are more likely to run foreign branches in high-income countries that strongly limit their activities and in middle and low-income countries with pressuring capital requirements and supervisory power. The deeper penetration of host markets with a subsidiary allows banks to better capture potential profits and limit the transmissions of potential risks.

The remainder of the paper is organized as follows. Section 2 describes the data, the foreign organizational form variables that we construct as well as the other variables used in our study. Section 3 presents the empirical methodology and section 4 discusses the results. Section 5 performs additional estimations and robustness checks. Section 6 concludes and provides some policy implications.

2. Data and variables

We start by describing our sample of banks and the method we use to look into banks' organizational form abroad. We also present the country-level regulatory and institutional variables and bank-level variables used in our investigation.

2.1. Sample of banks and their international affiliates

Our study is based on a hand-collected database specifying where and how banks are present abroad. The data on banks and subsidiaries are retrieved for 2013 from the Bureau Van Dijk (BvD) Bankscope database and some of the banks' web sites. Additionally, to complete

the number of affiliates, we hand-collect all the branches and their location from the SNL database. We extract from Bankscope information on 1,251 European Union (EU³) banks. 434 of these banks are global ultimate owners (EU GUO)⁴, 358 are subsidiaries controlled by one of these EU GUO (EU CS), and 459 banks are subsidiaries controlled by an ultimate owner outside the EU (Non-EU CS).

[Insert **Table 1** here]

Table 1 reports the sample of 28 EU countries, the number of banks for each country and the number of countries where banks are established abroad. Germany and France have the highest number of banks, and Lithuania and Estonia have the fewest. 289 banks of our sample are present in at least one of the 154 host countries. More precisely, 43 French banks are present in 69 foreign countries, 34 German banks in 68 countries, 34 Italian banks in 30 countries and 25 British banks in 66 countries.

To identify the expansion of the 1,215 banks, we filter the full data set of affiliates and link each affiliate to its direct owner. To avoid duplicates of affiliates in the sample, we control whether the affiliates of the EU CS of a EU GUO or another EU CS are identified only as the affiliates of their direct CS parent and we remove them elsewhere if not.

[Insert **Table 2** here]

Table 2 shows the distribution of all the 154 home and host countries into three income-groups. Going from the four groups of countries in the 2013 classification of the gross national income (GNI) provided in the World Development Indicators (2015)⁵ by the World Bank, we construct the three income-group specifications used in this study. Indeed, due to the scarcity of country-level data and the relatively closeness of some countries to each other, we merge the two lowest categories to create our low-income group. In this paper, 55 low-income economies are defined as those with a GNI per capita of \$4,125 or less; 35 middle-income economies have

³ All countries are: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and United Kingdom.

⁴ We work only with the Global Ultimate Owner (GUO) and the Controlled Subsidiary (CS) entities defined in Bankscope at the control levels of 50.01%, i.e. GUO is a company which is the ultimate owner of a corporate group according to the ultimate ownership definition of at least 50.01% and the CS is a company which is controlled or majority owned at least 50.01% by another company. A widely-owned bank (with no majority shareholder) is also classified as a GUO.

⁵ In the original classification, the World Bank divides the countries into four groups according to 2013 gross national income (GNI) per capita: low-income (GNI \leq \$1,045), lower-middle-income ($\$1,045 < \text{GNI} \leq \$4,125$), upper-middle-income ($\$4,125 < \text{GNI} < \$12,736$), and high-income (GNI \geq \$12,736).

a GNI per capita of more than \$4,125 but less than \$12,736, and 64 high-income economies, a GNI per capita of \$12,736 or more.

To identify banks' foreign strategy, we define a binary variable, $Foreign_{i,j,k}$, which takes the value 1 when bank i located in a EU country j is represented in a country k ($\neq j$), and 0 if the bank is not present in k . We then build a second qualitative variable every time $Foreign_{i,j,k}$ is equal to 1. This second variable, $Affiliate_{i,j,k}$, accounts for the three possible choices of expansion in country k . $Affiliate_{i,j,k}$ takes the value 0 when bank i operates solely with subsidiary(ies) in host country k , 1 when it operates only with branch(es), and 2 when it operates both branch(es) and subsidiary(ies).

[Insert **Table 3** here]

In 2013, the dataset is made of 1,251 parent banks of which 289 conduct activities in 20,850 foreign affiliates across 154 countries. Table 3 presents the distribution of foreign branches and subsidiaries by continents and income-groups. Banks present abroad with only one type of organizational form have a total of 2,595 branches and 713 subsidiaries, and banks present with both organizational forms have a total of 17,542 foreign affiliates (17,233 branches and 309 subsidiaries)⁶. Gauging banks' foreign strategy by a simple foreign subsidiaries/foreign branches ratio we can see that foreign presence takes less the form of subsidiaries than branches and that this tendency is more pronounced in Europe (0.056) and America (0.027) than in other continents (Africa (0.745), Pacific (0.148) and Asia (0.108)). EU banks prefer to operate the “hard” subsidiary structure in the world regions with predominantly low-income group countries.

2.2. Country-level bank regulation and supervision variables

We follow Barth et al. (2001, 2004) to define regulatory variables and use the data from the Bank Regulation and Supervision Survey (updated 2012) carried out by the World Bank. We use information from the 2010 survey to create four country-level regulation and supervision variables. Regulation plays an important role in foreign expansion as a bank can target fragile countries with low requirements and high expected profits. In such a host country with weak regulation, a foreign institution might be tempted to conduct its activities laxly. If

⁶ We do not report the detailed number of foreign affiliates and form of presence in each host country. The tables are available from the authors upon request.

foreign bank entries are relatively important, unsupervised operations might even weaken the host country's entire banking system. Conversely, banks can invest in a stringent country if they prefer to secure their investments rather than pursuing potentially high but not guaranteed profits [Buch and DeLong (2008), Cihak et al. (2012), Ongena et al. (2013)].

The four indexes that we use are the following:

Entry into Banking Requirements is an index that accounts for all the documents that are legally required to be submitted before the issuance of the banking license in the country. Its value ranges from 0 to 9 and is based on the following items: Draft by laws, Intended organizational chart, Structure of Board (composition, committees, functions), Market / business strategy, Financial projections for the first three years, Financial information on main potential shareholders, Background / experience of future Board directors, Background / experience of future senior managers, and Source of funds to be used as capital. A higher value indicates a more restrictive entry and should positively drive the establishment of foreign subsidiaries [Cerutti et al. (2007)].

Bank Activity Restrictions is an index that assesses the conditions under which banks can engage in four categories of activities: securities activities, insurance activities, real estate activities, and nonfinancial businesses except those businesses that are auxiliary to banking business. For each category of activities, there are four possibilities that are weighted from 1 to 4 when they are respectively unrestricted (=1), permitted (=2), restricted (=3), and prohibited (=4). Hence, the index ranges from a lowest stringency at 1 to the highest at 16 when limitations of banking operations are extremely stringent. As previous studies have highlighted that subsidiaries offer a wider range of activities than branches we expect a higher value of this index to be associated with a higher occurrence of subsidiaries than branches [Goldberg and Saunders (1981b), Miller and Parkhe (1998), Clarke et al. (2003)].

Capital Regulatory Index is a variable that ranges from 0 to 18 and is constructed as the sum of 18 binary “yes” or “no” answers regarding the country's overall and initial capital stringency indexes. This variable provides information on certain risk elements, market value losses, and minimum capital rules. Also, it tells us which types of funds were used to initially capitalize a bank and whether the funds are officially verified. As a branch does not own any personal capital, a high index means greater stringency which negatively affects the probability to operate a foreign subsidiary. Setting up an independent entity such as a subsidiary imposes for parent banks to raise a larger amount of funds [Goldberg and Saunders (1981a), Dell’Araccia and Marquez (2010), Ongena et al. (2013)].

Official Supervisor Power is an index that evaluates whether supervisory authorities have the power to take specific preventive and corrective actions on the basis of auditing, internal/board/ownership rights structure, profits and losses and other balance sheets items. The index ranges from 0 to 22 and a higher value indicates a greater power. The effect of this variable can go both ways for the choice of the host country as well as for the choice of the form of entry [Buch and DeLong (2008), Chen and Liao (2011), Ongena et al. (2013)]. Banks might prefer stringent countries where they expect a tougher supervision that will limit excessive risk-taking behavior. Conversely, some institutions might look for a weaker control and a freedom to run their business anyhow.

We also consider the differences between home country and host country regulation for the three latter variables by subtracting host country values from home country values *Diff (Home-Host)_Bank Activity Restrictions*, *Diff (Home-Host)_Capital Regulatory index*, and *Diff (Home-Host)_Official Supervisor Power*. Such differences should matter because a bank might consider its home country regulation comparatively to the host country regulation as an important factor.

[Insert **Table 4** here]

Table 4 reports for the full sample of 154 countries and each income-group (high-income, middle-income and low-income) the descriptive statistics of all four bank regulation and supervision variables for the year 2010. On average, low-income host countries have the most stringent bank activities restrictions and bank entry requirements. Home countries and high-income host countries have the highest capital requirements and middle-income host countries the lowest. Moreover, banks in low-income countries face a closer and tighter supervision than those in other countries.

2.3. *Country-level macroeconomic, market structure and institutional variables*

Various macroeconomic and institutional factors can also influence the bank's decision to enter a foreign country. Most of the macroeconomic variables we use come from the Financial Development and Structure dataset (2013), the Global Financial Development Database (2015), and the World Development Indicators (2015) provided by the World Bank.

We consider *GDP per capita*⁷ as the likelihood to attract foreign investors is expected to be higher for developed economies. This variable captures the level of economic development and business opportunities in the host country [Yamori (1998), Buch (2000), Claessens et al. (2001)]. A high-income country is more likely to attract subsidiaries than branches as through a deeper penetration of the local markets, a subsidiary signals a desire to establish a stronger link in the host country, and is then better suited to ensure the loyalty of the bank to its wealthier customers and vice-versa [Kindleberger (1983), Chou and Shen (2014)].

Because multinational banks are found to be more attracted by host countries with higher GDP [Brealey and Kaplanis (1996) and Focarelli and Pozzolo (2001), Buch and DeLong (2004)], we also use the natural logarithm of the *gross domestic product (logGDP)* as a proxy of country size. As the development of foreign branches and subsidiaries might depend on the past and current cross-countries relationships, we use CEPII⁸ and OECD data to build three variables to measure the home and host countries' economic and cultural closeness. We introduce the natural logarithm of the *Distance* in kilometers between the capital cities and we expect a negative effect of this variable on the likelihood of being present in host country. A parent bank tends to maintain its foreign investments in places close-by [Fisher and Molyneux (1996), Buch (2003, 2005), Claessens and van Horen (2014)]. *Language* is a variable equal to 1 when at least one official language is spoken in both the home and the host country and 0 otherwise. As a proxy of cultural proximity, this binary variable should have a positive effect on the probability of choosing a given country [Berger et al. (2001), Buch and DeLong (2004), Cerutti et al. (2007), Chou and Shen (2013, 2014)]. *Bilateral trade ratio*⁹ is computed from the flow of transactions in goods and services between the EU country of origin and the 154 host countries. High commercial and corporate exchanges¹⁰ indicate a strong bond and are likely to intensify cross-border banking operations. The bilateral trade ratio also stands for the “follow-the-customer” hypothesis in the choice of a host country [Kindleberger (1983), Nolle and Mohanty (1998), Esperanca and Gulamhussen (2001), Chou and Shen (2014)].

⁷ We test the robustness of the results with the growth rate of the per capita GDP and find the coefficient signs not to be significantly different.

⁸ CEPII distance measure: Mayer and Zignago (2011); CEPII language: Melitz and Toubal (2012).

OECD (2014) “STAN Bilateral Trade Database by Industry and End-Use Category, Rev. 4.” OECD-WTO

⁹ This variable is the ratio of the home country j imports from host country k in US dollar and its exports to the same host country k over the total volume of imports and exports of that EU country j in US dollar

$$= \frac{Imp_{Hostk \rightarrow Home EU_j} + Exp_{Home EU_j \rightarrow Hostk}}{Imp_{All \rightarrow Home EU_j} + Exp_{Home EU_j \rightarrow All}}$$

¹⁰ An alternative would be to consider the foreign direct investments between countries as in Ball and Tschoegl (1982) and Buch (2000). Due to data limitation we use the bilateral trade ratio. Note that the volume of exports and imports has been used in former papers to measure the power of corporate customers [Groose and Goldberg (1991), Miller and Parkhe (1998), Focarelli and Pozzolo (2005)].

We also consider a set of banking market variables and institutional variables. *Bank Concentration* measures the percentage of aggregate bank assets held by the three largest banks in the country. A concentrated system could reflect low competition and discourage foreign investors from entering the market [Goldberg and Rai (1996), Sengupta (2007), Claessens and van Horen (2007), Tabak et al. (2012)]. We also account for transparency by considering the *Depth of Credit Information*, an index which measures the rules affecting the scope, accessibility, and quality of credit information available through public or private credit registries. This variable, which is a proxy of information costs, ranges from 0 to 8 and signals the extent to which information is available to facilitate lending decisions, reduce banks' information costs, and sharpen the interest of investors for the country. Banks are more likely to enter countries with private credit reporting agencies that provide high information quality as it reduce starting business' costs for newcomer banks. Tsai et al. (2011) and Chou and Shen (2013) suggest that banks prefer branch entry in a country where a private credit bureau exists, but if this country's credit information quality is high enough, banks tend to prefer a subsidiary entry to a branch entry. We also account for *Foreign Bank Share* which is the ratio of the number of foreign-owned banks (more than 50% of shares are owned by foreigners) to the total number of banks in the system. The expected sign of this variable is undetermined. A higher share of foreign-owned banks in a country can reflect a more business friendly market for foreign investors. Alternatively, because the market can be considered as crowded with foreign entities, this could also reduce the appeal and the expansion in that country especially if licenses become less accessible. Additionally, we retrieve the *Economic Freedom score*¹¹ from the Heritage Foundation web site. This score ranges from 0 to 100 and is an equally weighted average of ten quantitative and qualitative indicators. This variable captures the global risks, strengths and weaknesses of economies and conveys critical information on human dignity, autonomy and personal empowerment. We use it to construct the variable *Diff (Home-Host)_Economic Freedom Score* by subtracting the host country score from the home country score. We expect the freest nations to be the most likely to host international activities [Chou and Shen (2014)].

[Insert **Table 5** here]

¹¹ The Heritage Foundation: The 2015 Index of Economic Freedom. The overall index is dissociated in four categories of indicators: *Rule of Law* (Property Rights, Freedom from Corruption) ; *Government Size* (Government spending, Fiscal Freedom) ; *Regulatory efficiency* (Business Freedom, Labor Freedom, Monetary Freedom) and *Market Openness* (Trade Freedom, Investment freedom, Financial Freedom).

In Table 5 we report the descriptive statistics of all the macroeconomic, market structure and institutional variables calculated on the basis of the 3-year averages from 2011 to 2013. The table also shows the full sample of 154 countries, and each income-group: high-income, middle-income and low-income. We observe that on average in high-income host countries the banking sectors are more concentrated, the gap in economic freedom is the lowest and the intensity of bilateral trade with the home EU countries is the strongest. As expected, low-income host countries are less transparent with regards to lending operations. They also exhibit lower economic freedom and are less engaged in bilateral exchanges with home countries.

2.4. *Bank-level financial characteristics*

From the unconsolidated balance sheets and income statements available in Bankscope, we compute bank-level variables to account for individual factors that could influence the form of presence of banks abroad. We control for efficiency by considering the cost to income ratio (*CIR*). Less efficient banks are less likely to be present abroad. Moreover, when they are present abroad they are more likely to operate branches if they aim to reduce some entry costs or subsidiaries in which they export their operating business models. We also control for bank capitalization by introducing the ratio of equity to total assets (*EQ_TA*). Strongly capitalized banks are expected to expand abroad more easily and, where relevant, operating subsidiaries should be less of an issue for such institutions. Alternatively, in some countries operating branches might also be relatively costly in terms of capital. We further introduce the ratio of loans to total assets (*L_TA*) to control the extent to which banks are focused on traditional intermediation activities and the ratio of non-interest income to net income (*NII_NI*) to capture diversification into other activities such as commission and fee activities and trading activities. A bank's business mix and business model (focus versus diversification) is likely to affect the way that it expands abroad. A bank aiming to pursue lending activities is more likely to operate a subsidiary whereas promoting modern banking activities by exporting the mother bank's skills and technology is expected to be easier through branches [Miller and Parkhe (1998)]. Also, we control for bank primary activity. *Business Specialization* is a dummy variable equal to 1 for retail banks and 0 when they engage in wholesale banking services. As argued in Goldberg and Saunders (1981b, 1990), through their lending and deposit-taking operations, retail-oriented institutions rely on interest revenues which are less risky and they tend to serve their foreign customers in their foreign subsidiaries. Additionally, we consider the net interest margin (*NIM*) to measure how the performance of banks' investments affect their internationalization

decisions, and the return on average assets (*ROAA*) to assess the effects of bank profitability. We expect better performing and profitable banks to engage more in foreign operations as they might benefit from economies of scale from previous activities [Fieleke (1977), Demirguc-Kunt and Huizinga (2000), Focarelli and Pozzolo (2001), Clarke et al. (2003)]. Finally, the natural log of total assets (*TA*) is used as a proxy of bank size. Large banks might benefit from their portfolios of foreign customers and domestic customers with foreign activities which make them more likely to develop broader international networks. Also, the bigger a bank gets, the smaller the local market might seem, and hence, foreign markets become more attractive in terms of profit opportunities, and business or risk diversification [Tschoegl (1983), Groose and Goldberg (1991), Cerutti et al. (2007)].

[Insert **Table 6** here]

Table 6 shows the individual bank variables for the full sample of EU banks and a number of sub-samples. Among the 289 multinational banks, compared to the 56 banks that operate only foreign branch(es), the 137 banks that are present abroad only with foreign subsidiary(ies) and the 96 banks present with both foreign subsidiary(ies) and branch(es) are larger. Also, although these two subsamples of banks are both less lending-oriented (lower loans to total assets ratio), banks with foreign subsidiary(ies) only are highly profitable and generate the highest interest margin. From these summary statistics, banks with both types of affiliates are the most leveraged and largest by their total assets. Comparatively to the whole sample, banks appear to be more present in foreign countries when they are primarily engaged in retail operations, when they are more efficient in managing their fixed costs, when they are less diversified and when they exhibit higher interest margin.

Table 7 reports the overall correlation matrix of all the variables. On the whole the test statistics reveal no major collinearity issues.

[Insert **Table 7** here]

3. Econometric methodology

To evaluate how the home and host country regulation and supervision affect the likelihood for banks to expand in developed and developing foreign countries and the organizational strategies banks build abroad, we follow a two-step procedure. We run a standard

Heckman¹² two-step sample-selection model for banks that conduct foreign activities with a unique type of affiliate in the host country in the second step. As the issue of “how” banks expand abroad is observable after a bank has decided “where” to expand, we model the sequential process in order to account for the selection bias in the second-step.

We first determine the factors that influence the decision of expanding in any foreign country, and more specifically in each of the three income-group countries. The first-step is modeled as follows:

$$\begin{aligned}
 Foreign_{i,j,k} = & \alpha_0 + \beta_1 Country_Regulation_{j,k} \\
 & + \beta_2 Host_GDP\ per\ Capita\ (log)_k \\
 & + \beta_3 Country_Institutional_{j,k} \\
 & + \beta_4 Bank_Financial_i + \varepsilon_{i,j,k}
 \end{aligned} \tag{1}$$

where $Foreign_{i,j,k}$ is a variable equal to 1 when bank i from home country j is present in the host country k with a unique organizational form (subsidiary(ies) only or branch(es) only), and 0 when there is no presence in the host country; $Country_Regulation_{j,k}$ is a vector of home and host countries' bank regulation and supervision variables: *Host_Entry into Banking Requirements*, *Diff (Home-Host)_Bank Activity Restrictions*, *Diff (Home-Host)_Capital Regulatory index*, and *Diff (Home-Host)_Official Supervisory Power*. *Host_GDP per Capita (log)_k* captures the host country level of development; $Country_Institutional_{j,k}$ is a vector of both home and host countries macroeconomic, market structure and institutional variables: *Diff (Home-Host)_Economic Freedom score*, *Host_Foreign Bank Share*, *Host_Bank Concentration*, *Host_Depth of Credit Information index*, *Host_Size (log GDP)*, the dummy *Common Official Language*, *Distance* between capitals in kilometers, and *Bilateral Trade ratio*. The $Bank_Financial_i$ vector of individual bank-specific characteristics is comprised of the *Business Specialization* dummy variable, the cost to income ratio (*CIR*), the loans to total assets ratio (*L_TA*), the non-interest income to net income ratio (*NII_NI*), the return on average assets (*ROAA*), and bank size (log of total assets (*logTA*)).

When estimating Eq. (1) for each high, middle, and low-income-group country, we remove the host country GDP per capita among the explanatory variables.

We then model the variable $Affiliate_{i,j,k}$ that maps the organizational strategies banks develop abroad.

¹² Heckman (1976, 1979), Puhani (2000), Lee (2003), Greene (2012)

$$\begin{aligned}
Affiliate_{i,j,k} = & \alpha'_0 + \beta'_1 Country_Regulation_k \\
& + \beta'_2 Host_GDP\ per\ Capita\ (log)_k \\
& + \beta'_3 Country_Institutional_k \\
& + \beta'_4 Bank_Financial_i + \varepsilon_{i,k}
\end{aligned} \tag{2}$$

While some multinational banks operate a strict and exclusive organizational form in the host country with either foreign subsidiary(ies) only or foreign branch(es) only, others set up both types of affiliates in the same host country.

Thus, in the second step of the Heckman procedure we solely consider the cases where $Affiliate_{i,j,k}$ takes the value 1 (i.e. only branch(es)) or 0 (i.e. only subsidiary(ies)), and determine the likelihood for banks to operate abroad with foreign branch(es) instead of foreign subsidiary(ies).

Furthermore, we also follow a broader approach by considering the three outcomes of the dependant variable $Affiliate_{i,j,k}$ and therefore also including the value 2 (i.e. both branch(es) and subsidiary(ies)) This allows us to use a larger sample to estimate Eq. (2) with a multinomial probit model and determine the likelihood for a bank i from home country j to conduct its activities in host country k through either both foreign organizational forms or only one form (branch or subsidiary).

Focusing only on the importance of host country factors in determining banks' organizational form, the vector $Country_Regulation_k$ now refers only to the four host country bank regulation and supervision variables. $Country_Institutional_k$ is reduced to *Host_Foreign Bank Share* and *Host_Size (log GDP)*, and $Bank_Financial_i$ comprises the *Business Specialization* dummy variable, the cost to income ratio (*CIR*), the equity to total assets (*EQ_TA*), the net interest margin (*NIM*), the non-interest income to net income ratio (*NII_NI*), the return on average assets (*ROAA*), and bank size (*logTA*).

In both approaches, to estimate Eq. (2) for each high, middle and low-income-group specification, we do the same as for Eq. (1) and remove the host country GDP per capita.

4. Empirical results

For all the tables we present in the first column the results for the whole sample of countries (1) and, in the other three columns the results for high-income (2), middle-income (3) and low-income (4) countries. Given the various samples we consider in this paper, we conduct mean comparison tests to define whether the size of banks that have a unique affiliate type

strategy differs from the size of other banks. The results are displayed in appendix A and indicate no statistically significant difference in the means of the total assets.

4.1. Home and host country regulation and supervision and choice of foreign location with a unique type of affiliate

Table 8 presents the results from the first-step of the Heckman estimation of Eq. (1) and shows that home and host countries' bank regulation and supervision are critical to foreign expansion. The likelihood for banks to be present in a foreign country with a unique organizational form decreases with the lower stringency of the regulatory capital index and the supervisory power index. Banks from countries with highly regulated banking systems are not likely to be present in a country with laxer regulation and supervision. This implies that in their prime decision to go abroad, banks are not trying to take advantage of other countries' regulation and supervision loopholes or trying to escape the stringency of their home authorities. These results are partly in line with and extend the findings of Buch and Delong (2008) and Ongena et al. (2013), which had focused only on the effects of home country regulation. Given that we investigate the presence of foreign banks in developed and developing countries, lower host country restrictions on bank activity comparatively to the home country, negatively affect the likelihood to expand in high and middle-income countries. Yet, a wider home-host difference in bank activity restrictions supports the presence of banks in low-income countries. This finding suggests that banks might engage in cross-border operations with developing economies to diversify their activities. However, host country entry requirements, which capture the number of submissions required to obtain a banking license, have a positive and significant effect on the penetration of low-income countries. One potential explanation is that banks might have a preference for secured host markets in developing economies. Conversely, in middle-income locations, the likelihood to run a foreign activity decreases with the stringency of entry requirements. Possibly, banks might weigh the benefits of entering these markets against the regulatory costs of entering and operating an affiliate.

In terms of macroeconomic, market structure and institutional variables, the likelihood to expand decreases with a higher gap in economic freedom scores. The results hence indicate that banks from nations with freer rules of law, government size, regulatory efficiency and market openness do not expand in less free nations possibly because successfully running their businesses might be more difficult to achieve. We find the same negative effect for the bank concentration ratio in all countries. In a host market where the share of assets held by the three

largest banks is relatively high, lower profit expectations might discourage foreign bank entries [Claessens and van Horen (2007)]. In addition, with the exception of low-income countries, foreign bank share and depth of credit information are both positively associated with the likelihood to host more foreign entities. The strong presence of foreign banks in a host country signals the attractiveness of the market as it can increase the efficiency and profitability of that local banking sector, and attract new investors [Jeon et al. (2011)]. The existence of public and private credit bureaus, coupled with the availability and higher information quality on borrowers is found to favor foreign expansion consistent with Buch (2003), Tsai et al. (2011). However, we find the opposite for low-income countries suggesting that, when they expand to developing countries, banks prefer countries where they can be the first movers and where they can play a stronger role in reducing asymmetric information issues on the loan market. Our results also indicate that the size of the host country, measured by GDP, matters and encourages the presence of banks in foreign countries.

Regarding individual bank characteristics, retail-oriented banks are less likely, than other types of banks, to expand in high-income countries but more likely to do so in low-income host countries. This result is in contradiction with previous evidence on the internationalization of retail-oriented banks [Goldberg and Saunders (1981), (1990)]. Our finding suggests that in rich countries new business opportunities might be in wholesale and financial markets whereas in poor countries still in the process of building their banking industry, traditional intermediation-oriented banks specialized in screening small and medium-size borrowers are more keen to expand in such developing markets. More generally, as shown by the coefficient of the ratio of non-interest income to net income, more diversified banks, are less likely to expand in high and middle-income countries. Additionally, as expected, we find that more profitable and larger banks are more likely to expand worldwide in either developed or developing countries.

Finally, we note that all gravity variables are highly significant with the expected signs. When the home and the host countries have strong trade ties, are geographically close and share at least one official language, the likelihood of operating with a unique foreign affiliate type in the host country increases. These results are consistent with previous findings in the literature on gravity models and international activities [Buch (2003, 2005), Chou and Shen (2014), Claessens and van Horen (2014)].

[Insert **Table 8** here]

4.2. *Host country regulation and supervision and exclusive choice of branch(es) versus subsidiary(ies)*

In Table 9 we report the results for the second-step of the Heckman estimation (Eq. (2)). We find that host country bank regulation and supervision are critical for foreign organizational form strategies. In both high-income and low-income countries, the likelihood for banks to operate solely with branch(es) in the host country is positively linked with bank activity restrictions. Such a result is consistent with the findings of Goldberg and Saunders (1981b), Miller and Parkhe (1998), and Clarke et al. (2003). As foreign banks are interested in exploiting diversified profits opportunities abroad, they are more likely to use subsidiaries rather than branches to provide a wide range of activities where possible. Moreover, our results show that in middle and high-income countries with stringent bank entry requirements, banks will rather operate a foreign subsidiary. But in the case low-income countries bank entry requirements do not matter. If the procedures to enter a market are relatively stringent, and nevertheless banks still desire to operate in that market, they might as well do it with the stronger structure, which is the subsidiary. Further, in their expansion in high-income countries with greater supervisory power, banks only set up foreign subsidiaries. However, in middle and low-income countries, more stringent capital rules or stronger supervisory power increases the likelihood to operate only with foreign branch(es). An increase in the capital regulatory index implies issuing additional capital for the parent bank which makes it more costly to set up a subsidiary. Also, parent banks from developed home countries¹³ that are subject to strong supervisory power at home seem less prone to put their subsidiary under the control of the banking authorities of developing countries. Banks might open branch(es) in such countries to harmonize the levels of supervision of their network of foreign affiliates.

The other country-level factors represented by foreign bank share and host country size both positively impact the probability to operate only with foreign subsidiary(ies) in all countries. In terms of bank financial characteristics, less efficient banks are more likely to expand only with foreign branch(es) since setting up this type of affiliate can be less costly for the parent bank. In middle and high-income countries, foreign subsidiaries are more common for large banks and banks with a retail business orientation. Retail-oriented banks conduct their deposit-taking operations in foreign subsidiary(ies) because they usually aim to deeply penetrate the

¹³ Of the 28 countries of the European Union, 26 are part of the high-income group and only Romania and Hungary are classified among middle-income countries.

local market and establish solid ties with their foreign customers [Goldberg and Saunders (1981b), (1990), Cerutti et al.(2007)].

[Insert **Table 9** here]

As a whole, our baseline estimates indicate that more restrictions on bank activities as well as more stringent capital requirements and more powerful supervisors lead foreign banks to rather operate foreign branch(es) in middle and low-income host countries. Conversely, when facing higher barriers to entry, banks favor subsidiary(ies) to expand in high and middle-income countries. Finally, the independence tests of the Heckman two-step model at the bottom of Table 9 confirm that the hypothesis of a selection bias in the choice of the foreign affiliate type cannot be rejected in our sample. The use of a two-step model is hence indispensable to make sure that the obtained results are unbiased.

4.3. *Host country regulation and supervision and choice of an organizational form (branch only, both branch and subsidiary, subsidiary only)*

We report in Table 10 the results of the multinomial probit estimation of Eq. (2) for the whole sample of all host countries and the three income groups separately. Whereas the analysis conducted in section 4.2 is limited to around 16 percent of all foreign affiliates, the multinomial regression allows us to consider the complete sample of foreign affiliates. We again find that banks operate branches when they are present in low-income host countries that strongly restrain bank activities. However, whereas such bank activity restrictions increase the incentives to solely run foreign subsidiary(ies) instead of foreign branch(es) in middle-income countries, they rather favor operating the two types of affiliates jointly in middle and high-income countries. The results also show that in high-income countries with stronger entry requirements, banks prefer being present with both organizational forms. Indeed, if barriers to entry are high and yet the parent bank can meet all the conditions to penetrate the host market, it might as well build up a stronger and deeper network with both foreign subsidiary(ies) and branch(es). When facing more stringent capital regulation and stronger supervisory power, the bank is more likely to either run branch(es) only or both types of affiliates jointly in middle and low-income countries. However, in high-income countries, whereas stronger supervisory power increases the likelihood to operate with foreign subsidiary(ies) only (rather than with branch(es) or both forms), stringent capital regulation favors a presence with foreign branch(es) only

instead of subsidiary(ies) only. Yet, in such high-income countries with strong capital rules, banks would rather operate with foreign subsidiary(ies) only than both types of affiliates. Possibly, in developed countries, the parent bank builds the organizational structure that minimizes the capital requirements and related expenses. On the whole, most effects of countries bank regulation and supervision stand and strengthen the findings in Table 10.

Regarding the other variables, we find that relatively to the foreign presence with subsidiary(ies) only, host country size negatively affects the likelihood of operating with branch(es) only in all countries or with both subsidiary(ies) and branch(es) in high-income countries. Yet, the size is positively associated to the establishment of both forms in middle and low-income countries. Additionally, we find a positive link between the internationalization of highly capitalized, better performing or retail-oriented banks and the higher probability of a presence abroad with subsidiary(ies).only or both forms. One plausible explanation for this result is that parent banks exploit their expertise and competitive advantages when they structure their foreign operations through the limited liabilities of subsidiaries. Finally, contrary to previous findings, all coefficients of bank size are positive and significant; suggesting that parent bank tends to make more likely the foreign presence with branch(es) only or both forms relatively to subsidiary(ies) only.

[Insert **Table 10** here]

5. Further issues and robustness checks

In this section, we run various regressions to go deeper in the analysis of the influence of home and host countries' regulation and supervision on banks internationalization strategies. We also check for the robustness of the previously obtained results.

5.1. Further explorations of banks foreign organizational strategies

We merge the previous regressions and run two additional Heckman sample-selection models in which the selection equation analyzes foreign presence with any kind of operations and the second stages consider all three foreign organizational structures. On the one hand, we estimate the probability of operating with foreign branch(es) only or both affiliate types in the host country instead of foreign subsidiary(ies) only. On the other hand, we model the probability

of operating in a host country with foreign subsidiary(ies) only or both affiliate types rather than foreign branch(es) only.

5.1.1. Home and host country regulation and supervision and choice of foreign location with any type of affiliates

The first-step of the Heckman is the same for both specifications and is reported in Table 11. When we do not restrain the definition of foreign presence to exclusively one type affiliate (branch or subsidiary), some of the bank regulation and supervision variables portray different results compared to Table 8. Indeed, contrary to the baseline model, banks from home countries with higher restrictions on bank activities than the host country increase their presence in middle-income countries. Another finding is the change in sign and significance of the capital regulatory index. When facing stringent capital requirements at home, the incentives for banks to expand in less stringent countries increase. To expand with a unique organizational form, banks are in search of a host country with strict capital regulation. Yet, considering the foreign presence with both subsidiary(ies) and branch(es), banks seem to prefer lower regulated locations. Furthermore, higher barriers to entry and lower power of host country's supervisors increase foreign presence in developed countries but decrease it in developing countries.

Additionally, higher presence of foreign banks decreases the likelihood of foreign banks to operate in middle-income countries, but increases their presence in high and low-income countries. Lastly, retail-oriented banks are more likely to expand in other countries (either developed or developing) than other types of banks. On the whole, the signs of the other coefficients are in line with the findings in Table 8.

[Insert **Table 11** here]

5.1.2. Host country regulation and supervision and foreign expansion with at least one type of affiliate

5.1.2.1. Foreign bank presence with branch(es)

Table 12 reports the second stage of the Heckman which estimates the probability of operating with foreign branch(es) only or both affiliate types in the host country instead of foreign subsidiary(ies) only. With these estimations, we aim to capture deeply the foreign structures banks build abroad relatively to the special case of the expansion with a unique

organizational form. Looking at the three income-group subsamples, we observe a complete absence of significance of bank regulation and supervision variables in developed countries where as in middle and low-income host countries, all effects become strongly significant. Relatively to the results reported in Table 9, stringent entry into banking requirements make more likely the foreign presence with subsidiary(ies) only. Yet, when facing stronger capital rules and greater supervisory power in a host country, banks will rather build a presence with branch(es) only or establish both subsidiary(ies) and branch(es). On the whole, the findings regarding bank regulation and supervision variables strengthen those previously obtained.

We also find that foreign bank presence positively affects the likelihood to establish only foreign subsidiary(ies) in developed countries and either branch(es) only or both affiliate' forms in developing countries. Business opportunities and competitive advantage of the parent bank might explain this difference of strategies.

[Insert **Table 12** here]

5.1.2.2. *Foreign bank presence with subsidiary(ies)*

In the other second stage regression of the probability of operating in a host country with foreign subsidiary(ies) only or both affiliate types rather than foreign branch(es) only, the coefficients in Table 13 are globally opposite to the baseline estimations (Table 9). For example, stringent capital regulation increases the likelihood to operate with branch(es) only instead of subsidiary(ies) only or both forms in all host countries. Conversely, higher barriers to entry and greater supervisory power are positively associated to the foreign presence with subsidiary(ies) only or both organizational forms in high and middle income countries. These results are in line with the previous ones with a presence solely with foreign subsidiary(ies) as the base outcome.

Regarding the bank financial factors, highly capitalized banks set up their network abroad through the stronger and deeper strategy of subsidiary(ies) only or both subsidiary(ies) and branch(es). Banks with diversified income are more likely to have a presence with subsidiary(ies) only or both types of affiliates in high and low-income countries but, they prefer to operate with foreign branch(es) only in middle-income countries. On the whole, the rest of country-level and bank-level characteristics portrays the same pattern of opposite signs in line with the baseline model.

[Insert **Table 13** here]

5.2. *Robustness checks*

To test the consistency of our findings, we conduct some robustness checks of the previous results.

Given the 1993 European Communities Regulation¹⁴ on free establishment of branches from parent's home EU country in any other EU country, we differentiate host countries by their economic integration and run the regressions on the two subsamples of EU and non-EU host countries. Relatively to the category of high-income countries, higher barriers to entry and weaker supervisory power become significant and make less likely the presence of a EU bank in another EU country. Moreover, banks specialized in deposit-taking activities tend to favor foreign expansion in EU countries. Regarding the choice of the unique organizational form, beside the entry into banking requirements that are now non-significant, the rest of bank regulation and supervision factors mirror the findings for high-income countries (Table 15). Also, contrary to the previous results, banks that are less efficient or better performing or engage in diversified activities seem to establish foreign subsidiary(ies) only in other EU countries rather than branch(es) only. On the whole, the regressions portray the similar conclusions (Table 14 and Table 15).

[Insert **Table 14** and **Table 15** here]

Further, we test for the weight of foreign banks in the host country by replacing foreign bank share with the percentage of the total banking assets held by foreign banks (*ForeignTA_TotalTA*)¹⁵ among the explanatory variables in Eq. (1) and Eq. (2). We lose some observations but globally our main findings remain unchanged (Table 16 and Table 17).

[Insert **Table 16** and **Table 17** here]

Finally, we dissociate the economic freedom index to capture the effect of each composite on banks' internationalization. More precisely, this check will allow us to determine the individual importance of the four pillars: Rule of Law (property rights, freedom from corruption), Limited Government (fiscal freedom, government spending), Regulatory Efficiency (business freedom, labor freedom, monetary freedom), and Market Openness (trade freedom, investment freedom, financial freedom) (Table 18 to Table 25).

¹⁴ <http://www.irishstatutebook.ie/1993/en/si/0395.html>

¹⁵ This variable was extracted from the Global Financial Development Database (2015) provided by the World Bank

[Insert **Table 18** to **Table 25** here]

First, the regressions results reported in Table 18, indicate that banks are less likely to be present in host countries where Rule of Law is lower than at home. As the effects of property rights and freedom from corruption are similar to the global economic freedom score, this check supports the previous findings (Table 18 and Table 19). Second, we look at the influence of government in terms of the tax burden and expenditures relatively to the GDP and we observe a negative impact of Limited Government on the likelihood to expand in high and middle-income countries, but an absence of significance in low-income host countries. The other coefficients of these regressions (Table 20 and Table 21) are consistent with the baseline results. Third, we also find that an increase of the gap between the home and the host countries' Regulatory Efficiency has a negative impact on the selection of high and middle-income locations, but does not affect entry in low-income countries. The results of this estimation, reported in Table 22 and Table 23, leave our main findings unchanged. Finally, when facing host countries with lower Market Openness score relatively to the home country, the bank incentive to establish a foreign affiliate diminishes. As it was already the case for the previous categories, the rest of findings (Table 24 and Table 25) again confirms the conclusions of Section 4.

6. Conclusion

In this paper we assemble a unique hand-collected database to capture the internationalization pattern of banks. Using 1,251 banks from the 28 European Union countries we empirically identify how home country bank regulation and host country regulation and level of development influence where and how banks expand abroad. More specifically, we look into whether they operate only with one type of affiliate (subsidiaries versus branches) or with both organizational forms in the host country.

Globally, our results show that both home country and host country regulations matter but in different ways. Low-income countries with severe restrictions on bank activities are less likely to attract foreign entities; yet the likelihood increases when the barriers to entry are higher. Additionally, the incentives to go abroad decrease when the host country capital regulatory index, official supervisory power and economic freedom scores are lower than at home. These findings suggest that in most host locations, rather than entering countries with lax regulation, banks prefer to expand in more stringent regulatory and supervisory environments. Moreover, banks' business models also matter as we find that retail-oriented banks are more likely to penetrate low-income countries than high-income countries. In less developed countries, banks apparently expand to build up traditional deposit-taking operations but in mature markets they rather expand when they are focused on wholesale banking services. Nevertheless, we also find that such retail-oriented banks operate either with subsidiaries solely or with both forms in high-income and middle-income host countries. Also, Banks are more likely to run foreign branches than subsidiaries in both high-income and low-income countries that restrain banking activities, and establish both type of affiliates when they enter middle-income countries that limit their activities. Furthermore, strong entry restrictions are likely to favor subsidiary operations in all locations but branch activities are more common in middle-income and low-income countries with stringent capital requirements and greater supervisory power.

Our findings have important policy implications. Home country and host country regulatory requirements and prudential rules play an important role in banks' foreign expansion but differently for low-income and high-income countries. When facing strong supervisory power, banks expand by rather opening foreign branches than subsidiaries in middle-income and low-income countries but by mostly establishing subsidiaries in high-income countries. To monitor and manage bank stability, specifically in times of financial turmoil, supervisors should account for the structure of banking groups and the organizational forms of their international

expansion. Our results also show that highly capitalized banks mostly operate subsidiaries in both high and low-income countries. Internal capital markets through which parent banks can channel funds in both directions should therefore be given specific attention.

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Table 1
Distribution of European Union' banks in 2013

EU Countries	All banks	Banks with a foreign activity	Host countries HC (154)
Euro Area	943	234	///
Austria	115	28	34
Belgium	31	12	18
Cyprus	10	6	6
Estonia	3	0	0
Finland	10	5	8
France	182	43	69
Germany	239	34	68
Greece	8	4	10
Ireland	10	1	10
Italy	120	34	30
Latvia	7	3	8
Lithuania	6	0	0
Luxembourg	46	22	21
Malta	8	2	3
Netherlands	15	7	40
Portugal	25	13	24
Slovakia	9	0	0
Slovenia	13	4	7
Spain	86	16	35
Non Euro Area	309	55	///
Bulgaria	13	2	4
Croatia	27	5	2
Czech Republic	15	2	3
Denmark	70	6	24
Hungary	14	4	7
Poland	29	3	6
Romania	16	4	2
Sweden	22	4	37
United Kingdom	102	25	66
Total : 28	1,251	289	///

Source: Bankscope, SNL Database, bank web pages

Table 2

Income-group classification of all countries

Low-income: 55 countries (GNI per Capita ≤ \$4,125)		Middle-income: 35 countries (\$4,125 < GNI per capita < \$12,736)		High-income: 64 countries (GNI per capita ≥ \$12,736)		
Armenia	Malawi	Albania	Romania (EU)	Andorra	Israel	Sweden (EU)
Bangladesh	Mali	Algeria	Serbia	Antigua and Barbuda	Italy (EU)	Switzerland
Burkina Faso	Mauritania	Angola	South Africa	Argentina	Japan	Taiwan
Burma	Moldova, Rep.of	Azerbaijan	Thailand	Australia	Korea	United Arab Emirates
Burundi	Morocco	Belarus	Tunisia	Austria (EU)	Kuwait	United Kingdom (EU)
Cambodia	Mozambique	Bosnia and Herzegovina	Turkey	Bahamas	Latvia (EU)	United States of
Cameroon	Nepal	Botswana	Turkmenistan	Bahrain	Liechtenstein	Uruguay
Cape Verde	Nigeria	Brazil		Belgium (EU)	Lithuania (EU)	Venezuela
Chad	Pakistan	Bulgaria (EU)		Bermuda	Luxembourg (EU)	
Congo	Palestine	China		Brunei Darussalam	Macau	
Congo, Rep. Dem.	Philippines	Colombia		Canada	Malta (EU)	
Côte d'Ivoire	Rwanda	Dominican Republic		Cayman Islands	Netherlands (EU)	
Djibouti	Sao Tome and Principe	Fiji		Chile	New Caledonia	
Egypt	Senegal	Gabon		Croatia (EU)	New Zealand	
Ethiopia	Sierra Leone	Gibraltar		Curacao	Norway	
Gambia	Sri Lanka	Kazakhstan		Cyprus (EU)	Oman	
Georgia	St. Pierre and Miquelon	Lebanon		Czech Republic (EU)	Poland (EU)	
Ghana	Tanzania	Libya		Denmark (EU)	Portugal (EU)	
Guinea	Timor-Leste	Macedonia		Equatorial Guinea	Puerto Rico	
Guinea-Bissau	Uganda	Malaysia		Estonia (EU)	Qatar	
Haiti	Ukraine	Maldives		Finland (EU)	Russian Federation	
India	Uzbekistan	Mauritius		France (EU)	San Marino	
Indonesia	Vanuatu	Mexico		French Polynesia	Saudi Arabia	
Kenya	Viet Nam	Mongolia		Germany (EU)	Seychelles	
Kosovo	Wallis and Futuna	Montenegro		Greece (EU)	Singapore	
Kyrgyzstan	Zambia	Panama		Hong Kong	Slovakia (EU)	
Laos	Zimbabwe	Paraguay		Hungary (EU)	Slovenia (EU)	
Madagascar		Peru		Ireland (EU)	Spain (EU)	

We consider a slightly modified version of the classification of income-groups provided in the World Development Indicators (2015) by the World Bank. In his paper, 55 low-income economies are defined as those with a GNI per capita of \$4,125 or less; 35 middle-income economies have a GNI per capita of more than \$4,125 but less than \$12,736, and 64 high-income economies, a GNI per capita of \$12,736 or more. In Table 2, we list all 154 host countries by the defined income per habitant categories. In the original classification, the World Bank divides the countries into four groups: low-income (GNI ≤ \$1,045), lower-middle income (\$1,045 < GNI ≤ \$4,125), upper-middle-income (\$4,125 < GNI < \$12,736), and the high-income (GNI ≥ \$12,736).

Table 3
EU Banks foreign presence around the world in 2013

	Foreign subsidiary(ies) only	Foreign branch(es) only	Both foreign subsidiary(ies) and branch(es)
Number of foreign affiliates in host countries	713	2,595	17,542
20,850			

Continents (Host countries)	Foreign affiliates	Foreign subsidiaries FS	Foreign branches FB	Foreign strategy (FS / FB)
Africa (41)	197	84	113	0.743
America (21)	9,311	246	9,065	0.027
Asia (41)	1,775	173	1,602	0.108
Europe (44)	9,466	506	8,960	0.056
Pacific (7)	101	13	88	0.148
Total : 154	20,850	1,022	19,828	

Income-groups (Host countries)	Foreign affiliates	Foreign subsidiaries FS	Foreign branches FB	Foreign strategy (FS / FB)
High Income (64)	10,134	709	9,425	0.075
Middle Income (35)	9,010	196	8,814	0.022
Low Income (55)	1,706	117	1,589	0.074
Total : 154	20,850	1,022	19,828	

Table 3 reports the distribution of banks' affiliates around the world for the year 2013. We separate the host countries by their geographical location and the levels of development following the World Development Indicators (2015) by the World Bank. The World Bank divides the countries into four income-groups by the amount of GNI per capita: low-income ($GNI \leq \$1,045$), lower-middle income ($\$1,045 < GNI \leq \$4,125$), upper-middle-income ($\$4,125 \leq GNI < \$12,736$), and high-income ($GNI \geq \$12,736$). To differentiate our levels of development, we adjust the World Bank classification and merge the lower-middle-income and low-income to constitute our low-income group; the upper-middle-income represents our middle-income group; and the high-income group is unchanged. Foreign strategy is the ratio of the total number of foreign subsidiary(ies) FS to the total number of foreign branch(es) FB.

Source: Bankscope, SNL Database, banks web pages, World Bank

Table 4
Country-level bank regulation and supervision summary statistics

Variables	Obs.	Mean	Std. Dev.	Median	Min	Max
Host countries = 154 Home Countries = 28						
Host_Bank Activity Restrictions	133	9,87	2,51	10	4	14
Host_Entry into Banking Requirements	133	8,57	0,70	9	6	9
Host_Capital Regulatory index	133	9,91	4,00	11	0	15
Host_Official Supervisory Power	133	9,88	1,75	10	6	14
Home_Bank Activity Restrictions	28	8,54	2,39	8.5	5	14
Home_Capital Regulatory index	28	11.71	2.81	12.5	2	15
Home_Official Supervisory Power	28	9.32	1.72	10	5	11
Home countries (28) ↔ Host countries (154) = 4,312						
Diff (Home-Host)_Bank Activity Restrictions	3,724	-1.40	3.34	-1	-9	5
Diff (Home-Host)_Capital Regulatory index	3,724	1.80	4.81	1	-11	13
Diff (Home-Host)_Official Supervisory Power	3,724	-0.56	2.37	0	-6	4
High income Host countries = 64						
	Obs.	Mean	Std. Dev.	Median	Min	Max
Host_Bank Activity Restrictions	56	9.55	2.75	10	4	14
Host_Entry into Banking Requirements	56	8.52	0.81	9	6	9
Host_Capital Regulatory index	56	11.05	3.65	12	0	15
Host_Official Supervisory Power	56	9.54	1.83	10	6	13
Home countries (28) ↔ Host countries (64) = 1,792						
Diff (Home-Host)_Bank Activity Restrictions	1,568	-1.09	3.45	-1	-9	5
Diff (Home-Host)_Capital Regulatory index	1,568	0.67	4.51	0	-11	13
Diff (Home-Host)_Official Supervisory Power	1,568	-0.22	2.41	0	-6	4
Middle income Host countries = 35						
	Obs.	Mean	Std. Dev.	Median	Min	Max
Host_Bank Activity Restrictions	33	9.48	2.55	9	4	14
Host_Entry into Banking Requirements	33	8.54	0.67	9	6	9
Host_Capital Regulatory index	33	8.90	4.33	10	0	15
Host_Official Supervisory Power	33	9.79	1.76	10	6	12
Home countries (28) ↔ Host countries (35) = 980						
Diff (Home-Host)_Bank Activity Restrictions	924	-1.02	3.30	-1	.9	5
Diff (Home-Host)_Capital Regulatory index	924	2.80	5.05	2	-11	13
Diff (Home-Host)_Official Supervisory Power	924	-0.48	2.37	0	-6	4

Low income Host countries = 55	Obs.	Mean	Std. Dev.	Median	Min	Max
Host_Bank Activity Restrictions	44	10.57	2.02	10.5	6	14
Host_Entry into Banking Requirements	44	8.66	0.57	9	7	9
Host_Capital Regulatory index	44	9.20	3.89	10	0	15
Host_Official Supervisory Power	44	10.39	1.53	10	7	14
Home countries (28) ↔ Host countries (55) = 1,540						
Diff (Home-Host)_Bank Activity Restrictions	1,232	-2.08	3.10	-2	-9	5
Diff (Home-Host)_Capital Regulatory index	1,232	2.48	4.71	2	-11	13
Diff (Home-Host)_Official Supervisory Power	1,232	-1.04	2.21	-1	-6	4

Country-level bank regulation and supervision variables: Bank Activity Restrictions = the restrictiveness in the participation into securities, insurance, real estate activities and the ownership power in nonfinancial firms; *Entry into Banking Requirements* = all the documents applicants are legally entitled to provide in order for the authority to grant a banking license in the country, *Capital Regulatory index* = the requirements in terms of minimum capital adequacy, risks and market value losses, sources of funding used to capitalize a bank and the level of official appraisal; *Official Supervisory Power* = all actions taken by the authorities to prevent and correct problems regarding auditing, internal/board/ownership rights structure, profits and losses and other balance sheets items. These qualitative variables for the year 2010 were winsorized at 1% and 99% levels to limit the influence of outliers.

Source: World Bank (Bank Regulation and Supervision Survey)

Table 5

Country-level macroeconomics, market structure and institutional summary statistics

Variables	Obs.	Mean	Std. Dev.	Median	Min	Max
Host countries = 154 Home Countries = 28						
Host_Economic Freedom score	138	61.24	10.63	61.00	37.25	87.57
Host_Foreign Bank Share	129	0.43	0.32	0.39	0	1
Host_Bank Concentration	131	0.71	0.21	0.70	0.08	1
Host_Depth of Credit Information index	154	4.53	1.64	5.00	1.67	7
Host_GDP per Capita (log)	142	8.54	1.61	8.68	5.59	11.19
Host_Size (log GDP)	142	10.67	2.14	10.39	6.26	16.47
Home_ Economic Freedom score	28	67.46	6.10	69.10	57.03	76.97
Home countries (28) ↔ Host countries (154) = 4,312						
Diff (Home-Host)_Economic Freedom score	3,864	7.10	12.04	6.88	-18.57	35.90
Bilateral Trade ratio (%)	3,419	0.71	1.76	0.08	0.00	10.75
Common Official Language	4,312	0.07	0.26	0	0	1
Distance between capitals (kilometers)	4,312	5,523.39	3,998.11	5,059.41	1	19,586.18
Distance between capitals (log)	4,312	8.23	1.15	8.53	0	9.88
High income Host countries = 64						
Host_Economic Freedom score	53	69.02	9.77	70.00	37.27	87.57
Host_Foreign Bank Share	55	0.39	0.34	0.26	0	1
Host_Bank Concentration	55	0.73	0.23	0.80	0.08	1
Host_Depth of Credit Information index	64	5.12	1.42	5.33	1.67	7
Host_GDP per Capita (log)	61	10.12	0.65	10.12	8.75	11.19
Host_Size (log GDP)	61	11.57	2.17	12.09	6.91	16.47
Home countries (28) ↔ Host countries (64) = 1,792						
Diff (Home-Host)_Economic Freedom score	1,484	-0.64	10.93	-0.80	-18.57	35.90
Bilateral Trade ratio (%)	1,467	1.37	2.42	0.33	0.00	10.75
Common Official Language	1,792	0.08	0.27	0	0	1
Distance between capitals (kilometers)	1,792	4,997.58	4,624.50	2,925.40	1	19,586.18
Distance between capitals (log)	1,792	7.91	1.46	7.98	0	9.88
Middle income Host countries = 35						
Host_Economic Freedom score	34	59.80	8.19	61.32	37.25	76.70
Host_Foreign Bank Share	32	0.47	0.33	0.47	0.01	1
Host_Bank Concentration	31	0.68	0.17	0.66	0.33	1
Host_Depth of Credit Information index	35	5.18	1.08	5.33	2.33	6.33
Host_GDP per Capita (log)	33	8.43	0.41	8.50	7.40	9.05
Host_Size (log GDP)	33	10.82	1.77	10.57	7.60	15.34

Home countries (28) ↔ Host countries (35) = 980						
Diff (Home-Host)_Economic Freedom score	952	8.27	10.07	8.17	-16.80	35.90
Bilateral Trade ratio (%)	838	0.39	0.96	0.06	0.00	7.50
Common Official Language	980	0.05	0.22	0	0	1
Distance between capitals (kilometers)	980	5,590.12	3,990.74	5,359.12	1	17,627.30
Distance between capitals (log)	980	8.25	1.03	8.59	0	9.78

Low income Host countries = 55	Obs.	Mean	Std. Dev.	Median	Min	Max
Host_Economic Freedom score	51	54.11	6.99	55.20	37.25	70.67
Host_Foreign Bank Share	42	0.44	0.30	0.47	0	1
Host_Bank Concentration	45	0.71	0.21	0.70	0.27	1
Host_Depth of Credit Information index	55	3.37	1.59	2.33	1.67	7
Host_GDP per Capita (log)	48	6.66	0.64	6.68	5.59	7.83
Host_Size (log GDP)	48	9.43	1.73	9.17	6.26	14.14

Home countries (28) ↔ Host countries (55) = 1,540						
Diff (Home-Host)_Economic Freedom score	1,428	14.42	9.17	14.52	-10.773	35.90
Bilateral Trade ratio (%)	1,114	0.09	0.23	0.01	0.00	2.27
Common Official Language	1,540	0.07	0.26	0	0	1
Distance between capitals (kilometers)	1,540	6,092.78	3,018.03	5,604.83	356.67	17,685.19
Distance between capitals (log)	1,540	8.58	0.57	8.63	5.88	9.78

Country-level variables: *Foreign Bank Share* = the percentage of the number of banks with assets that are at least 50% foreign-owned among the total of banks in the system, *Bank Concentration* = the proportion of assets held by the three largest banks in a country over the total assets of the banking sector, *Depth of Credit Information index* = an index that facilitates lending decisions by dealing with the rules affecting the scope, accessibility, and quality of credit information from public registry or private bureau, *GDP per Capita (log)* = the logarithm transformation of the \$US 2005 constant GDP per capita; *Size (log GDP)* = the logarithm transformation of the \$US 2005 constant GDP, *Economic Freedom score* = an equally weighted average of ten quantitative and qualitative indicators (Property Rights, Freedom from Corruption, Government spending, Fiscal Freedom, Business Freedom, Labor Freedom, Monetary Freedom, Trade Freedom, Investment freedom, Financial Freedom) and *Diff (Home-Host)_ Economic Freedom score* is constructed by subtracting the host country score from the home country score, *Bilateral Trade Ratio* = the flow of transactions in goods and services between a EU country and the 154 host countries, *Common Official Language* = a dummy variable that takes the value 1 when at least one official language is spoken in the home and host countries, and 0 otherwise, and *Distance* = in kilometers between the capital cities of the home and host country. These 3-year average value of each country 2011-2013 figures were winsorized at 1% and 99% levels to limit the influence of outliers.

Source: CEPII, Heritage Foundation, OECD-WTO, UNCTAD, World Bank (Financial Development and Structure, Global Financial Development Structure, Supervisory and Deposit Insurance, World Development Indicators)

Table 6
Bank-level financial summary statistics

Variables	Obs.	Mean	Std. Dev.	Median	Min	Max
All Banks						
Business Specialization	1,251	0,66	0,47	1	0	1
CIR	1,251	0,68	0,30	0,66	0,07	2,16
EQ_TA	1,251	0,12	0,12	0,08	0,03	0,65
L_TA	1,251	0,54	0,25	0,59	0,00	0,97
NII_NI (%)	1,251	-0,86	2,78	-0,68	-14,76	9,39
NIM (%)	1,251	2,15	1,53	1,90	-0,11	9,69
ROAA (%)	1,251	0,28	1,66	0,28	-7,37	10,40
TA (billions USD)	1,251	24,44	77,71	2,88	0,01	621,25
Banks with a foreign organizational strategy						
Business Specialization	289	0,69	0,47	1	0	1
CIR	289	0,65	0,28	0,63	0,07	2,04
EQ_TA	289	0,11	0,12	0,07	0,03	0,65
L_TA	289	0,45	0,25	0,51	0,00	0,93
NII_NI (%)	289	-0,86	2,97	-0,45	-14,76	9,39
NIM (%)	289	1,74	1,46	1,47	-0,11	9,69
ROAA (%)	289	0,27	2,30	0,28	-7,37	10,40
TA (billions USD)	289	73,52	143,85	13,65	0,04	621,25
Banks with only foreign subsidiary(ies)						
Business Specialization	137	0,66	0,48	1	0	1
CIR	137	0,66	0,32	0,62	0,07	2,04
EQ_TA	137	0,13	0,14	0,09	0,03	0,65
L_TA	137	0,45	0,28	0,50	0,00	0,93
NII_NI (%)	137	-0,62	3,25	-0,32	-14,76	9,39
NIM (%)	137	2,01	1,79	1,66	-0,11	9,69
ROAA (%)	137	0,49	2,78	0,35	-7,37	10,40
TA (billions USD)	137	35,99	93,27	4,80	0,04	621,25
Banks with only foreign branch(es)						
Business Specialization	56	0,59	0,50	1	0	1
CIR	56	0,63	0,24	0,60	0,12	1,47
EQ_TA	56	0,10	0,11	0,06	0,03	0,65
L_TA	56	0,53	0,23	0,58	0,01	0,90
NII_NI (%)	56	-0,65	2,80	-0,54	-14,76	9,39
NIM (%)	56	1,41	0,80	1,37	-0,10	3,39
ROAA (%)	56	0,21	1,91	0,32	-5,46	10,40
TA (billions USD)	56	29,60	45,23	13,45	0,05	205,60
Banks with both foreign subsidiary(ies) and foreign branch(es)						
Business Specialization	96	0,78	0,42	1	0	1
CIR	96	0,64	0,23	0,64	0,12	1,59
EQ_TA	96	0,08	0,08	0,06	0,03	0,65
L_TA	96	0,42	0,22	0,45	0,00	0,91
NII_NI (%)	96	-1,33	2,61	-0,52	-14,76	1,57
NIM (%)	96	1,55	1,13	1,36	-0,03	5,69
ROAA (%)	96	-0,02	1,64	0,19	-7,37	8,09
TA (billions USD)	96	152,68	198,98	54,66	0,42	621,25

The table displays the descriptive statistics of the banks financial characteristics: *Business Specialization* is a dummy equal to 1 for retail banks and 0 when they engage in wholesale banking services, *CIR* cost to income ratio; *EQ_TA* capital ratio of equity to total assets; *L_TA* loans to total assets; *NII_NI* non-interest income to net income; *NIM* net interest margin; *ROAA* return on average assets; *TA* total assets). All variables are calculated as the 3-year average value of 2011-2013 figures and were winsorized at 1% and 99% levels to limit the influence of outliers.

Source: Bankscope

Table 7
Correlation coefficients matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1. Host_Bank Activity Restrictions	1																								
2. Host_Entry into Banking Requirements	-0.10	1																							
3. Host_Capital Regulatory index	-0.01	0.32	1																						
4. Host_Official Supervisory Power	0.13	0.00	-0.18	1																					
5. Host_Foreign Bank Share	0.01	0.05	0.01	0.10	1																				
6. Host_Bank Concentration	-0.06	-0.06	-0.01	0.10	0.23	1																			
7. Host_Depth of Credit Information	-0.21	-0.03	0.09	-0.26	-0.14	-0.18	1																		
8. Host_GDP per Capita (log)	-0.19	-0.10	0.25	-0.27	-0.11	-0.01	0.59	1																	
9. Host_Size (log GDP)	-0.12	-0.02	0.26	-0.30	-0.45	-0.35	0.58	0.60	1																
10. Diff (Home-Host)_Bank Activity	-0.81	0.08	0.01	-0.12	-0.02	0.03	0.17	0.15	0.10	1															
11. Diff (Home-Host)_Cap Regulatory	0.01	-0.26	-0.83	0.16	-0.01	0.00	-0.06	-0.20	-0.20	-0.10	1														
12. Diff (Home-Host)_Off Supervisory	-0.10	-0.01	0.12	-0.76	-0.08	-0.09	0.20	0.20	0.23	0.19	-0.01	1													
13. Diff (Home-Host)_Economic Freedom	0.16	0.07	-0.10	0.06	-0.11	-0.14	-0.40	-0.61	-0.30	-0.15	0.06	-0.10	1												
14. Bilateral Trade Ratio	-0.15	0.03	0.17	-0.21	-0.26	-0.28	0.28	0.41	0.59	0.13	-0.15	0.14	-0.22	1											
15. Common Official Language	-0.05	0.06	0.06	-0.04	0.03	-0.08	0.01	0.10	0.10	-0.01	-0.01	-0.01	-0.13	0.14	1										
16. Distance (log)	0.23	0.05	-0.03	0.19	-0.09	0.02	-0.10	-0.35	-0.08	-0.19	0.03	-0.16	0.15	-0.36	-0.06	1									
17. Business Specialization	0.00	0.02	0.01	0.00	0.00	-0.03	0.03	0.01	0.05	0.04	0.10	0.09	-0.04	0.04	0.04	0.00	1								
18. CIR	0.02	-0.02	-0.01	0.01	0.00	0.03	-0.03	-0.02	-0.05	-0.09	0.04	0.00	0.03	-0.03	-0.07	-0.03	0.01	1							
19. EQ_TA	0.00	-0.01	-0.01	0.00	0.00	0.01	-0.02	-0.01	-0.03	0.00	-0.04	-0.04	0.02	-0.03	0.02	0.02	-0.08	-0.05	1						
20. L_TA	0.02	-0.02	-0.02	0.01	0.01	0.04	-0.03	-0.02	-0.06	0.06	-0.05	0.01	0.00	-0.05	-0.08	0.00	-0.01	-0.10	-0.17	1					
21. NII_NI	0.00	0.00	0.00	-0.01	0.00	-0.01	0.01	-0.01	0.01	0.02	-0.01	0.05	0.00	-0.01	0.02	0.03	0.03	-0.02	0.11	-0.11	1				
23. NIM	0.00	-0.01	-0.01	0.00	0.00	0.02	-0.02	-0.02	-0.03	0.06	0.00	0.01	0.01	-0.03	-0.09	0.00	0.04	-0.09	0.23	0.26	-0.05	1			
23. ROAA	-0.01	-0.01	-0.01	-0.02	0.00	-0.01	0.00	0.00	0.00	0.04	-0.02	-0.03	0.03	-0.02	0.03	0.03	-0.09	-0.45	0.28	-0.04	0.07	0.21	1		
24. Bank size (logTA)	-0.03	0.06	0.04	-0.02	-0.01	-0.11	0.11	0.06	0.17	0.11	-0.02	0.10	-0.11	0.12	0.20	0.00	0.09	-0.24	-0.27	-0.09	0.05	-0.34	-0.08	1	

Variables: the country bank regulation and supervision variables (**1 to 4** and **10-12**: Bank Activity Restrictions, Entry into Banking Requirements, Capital Regulatory index, and Official Supervisory Power) account for the year 2010. Institutional variables (**5 to 9** and **13**: Foreign Bank Share, Bank Concentration, Depth of Credit Information Index, GDP per Capita (log), Size (log GDP), Economic Freedom Score, and Bilateral Trade Ratio) and bank financial characteristics (**16 to 23**: CIR cost to income ratio; EQ_TA capital ratio of equity to total assets ; L_TA loans to total assets ; NII_NI non-interest income to net income ; NIM net interest margin ; ROAA return on average assets ; TA total assets) are the 3-year average value of each country 2011-2013 figures. All variables were winsorized at 1% and 99% levels to limit the influence of outliers and the correlation coefficients are all significant at a 5% level.

Sources: Bankscope, CEPII, Heritage Foundation, OECD-WTO, UNCTAD, World Bank (Bank Regulation and Supervision Survey, Financial Development and Structure, Global Financial Development Structure, Supervisory and Deposit Insurance, World Development Indicators)

Table 8

1st Step – Heckman two-step sample-selection estimation of Eq. (1): the likelihood for a bank to have an exclusive foreign affiliate form in the host country.

	Foreign Host Country choice:			
	Presence = 1 ; Absence = 0			
	(1) All countries	(2) Host_High-income	(3) Host_Middle-income	(4) Host_Low-income
Host_Entry into Banking Requirements	-0.013 (0.02)	0.006 (0.02)	-0.215*** (0.08)	0.455*** (0.13)
Diff (Home-Host)_Bank Activity Restrictions	-0.006 (0.00)	-0.016*** (0.01)	-0.029** (0.01)	0.063*** (0.01)
Diff (Home-Host)_Capital Regulatory index	-0.022*** (0.00)	-0.030*** (0.00)	-0.023*** (0.01)	-0.030*** (0.01)
Diff (Home-Host)_Official Supervisory Power	-0.020*** (0.01)	0.004 (0.01)	-0.059*** (0.02)	-0.075*** (0.02)
Diff (Home-Host)_Economic Freedom Score	-0.035*** (0.00)	-0.029*** (0.00)	-0.044*** (0.00)	-0.015** (0.01)
Host_Foreign Bank Share	0.637*** (0.05)	0.732*** (0.07)	0.258 (0.17)	-0.338* (0.18)
Host_Bank Concentration	-1.125*** (0.06)	-1.102*** (0.09)	-0.648** (0.26)	-0.979*** (0.23)
Host_Depth of Credit Information Index	0.137*** (0.01)	0.158*** (0.02)	0.307*** (0.05)	-0.126*** (0.04)
Host_GDP per Capita (log)	-0.138*** (0.02)			
Host_Size (log GDP)	0.012 (0.01)	-0.012 (0.02)	0.208*** (0.04)	0.103** (0.04)
Common Official Language	0.111*** (0.04)	0.199*** (0.04)	0.518*** (0.11)	0.466*** (0.11)
Distance between capitals	-0.296*** (0.01)	-0.213*** (0.01)	-1.015*** (0.05)	-0.508*** (0.07)
Bilateral Trade ratio	0.145*** (0.01)	0.143*** (0.01)	0.164*** (0.03)	0.399*** (0.14)
Business Specialization	-0.029 (0.03)	-0.060* (0.03)	-0.006 (0.07)	0.723*** (0.13)
Cost to Income Ratio	0.332*** (0.05)	0.519*** (0.06)	-0.247* (0.13)	0.421*** (0.14)
Loans / Total Assets	-1.191*** (0.05)	-1.157*** (0.06)	-1.443*** (0.13)	-1.168*** (0.18)
Non-Interest Income to Net Income	-0.065*** (0.00)	-0.083*** (0.00)	-0.026** (0.01)	-0.013 (0.01)
ROAA	0.101*** (0.01)	0.144*** (0.01)	0.030 (0.02)	0.184*** (0.03)
Bank size (logTA)	0.475*** (0.01)	0.490*** (0.01)	0.524*** (0.02)	0.437*** (0.03)
Number of observations	134,683	60,634	31,523	42,526

The table presents regression results of the 1st step of the Heckman two-step sample-selection estimation of Eq. (1): the likelihood for a bank i from EU country j to have an exclusive foreign affiliate form in the host country $k \neq j$ (Presence $Foreign_{i,j,k} = 1$), for the whole sample of countries and the three high, middle, and low-income groups. A constant is estimated but not reported. All the variables have been defined in Section 2 and the descriptive statistics can be found in Table 4 (Country-level Bank regulation and supervision), Table 5 (Country-level Institutional) and Table 6 (Individual bank-specific characteristics). This table reports the standard errors in parentheses and the significance of p-value by * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 9

2nd Step – Heckman two-step sample-selection estimation of Eq. (2): the likelihood for a bank to operate only with foreign branch(es) and no subsidiary in the host country.

	Foreign Organizational Form choice: Only subsidiary(ies) = 0 vs Only branch(es) = 1			
	(1) All countries	(2) Host_High Income	(3) Host_Middle Income	(4) Host_Low Income
Host_Entry into Banking Requirements	-0.099*** (0.01)	-0.059*** (0.02)	-0.089** (0.04)	0.084 (0.10)
Host_Bank Activity Restrictions	-0.002 (0.00)	0.007* (0.00)	-0.012* (0.01)	0.102*** (0.01)
Host_Capital Regulatory index	0.005** (0.00)	0.000 (0.00)	0.024*** (0.01)	0.047*** (0.02)
Host_Official Supervisory Power	-0.055*** (0.01)	-0.079*** (0.01)	0.026** (0.01)	0.095*** (0.03)
Host_Foreign Bank Share	-0.030 (0.04)	-0.083 (0.05)	-0.094 (0.08)	-0.402*** (0.14)
Host_GDP per Capita (log)	-0.034*** (0.01)			
Host_Size (log GDP)	-0.080*** (0.01)	-0.110*** (0.01)	-0.059*** (0.02)	-0.090*** (0.02)
Business Specialization	-0.093*** (0.02)	-0.049** (0.02)	-0.092** (0.04)	0.202 (0.16)
Cost to Income Ratio	0.159*** (0.04)	0.075* (0.04)	0.617*** (0.09)	0.630*** (0.16)
Equity / Total Assets	-1.186*** (0.11)	-1.551*** (0.13)	0.795*** (0.22)	-0.366 (0.41)
Net Interest Margin	-0.006 (0.01)	0.002 (0.01)	-0.036*** (0.01)	-0.009 (0.03)
Non-Interest Income to Net Income	0.010*** (0.00)	0.003 (0.00)	-0.000 (0.01)	-0.012 (0.01)
Bank size (logTA)	-0.092*** (0.01)	-0.057*** (0.01)	-0.062*** (0.01)	-0.031 (0.04)
Number of observations (step 1)	134,683	60,634	31,523	42,526
Number of foreign affiliates	20,850	10,134	9,010	1,706
N° Censored (step 1 → step 2)	131,570	58,245	30,980	42,345
Uncensored (step 2)	3,113	2,389	543	181
Wald test of indep. Eqns. (step 1)	818.8	821.9	156.1	158.1
Prob > chi2	0.000	0.000	0.000	0.000

The table presents regression results of the 2nd step of the Heckman two-step sample-selection estimation of Eq. (2): the likelihood for a bank i from EU country j to operate with foreign branch(es) only in the host country $k \neq j$ (Only branch(es) $Affiliate_{i,j,k} = 1$) instead of with foreign subsidiary(ies) only in the host country $k \neq j$ (Only subsidiary(ies) $Affiliate_{i,j,k} = 0$), for the whole sample of countries and the three high, middle, and low-income-group. A constant is estimated but not reported. All the variables have been defined in Section 2 and the descriptive statistics can be found in Table 4 (Country-level Bank regulation and supervision), Table 5 (Country-level Institutional) and Table 6 (Individual bank-specific characteristics). This table reports the standard errors in parentheses and the significance of p-value by * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 10

Multinomial probit estimation of Eq. (2): the likelihood for a bank to build a foreign organizational strategy in the host country (base outcome $Affiliate_{i,j,k} = 0$).

Base outcome: the EU bank operates only foreign subsidiary(ies) in the host country				
<i>Affiliate_{i,j,k} = 0</i>				
	(1) All countries	(2) Host_High Income	(3) Host_Middle Income	(4) Host_Low Income
The EU bank operates only foreign branch(es) in the host country				
<i>Affiliate_{i,j,k} = 1</i>				
Host_Entry into banking requirements	-0.298*** (0.06)	-0.010 (0.07)	-2.753*** (0.26)	-0.157 (0.58)
Host_Bank Activity Restrictions	-0.025* (0.01)	-0.004 (0.02)	-0.196*** (0.03)	0.402*** (0.10)
Host_Capital Regulatory index	0.046*** (0.01)	0.046*** (0.01)	0.312*** (0.04)	0.629*** (0.16)
Host_Official Supervisory Power	-0.215*** (0.02)	-0.277*** (0.02)	0.135* (0.07)	0.881*** (0.18)
Host_Foreign Bank Share	1.180*** (0.13)	1.581*** (0.23)	2.393*** (0.39)	-2.337** (0.98)
Host_GDP per Capita (log)	0.060* (0.04)			
Host_Size (log GDP)	-0.127*** (0.03)	-0.013 (0.04)	-0.446*** (0.08)	-0.490*** (0.17)
Business Specialization	-0.707*** (0.09)	-0.554*** (0.10)	-1.627*** (0.29)	-1.405 (0.91)
Cost to Income Ratio	0.914*** (0.15)	0.535*** (0.17)	3.078*** (0.50)	2.729*** (0.82)
Equity / Total Assets	-4.205*** (0.39)	-4.517*** (0.48)	-0.891 (1.13)	-5.447* (2.97)
Net Interest Margin	-0.516*** (0.04)	-0.420*** (0.04)	-0.806*** (0.11)	-0.562 (0.37)
Non-Interest Income to Net Income	-0.023* (0.01)	-0.034*** (0.01)	-0.111* (0.05)	-0.130* (0.07)
Bank size (logTA)	0.068*** (0.02)	0.055** (0.03)	0.402*** (0.07)	0.356** (0.16)
The EU bank operates both foreign subsidiary(ies) and branch(es) in the host country				
<i>Affiliate_{i,j,k} = 2</i>				
Host_Entry into banking requirements	-0.068 (0.06)	0.120* (0.06)	-0.664*** (0.22)	-0.058 (0.31)
Host_Bank Activity Restrictions	-0.066*** (0.01)	0.058*** (0.02)	0.093*** (0.03)	-0.204*** (0.07)
Host_Capital Regulatory index	-0.008 (0.01)	-0.061*** (0.01)	0.079*** (0.03)	-0.001 (0.08)
Host_Official Supervisory Power	0.043** (0.02)	-0.098*** (0.02)	0.525*** (0.06)	0.275** (0.13)
Host_Foreign Bank Share	0.719*** (0.12)	-0.705*** (0.21)	1.795*** (0.28)	4.173*** (0.64)
Host_GDP per Capita (log)	-0.357*** (0.03)			
Host_Size (log GDP)	0.161***	-0.130***	0.143***	0.402***

	(0.02)	(0.03)	(0.05)	(0.11)
Business Specialization	1.775***	1.697***	6.807***	0.606
	(0.09)	(0.11)	(0.79)	(0.39)
Cost to Income Ratio	-0.711***	-1.283***	0.519	1.718***
	(0.14)	(0.17)	(0.43)	(0.63)
Equity / Total Assets	0.608*	-2.205***	16.460***	-3.287***
	(0.32)	(0.48)	(1.61)	(1.21)
Net Interest Margin	0.288***	0.326***	0.022	0.524***
	(0.02)	(0.03)	(0.06)	(0.11)
Non-Interest Income to Net Income	-0.001	0.028**	-0.112***	0.160**
	(0.01)	(0.01)	(0.04)	(0.07)
Bank size (logTA)	0.336***	0.274***	0.608***	0.507***
	(0.02)	(0.03)	(0.06)	(0.09)
Number of foreign affiliates	20,850	10,134	9,010	1,706
Number of observations	20,692	10,069	8,934	1,689
Wald chi2	4,350.4	2,569.7	884.4	440.7
Prob > Wald chi2	0.000	0.000	0.000	0.000

The table presents regression results of the multinomial probit estimation of Eq. (2): the likelihood for a bank i from EU country j to operate with foreign branch(es) only in the host country $k \neq j$ ($Affiliate_{i,j,k} = 1$) or with both foreign organizational forms ($Affiliate_{i,j,k} = 2$) instead of operating with foreign subsidiary(ies) only (base outcome $Affiliate_{i,j,k} = 0$), for the whole sample of countries and the three high, middle, and low-income-group. A constant is estimated but not reported. All the variables have been defined in Section 2 and the descriptive statistics can be found in Table 4 (Country-level Bank regulation and supervision), Table 5 (Country-level Institutional) and Table 6 (Individual bank-specific characteristics). This table reports the standard errors in parentheses and the significance of p-value by * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 11

1st Step – Heckman two-step sample-selection estimation of the likelihood for a bank to have any foreign affiliate in the host country.

	Foreign Host Country choice:			
	Presence = 1 ; Absence = 0			
	(1) All countries	(2) Host_High-income	(3) Host_Middle-income	(4) Host_Low-income
Host_Entry into Banking Requirements	0.157*** (0.01)	0.164*** (0.02)	-0.079 (0.05)	-0.122* (0.07)
Diff (Home-Host)_Bank Activity Restrictions	0.006** (0.00)	-0.051*** (0.00)	0.032*** (0.01)	0.100*** (0.01)
Diff (Home-Host)_Capital Regulatory index	0.031*** (0.00)	0.024*** (0.00)	0.044*** (0.01)	-0.013 (0.01)
Diff (Home-Host)_Official Supervisory Power	-0.033*** (0.00)	0.070*** (0.01)	-0.146*** (0.01)	-0.030* (0.02)
Diff (Home-Host)_Economic Freedom Score	-0.017*** (0.00)	-0.004*** (0.00)	-0.072*** (0.00)	-0.031*** (0.00)
Host_Foreign Bank Share	1.008*** (0.03)	1.020*** (0.05)	-0.360*** (0.10)	0.630*** (0.17)
Host_Bank Concentration	-0.860*** (0.04)	-1.382*** (0.06)	-2.910*** (0.18)	-2.944*** (0.22)
Host_Depth of Credit Information Index	0.229*** (0.01)	0.172*** (0.01)	0.386*** (0.03)	-0.115*** (0.03)
Host_GDP per Capita (log)	-0.354*** (0.01)			
Host_Size (log GDP)	0.234*** (0.01)	-0.015 (0.01)	0.812*** (0.03)	0.203*** (0.04)
Common Official Language	0.405*** (0.02)	0.587*** (0.03)	1.317*** (0.06)	0.262** (0.11)
Distance between capitals	-0.395*** (0.01)	-0.204*** (0.01)	-1.755*** (0.04)	-1.458*** (0.06)
Bilateral Trade ratio	0.130*** (0.00)	0.151*** (0.00)	-0.035* (0.02)	0.345*** (0.07)
Business Specialization	0.629*** (0.02)	0.550*** (0.03)	0.687*** (0.05)	0.843*** (0.09)
Cost to Income Ratio	-0.372*** (0.04)	-0.064 (0.05)	-1.212*** (0.10)	0.250** (0.12)
Loans / Total Assets	-0.746*** (0.04)	-0.511*** (0.05)	-1.771*** (0.09)	-1.300*** (0.14)
Non-Interest Income to Net Income	-0.066*** (0.00)	-0.086*** (0.00)	-0.058*** (0.01)	-0.004 (0.01)
ROAA	0.050*** (0.01)	0.172*** (0.01)	0.059*** (0.01)	0.041* (0.02)
Bank size (logTA)	0.651*** (0.01)	0.631*** (0.01)	0.746*** (0.01)	0.641*** (0.02)
Number of observations	151,958	67,690	39,893	44,015

The table presents regression results of the 1st step of the Heckman two-step sample-selection estimation of the likelihood for a bank i from EU country j to have a foreign activity in the host country $k \neq j$, for the whole sample of countries and the three high, middle, and low-income-group. A constant is estimated but not reported. All the variables have been defined in Section 2 and the descriptive statistics can be found in Table 4 (Country-level Bank regulation and supervision), Table 5 (Country-level Institutional) and Table 6 (Individual bank-specific characteristics).. This table reports the standard errors in parentheses and the significance of p-value by * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 12

2nd Step – Heckman two-step sample-selection estimation of the likelihood for a bank to operate with foreign branch(es) only or both affiliate types instead of foreign subsidiary(ies) only in the host country.

	Foreign Organizational Form choice:			
	Only subsidiary(ies) = 0 vs Only branch(es) or both = 1			
	(1) All countries	(2) Host_High Income	(3) Host_Middle Income	(4) Host_Low Income
Host_Entry into Banking Requirements	-0.020*** (0.00)	-0.000 (0.00)	-0.074*** (0.01)	-0.240*** (0.03)
Host_Bank Activity Restrictions	-0.003*** (0.00)	0.001 (0.00)	-0.004*** (0.00)	0.031*** (0.01)
Host_Capital Regulatory index	0.004*** (0.00)	0.001 (0.00)	0.008*** (0.00)	0.043*** (0.01)
Host_Official Supervisory Power	0.003*** (0.00)	0.002 (0.00)	0.015*** (0.00)	0.050*** (0.01)
Host_Foreign Bank Share	-0.012** (0.01)	-0.052*** (0.01)	0.073*** (0.01)	0.287*** (0.06)
Host_GDP per Capita (log)	-0.013*** (0.00)			
Host_Size (log GDP)	-0.012*** (0.00)	-0.022*** (0.00)	-0.003* (0.00)	-0.038*** (0.01)
Business Specialization	0.008 (0.01)	0.008 (0.01)	0.102*** (0.01)	-0.005 (0.03)
Cost to Income Ratio	0.011 (0.01)	0.018 (0.01)	-0.008 (0.02)	0.225*** (0.06)
Equity / Total Assets	-0.103*** (0.02)	-0.988*** (0.05)	0.435*** (0.04)	-0.656*** (0.13)
Net Interest Margin	0.017*** (0.00)	0.032*** (0.00)	0.003 (0.00)	-0.019* (0.01)
Non-Interest Income to Net Income	0.001 (0.00)	0.004*** (0.00)	-0.004** (0.00)	0.000 (0.01)
Bank size (logTA)	-0.017*** (0.00)	-0.025*** (0.00)	-0.004 (0.00)	-0.084*** (0.01)
Number of observations (step 1)	151,598	67,690	39,893	44,015
Number of foreign affiliates	20,850	10,134	9,010	1,706
N° Censored (step 1 → step 2)	131,570	58,245	30,980	42,345
Uncensored (step 2)	20,028	9,445	8,913	1,670
Wald test of indep. Eqns. (step 1)	729.6	750.2	476.1	309.6
Prob > chi2	0.000	0.000	0.000	0.000

The table presents regression results of the 2nd step of the Heckman two-step sample-selection estimation of the likelihood for a bank i from EU country j to operate in the host country $k \neq j$ with foreign branch(es) only ($Affiliate_{i,j,k} = 1$) or with both organizational forms ($Affiliate_{i,j,k} = 2$) instead of with foreign subsidiary(ies) only (base outcome $Affiliate_{i,j,k} = 0$), for the whole sample of countries and the three high, middle, and low-income-group. A constant is estimated but not reported. All the variables have been defined in Section 2 and the descriptive statistics can be found in Table 4 (Country-level Bank regulation and supervision), Table 5 (Country-level Institutional) and Table 6 (Individual bank-specific characteristics). This table reports the standard errors in parentheses and the significance of p-value by * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 13

2nd Step – Heckman two-step sample-selection estimation of the likelihood for a bank to operate with foreign subsidiary(ies) only or both affiliate types instead of foreign branch(es) only in the host country.

	Foreign Organizational Form choice:			
	Only branch(es) = 0 vs Only subsidiary(ies) or both = 1			
	(1) All countries	(2) Host_High Income	(3) Host_Middle Income	(4) Host_Low Income
Host_Entry into Banking Requirements	0.091*** (0.01)	0.033*** (0.01)	0.213*** (0.01)	-0.026 (0.03)
Host_Bank Activity Restrictions	0.007*** (0.00)	0.001 (0.00)	0.044*** (0.00)	-0.101*** (0.01)
Host_Capital Regulatory index	-0.014*** (0.00)	-0.023*** (0.00)	-0.020*** (0.00)	-0.056*** (0.01)
Host_Official Supervisory Power	0.020*** (0.00)	0.030*** (0.00)	0.023*** (0.00)	-0.139*** (0.01)
Host_Foreign Bank Share	-0.043*** (0.01)	-0.277*** (0.02)	-0.166*** (0.01)	0.655*** (0.06)
Host_GDP per Capita (log)	-0.053*** (0.00)			
Host_Size (log GDP)	0.038*** (0.00)	0.002 (0.00)	0.036*** (0.00)	0.068*** (0.01)
Business Specialization	0.477*** (0.01)	0.437*** (0.01)	0.912*** (0.01)	-0.014 (0.02)
Cost to Income Ratio	-0.211*** (0.02)	-0.282*** (0.02)	-0.313*** (0.02)	-0.020 (0.04)
Equity / Total Assets	0.633*** (0.04)	0.873*** (0.09)	1.559*** (0.05)	0.794*** (0.09)
Net Interest Margin	0.053*** (0.00)	0.055*** (0.00)	0.018*** (0.00)	-0.048*** (0.01)
Non-Interest Income to Net Income	-0.002 (0.00)	0.011*** (0.00)	-0.013*** (0.00)	0.026*** (0.00)
Bank size (logTA)	0.042*** (0.00)	0.035*** (0.01)	-0.003 (0.00)	-0.048*** (0.01)
Number of observations (step 1)	151,598	67,690	39,893	44,015
Number of foreign affiliates	20,850	10,134	9,010	1,706
N° Censored (step 1 → step 2)	131,570	58,245	30,980	42,345
Uncensored (step 2)	20,028	9,445	8,913	1,670
Wald test of indep. Eqns. (rho=0)	9045.3	4339.1	7289.9	1983.3
Prob > chi2	0.000	0.000	0.000	0.000

The table presents regression results of the 2nd step of the Heckman two-step sample-selection estimation of the likelihood for a bank i from EU country j to operate in the host country $k \neq j$ with foreign subsidiary(ies) only ($Affiliate_{i,j,k} = 0$) or with both organizational forms ($Affiliate_{i,j,k} = 2$) instead of with foreign branch(es) only (base outcome $Affiliate_{i,j,k} = 1$), for the whole sample of countries and the three high, middle, and low-income-group. A constant is estimated but not reported. All the variables have been defined in Section 2 and the descriptive statistics can be found in Table 4 (Country-level Bank regulation and supervision), Table 5 (Country-level Institutional) and Table 6 (Individual bank-specific characteristics). This table reports the standard errors in parentheses and the significance of p-value by * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 14

1st Step – Heckman two-step sample-selection estimation of Eq. (1): the likelihood for a bank to have an exclusive foreign affiliate form in the host country. **Foreign Asset to Total Assets**

	Foreign Host Country choice:			
	Presence = 1 ; Absence = 0			
	(1) All countries	(2) Host_High-income	(3) Host_Middle-income	(4) Host_Low-income
Host_Entry into Banking Requirements	-0.101*** (0.03)	-0.119*** (0.04)	-0.194** (0.08)	0.373*** (0.11)
Diff (Home-Host)_Bank Activity Restrictions	0.004 (0.00)	-0.001 (0.01)	-0.031*** (0.01)	0.044*** (0.01)
Diff (Home-Host)_Capital Regulatory index	-0.043*** (0.00)	-0.061*** (0.01)	-0.027*** (0.01)	-0.012 (0.01)
Diff (Home-Host)_Official Supervisory Power	-0.003 (0.01)	0.029** (0.01)	-0.051** (0.02)	-0.060*** (0.02)
Diff (Home-Host)_Economic Freedom Score	-0.030*** (0.00)	-0.027*** (0.00)	-0.044*** (0.00)	-0.010* (0.01)
Host_ForeignTA_TotalTA	0.533*** (0.05)	0.551*** (0.07)	0.293 (0.19)	-0.615*** (0.18)
Host_Bank Concentration	-1.444*** (0.07)	-1.736*** (0.10)	-0.639** (0.26)	-0.866*** (0.23)
Host_Depth of Credit Information Index	0.139** (0.01)	0.192** (0.02)	0.297*** (0.05)	-0.116*** (0.04)
Host_GDP per Capita (log)	-0.094*** (0.02)			
Host_Size (log GDP)	-0.037*** (0.01)	-0.119*** (0.02)	0.206*** (0.04)	0.064 (0.04)
Common Official Language	0.130** (0.04)	0.233*** (0.05)	0.523*** (0.11)	0.412*** (0.12)
Distance between capitals	-0.288*** (0.01)	-0.199*** (0.01)	-1.006*** (0.05)	-0.413*** (0.08)
Bilateral Trade ratio	0.141*** (0.01)	0.145*** (0.01)	0.168*** (0.03)	0.405*** (0.14)
Business Specialization	-0.029 (0.03)	-0.070* (0.03)	-0.006 (0.07)	0.640*** (0.12)
Cost to Income Ratio	0.333*** (0.05)	0.546*** (0.06)	-0.244* (0.13)	0.366** (0.14)
Loans / Total Assets	-1.252*** (0.05)	-1.233*** (0.07)	-1.446*** (0.13)	-1.277*** (0.18)
Non-Interest Income to Net Income	-0.065*** (0.00)	-0.086*** (0.00)	-0.026** (0.01)	-0.013 (0.01)
ROAA	0.102*** (0.01)	0.150*** (0.01)	0.032* (0.02)	0.174*** (0.03)
Bank size (logTA)	0.474*** (0.01)	0.490*** (0.01)	0.526*** (0.02)	0.418*** (0.02)
Number of observations	117,175	48,125	31,523	37,527

The table presents regression results of the 1st step of the Heckman two-step sample-selection estimation of Eq. (1): the likelihood for a bank i from EU country j to have an exclusive foreign affiliate form in the host country $k \neq j$ (Presence $Foreign_{i,j,k} = 1$), for the whole sample of countries and the three high, middle, and low-income groups. A constant is estimated but not reported. All the variables have been defined in Section 2 and the descriptive statistics can be found in Table 4 (Country-level Bank regulation and supervision), Table 5 (Country-level Institutional) and Table 6 (Individual bank-specific characteristics). This table reports the standard errors in parentheses and the significance of p-value by * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 15

2nd Step – Heckman two-step sample-selection estimation of Eq. (2): the likelihood for a bank to operate only with foreign branch(es) and no subsidiary in the host country. **Foreign Assets to Total Assets**

	Foreign Organizational Form choice: Only subsidiary(ies) = 0 vs Only branch(es) = 1			
	(1) All countries	(2) Host_High Income	(3) Host_Middle Income	(4) Host_Low Income
Host_Entry into Banking Requirements	-0.114*** (0.02)	-0.153*** (0.02)	-0.089** (0.04)	0.114 (0.10)
Host_Bank Activity Restrictions	-0.006** (0.00)	0.004 (0.00)	-0.011 (0.01)	0.098*** (0.01)
Host_Capital Regulatory index	0.006** (0.00)	-0.042*** (0.01)	0.021*** (0.01)	0.033** (0.02)
Host_Official Supervisory Power	-0.053*** (0.01)	-0.056*** (0.01)	0.027*** (0.01)	0.080*** (0.03)
Host_ForeignTA_TotalTA	0.025 (0.04)	0.111** (0.05)	-0.019 (0.09)	-0.473*** (0.13)
Host_GDP per Capita (log)	-0.047*** (0.01)			
Host_Size (log GDP)	-0.070*** (0.01)	-0.069*** (0.01)	-0.051*** (0.02)	-0.090*** (0.02)
Business Specialization	-0.116*** (0.02)	-0.092*** (0.02)	-0.087** (0.04)	0.249* (0.15)
Cost to Income Ratio	0.176*** (0.04)	0.063 (0.04)	0.603*** (0.09)	0.659*** (0.16)
Equity / Total Assets	-1.245*** (0.11)	-1.682*** (0.13)	0.737*** (0.22)	-0.114 (0.42)
Net Interest Margin	-0.007 (0.01)	-0.001 (0.01)	-0.031** (0.01)	-0.006 (0.02)
Non-Interest Income to Net Income	0.008*** (0.00)	-0.000 (0.00)	-0.001 (0.01)	-0.020* (0.01)
Bank size (logTA)	-0.095*** (0.01)	-0.060*** (0.01)	-0.059*** (0.01)	-0.015 (0.04)
Number of observations (step 1)	117,175	48,125	31,523	37,527
Number of foreign affiliates	20,850	10,134	9,010	1,706
N° Censored (step 1 → step 2)	114,220	45,890	30,980	37,350
Uncensored (step 2)	2,995	2,235	543	177
Wald test of indep. Eqns. (rho=0)	828.6	893.6	153.6	152.7
Prob > chi2	0.000	0.000	0.000	0.000

The table presents regression results of the 2nd step of the Heckman two-step sample-selection estimation of Eq. (2): the likelihood for a bank i from EU country j to operate with foreign branch(es) only in the host country $k \neq j$ (Only branch(es) $Affiliate_{i,j,k} = 1$) instead of with foreign subsidiary(ies) only in the host country $k \neq j$ (Only subsidiary(ies) $Affiliate_{i,j,k} = 0$), for the whole sample of countries and the three high, middle, and low-income-group. A constant is estimated but not reported. All the variables have been defined in Section 2 and the descriptive statistics can be found in Table 4 (Country-level Bank regulation and supervision), Table 5 (Country-level Institutional) and Table 6 (Individual bank-specific characteristics). This table reports the standard errors in parentheses and the significance of p-value by * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 16

1st Step – Heckman two-step sample-selection estimation of Eq. (1): the likelihood for a bank to have an exclusive foreign affiliate form in the host country. **Host EU and non-EU countries**

	Foreign Host Country choice:			
	Presence = 1 ; Absence = 0			
	(1) ALL	(2) Host_High-income	(3) EU Host countries	(4) non-EU Host countries
Host_Entry into Banking Requirements	-0.013 (0.02)	0.006 (0.02)	-0.054* (0.03)	-0.018 (0.04)
Diff (Home-Host)_Bank Activity Restrictions	-0.006 (0.00)	-0.016*** (0.01)	-0.054*** (0.01)	0.003 (0.01)
Diff (Home-Host)_Capital Regulatory index	-0.022*** (0.00)	-0.030*** (0.00)	-0.049*** (0.01)	-0.005 (0.00)
Diff (Home-Host)_Official Supervisory Power	-0.020*** (0.01)	0.004 (0.01)	-0.019** (0.01)	-0.072*** (0.01)
Diff (Home-Host)_Economic Freedom Score	-0.035*** (0.00)	-0.029*** (0.00)	-0.040*** (0.00)	-0.033*** (0.00)
Host_Foreign Bank Share	0.637*** (0.05)	0.732*** (0.07)	0.672*** (0.10)	0.504*** (0.09)
Host_Bank Concentration	-1.125*** (0.06)	-1.102*** (0.09)	-0.601*** (0.11)	-0.848*** (0.11)
Host_Depth of Credit Information Index	0.137*** (0.01)	0.158*** (0.02)	-0.042 (0.03)	0.018 (0.02)
Host_GDP per Capita (log)	-0.138*** (0.02)		-0.527*** (0.04)	-0.229*** (0.03)
Host_Size (log GDP)	0.012 (0.01)	-0.012 (0.02)	0.186*** (0.03)	0.279*** (0.02)
Common Official Language	0.111*** (0.04)	0.199*** (0.04)	0.249*** (0.06)	0.218*** (0.05)
Distance between capitals	-0.296*** (0.01)	-0.213*** (0.01)	-0.060** (0.02)	-0.818*** (0.03)
Bilateral Trade ratio	0.145*** (0.01)	0.143*** (0.01)	0.162*** (0.01)	-0.020 (0.01)
Business Specialization	-0.029 (0.03)	-0.060* (0.03)	0.116*** (0.04)	-0.009 (0.04)
Cost to Income Ratio	0.332*** (0.05)	0.519*** (0.06)	0.441*** (0.07)	0.145* (0.08)
Loans / Total Assets	-1.191*** (0.05)	-1.157*** (0.06)	-0.930*** (0.07)	-1.408*** (0.08)
Non-Interest Income to Net Income	-0.065*** (0.00)	-0.083*** (0.00)	-0.038*** (0.01)	-0.062*** (0.01)
ROAA	0.101*** (0.01)	0.144*** (0.01)	0.097*** (0.01)	0.111*** (0.01)
Bank size (logTA)	0.475*** (0.01)	0.490*** (0.01)	0.498*** (0.01)	0.451*** (0.01)
Number of observations	134,683	60,634	35,346	99,337

The table presents regression results of the 1st step of the Heckman two-step sample-selection estimation of Eq. (1): the likelihood for a bank i from EU country j to have an exclusive foreign affiliate form in the host country $k \neq j$ (Presence $Foreign_{i,j,k} = 1$), for the whole sample of countries and the three high, middle, and low-income groups. A constant is estimated but not reported. All the variables have been defined in Section 2 and the descriptive statistics can be found in Table 4 (Country-level Bank regulation and supervision), Table 5 (Country-level Institutional) and Table 6 (Individual bank-specific characteristics). This table reports the standard errors in parentheses and the significance of p-value by * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 17

2nd Step – Heckman two-step sample-selection estimation of Eq. (2): the likelihood for a bank to operate only with foreign branch(es) and no subsidiary in the host country. **Host EU and non-EU countries**

	Foreign Organizational Form choice: Only branch(es) = 0 vs Only subsidiary(ies) = 1			
	(1) ALL	(2) Host_High- income	(3) EU Host countries	(4) non-EU Host countries
Host_Entry into Banking Requirements	-0.099*** (0.01)	-0.059*** (0.02)	0.020 (0.02)	-0.127*** (0.02)
Host_Bank Activity Restrictions	-0.002 (0.00)	0.007* (0.00)	0.007** (0.00)	0.014*** (0.00)
Host_Capital Regulatory index	0.005** (0.00)	0.000 (0.00)	-0.001 (0.00)	0.009** (0.00)
Host_Official Supervisory Power	-0.055*** (0.01)	-0.079*** (0.01)	-0.023*** (0.01)	-0.009 (0.01)
Host_Foreign Bank Share	-0.030 (0.04)	-0.083 (0.05)	-0.199*** (0.05)	-0.153*** (0.05)
Host_GDP per Capita (log)	-0.034*** (0.01)		-0.139*** (0.02)	-0.078*** (0.01)
Host_Size (log GDP)	-0.080*** (0.01)	-0.110*** (0.01)	-0.013 (0.01)	-0.095*** (0.01)
Business Specialization	-0.093*** (0.02)	-0.049** (0.02)	-0.039* (0.02)	-0.222*** (0.02)
Cost to Income Ratio	0.159*** (0.04)	0.075* (0.04)	-0.194*** (0.04)	0.613*** (0.05)
Equity / Total Assets	-1.186*** (0.11)	-1.551*** (0.13)	-1.116*** (0.16)	-0.500*** (0.12)
Net Interest Margin	-0.006 (0.01)	0.002 (0.01)	-0.029** (0.01)	-0.002 (0.01)
Non-Interest Income to Net Income	0.010*** (0.00)	0.003 (0.00)	-0.011*** (0.00)	-0.005 (0.00)
Bank size (logTA)	-0.092*** (0.01)	-0.057*** (0.01)	-0.021** (0.01)	-0.061*** (0.01)
Number of observations (step 1)	134,683	60,634	35,346	99,337
Number of foreign affiliates	20,850	10,134	4,396	16,454
N° Censored (step 1 → step 2)	131,570	58,245	33,444	98,126
Uncensored (step 2)	3,113	2,389	1,902	1,211
Wald test of indep. Eqns. (rho=0)	818.8	821.9	219.5	1,138.7
Prob > chi2	0.000	0.000	0.000	0.000

The table presents regression results of the 2nd step of the Heckman two-step sample-selection estimation of Eq. (2): the likelihood for a bank i from EU country j to operate with foreign branch(es) only in the host country $k \neq j$ (Only branch(es) $Affiliate_{i,j,k} = 1$) instead of with foreign subsidiary(ies) only in the host country $k \neq j$ (Only subsidiary(ies) $Affiliate_{i,j,k} = 0$), for the whole sample of countries and the three high, middle, and low-income-group. A constant is estimated but not reported. All the variables have been defined in Section 2 and the descriptive statistics can be found in Table 4 (Country-level Bank regulation and supervision), Table 5 (Country-level Institutional) and Table 6 (Individual bank-specific characteristics). This table reports the standard errors in parentheses and the significance of p-value by * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 18

1st Step – Heckman two-step sample-selection estimation of Eq. (1): the likelihood for a bank to have an exclusive foreign affiliate form in the host country. **Economic Freedom – Rule of Law (property rights, freedom from corruption)**

	Foreign Host Country choice:			
	Presence = 1 ; Absence = 0			
	(1) All countries	(2) Host_High-income	(3) Host_Middle-income	(4) Host_Low-income
Host_Entry into Banking Requirements	0.016 (0.02)	0.040* (0.02)	-0.200*** (0.08)	0.450*** (0.13)
Diff (Home-Host)_Bank Activity Restrictions	-0.002 (0.00)	-0.014*** (0.01)	-0.020* (0.01)	0.065*** (0.02)
Diff (Home-Host)_Capital Regulatory index	-0.016*** (0.00)	-0.027*** (0.00)	-0.019** (0.01)	-0.027** (0.01)
Diff (Home-Host)_Official Supervisory Power	-0.035*** (0.01)	-0.007 (0.01)	-0.078*** (0.01)	-0.076*** (0.02)
Diff (Home-Host)_Rule of Law Score	-0.012*** (0.00)	-0.010*** (0.00)	-0.014*** (0.00)	-0.005* (0.00)
Host_Foreign Bank Share	0.796*** (0.05)	0.900*** (0.07)	0.540*** (0.16)	-0.317* (0.18)
Host_Bank Concentration	-1.039*** (0.06)	-0.998*** (0.08)	-0.223 (0.25)	-0.840*** (0.22)
Host_Depth of Credit Information Index	0.200*** (0.01)	0.203*** (0.02)	0.384*** (0.05)	-0.117*** (0.04)
Host_GDP per Capita (log)	-0.138*** (0.02)			
Host_Size (log GDP)	-0.002 (0.01)	0.002 (0.02)	0.145*** (0.04)	0.104** (0.04)
Common Official Language	0.165*** (0.03)	0.251*** (0.04)	0.466*** (0.11)	0.472*** (0.11)
Distance between capitals	-0.276*** (0.01)	-0.198*** (0.01)	-0.943*** (0.05)	-0.473*** (0.07)
Bilateral Trade ratio	0.136*** (0.00)	0.130*** (0.01)	0.202*** (0.03)	0.391*** (0.14)
Business Specialization	-0.009 (0.03)	-0.041 (0.03)	0.001 (0.07)	0.720*** (0.13)
Cost to Income Ratio	0.345*** (0.05)	0.529*** (0.06)	-0.227* (0.13)	0.425*** (0.14)
Loans / Total Assets	-1.182*** (0.05)	-1.143*** (0.06)	-1.472*** (0.13)	-1.179*** (0.18)
Non-Interest Income to Net Income	-0.065*** (0.00)	-0.084*** (0.00)	-0.025** (0.01)	-0.014 (0.01)
ROAA	0.106*** (0.01)	0.149*** (0.01)	0.030 (0.02)	0.186*** (0.03)
Bank size (logTA)	0.474*** (0.01)	0.488*** (0.01)	0.526*** (0.02)	0.439*** (0.03)
Number of observations	134,683	60,634	31,523	42,526

The table presents regression results of the 1st step of the Heckman two-step sample-selection estimation of Eq. (1): the likelihood for a bank i from EU country j to have an exclusive foreign affiliate form in the host country $k \neq j$ (Presence $Foreign_{i,j,k} = 1$), for the whole sample of countries and the three high, middle, and low-income groups. A constant is estimated but not reported. All the variables have been defined in Section 2 and the descriptive statistics can be found in Table 4 (Country-level Bank regulation and supervision), Table 5 (Country-level Institutional) and Table 6 (Individual bank-specific characteristics). This table reports the standard errors in parentheses and the significance of p-value by * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 19

2nd Step – Heckman two-step sample-selection estimation of Eq. (2): the likelihood for a bank to operate only with foreign branch(es) and no subsidiary in the host country. **Economic Freedom – Rule of Law (property rights, freedom from corruption)**

	Foreign Organizational Form choice: Only Subsidiary(ies) = 0 vs Only branch(es) = 1			
	(1) All countries	(2) Host_High Income	(3) Host_Middle Income	(4) Host_Low Income
Host_Entry into Banking Requirements	-0.097*** (0.01)	-0.060*** (0.02)	-0.093** (0.04)	0.080 (0.10)
Host_Bank Activity Restrictions	-0.000 (0.00)	0.008** (0.00)	-0.009 (0.01)	0.102*** (0.01)
Host_Capital Regulatory index	0.004 (0.00)	-0.002 (0.00)	0.024*** (0.01)	0.047*** (0.02)
Host_Official Supervisory Power	-0.053*** (0.00)	-0.076*** (0.01)	0.027** (0.01)	0.095*** (0.03)
Host_Foreign Bank Share	-0.043 (0.03)	-0.107** (0.05)	-0.099 (0.08)	-0.403*** (0.14)
Host_GDP per Capita (log)	-0.035*** (0.01)			
Host_Size (log GDP)	-0.084*** (0.01)	-0.116*** (0.01)	-0.061*** (0.02)	-0.091*** (0.02)
Business Specialization	-0.073*** (0.02)	-0.035* (0.02)	-0.093** (0.04)	0.192 (0.16)
Cost to Income Ratio	0.151*** (0.04)	0.069* (0.04)	0.612*** (0.09)	0.632*** (0.16)
Equity / Total Assets	-1.200*** (0.10)	-1.559*** (0.13)	0.706*** (0.23)	-0.398 (0.41)
Net Interest Margin	-0.004 (0.01)	0.001 (0.01)	-0.031** (0.01)	-0.010 (0.03)
Non-Interest Income to Net Income	0.009*** (0.00)	0.004* (0.00)	0.001 (0.01)	-0.012 (0.01)
Bank size (logTA)	-0.104*** (0.01)	-0.070*** (0.01)	-0.065*** (0.01)	-0.037 (0.04)
Number of observations (step 1)	134,683	60,634	31,523	42,526
Number of foreign affiliates	20,850	10,134	9,010	1,706
N° Censored (step 1 → step 2)	131,570	58,245	30,980	42,345
Uncensored (step 2)	3,113	2,389	543	181
Wald test of indep. Eqns. (rho=0)	851.5	837.9	154.9	158.6
Prob > chi2	0.000	0.000	0.000	0.000

The table presents regression results of the 2nd step of the Heckman two-step sample-selection estimation of Eq. (2): the likelihood for a bank i from EU country j to operate with foreign branch(es) only in the host country $k \neq j$ (Only branch(es) $Affiliate_{i,j,k} = 1$) instead of with foreign subsidiary(ies) only in the host country $k \neq j$ (Only subsidiary(ies) $Affiliate_{i,j,k} = 0$), for the whole sample of countries and the three high, middle, and low-income-group. A constant is estimated but not reported. All the variables have been defined in Section 2 and the descriptive statistics can be found in Table 4 (Country-level Bank regulation and supervision), Table 5 (Country-level Institutional) and Table 6 (Individual bank-specific characteristics). This table reports the standard errors in parentheses and the significance of p-value by * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 20

1st Step – Heckman two-step sample-selection estimation of Eq. (1): the likelihood for a bank to have an exclusive foreign affiliate form in the host country. **Economic Freedom – Limited Government (fiscal freedom, government spending)**

	Foreign Host Country choice:			
	Presence = 1 ; Absence = 0			
	(1) All countries	(2) Host_High-income	(3) Host_Middle-income	(4) Host_Low-income
Host_Entry into Banking Requirements	0.012 (0.02)	0.046** (0.02)	-0.219*** (0.08)	0.443*** (0.13)
Diff (Home-Host)_Bank Activity Restrictions	0.008* (0.00)	0.005 (0.00)	-0.017 (0.01)	0.061*** (0.02)
Diff (Home-Host)_Capital Regulatory index	-0.012*** (0.00)	-0.022*** (0.00)	-0.017* (0.01)	-0.027** (0.01)
Diff (Home-Host)_Official Supervisory Power	-0.019*** (0.01)	0.006 (0.01)	-0.071*** (0.01)	-0.067*** (0.02)
Diff (Home-Host)_Limited Government Score	-0.007*** (0.00)	-0.005*** (0.00)	-0.016*** (0.00)	-0.001 (0.00)
Host_Foreign Bank Share	0.730*** (0.05)	0.841*** (0.07)	0.793*** (0.16)	-0.298* (0.18)
Host_Bank Concentration	-0.898*** (0.06)	-0.720*** (0.08)	0.048 (0.25)	-0.853*** (0.22)
Host_Depth of Credit Information Index	0.139*** (0.01)	0.129*** (0.02)	0.336*** (0.05)	-0.109*** (0.04)
Host_GDP per Capita (log)	0.072*** (0.01)			
Host_Size (log GDP)	0.011 (0.01)	0.070*** (0.02)	0.209*** (0.04)	0.101** (0.04)
Common Official Language	0.188*** (0.03)	0.363*** (0.04)	0.501*** (0.11)	0.455*** (0.11)
Distance between capitals	-0.288*** (0.01)	-0.193*** (0.01)	-1.018*** (0.05)	-0.485*** (0.08)
Bilateral Trade ratio	0.148*** (0.01)	0.133*** (0.01)	0.180*** (0.03)	0.406*** (0.14)
Business Specialization	-0.051** (0.03)	-0.103*** (0.03)	0.050 (0.07)	0.713*** (0.13)
Cost to Income Ratio	0.349*** (0.05)	0.535*** (0.06)	-0.194 (0.12)	0.412*** (0.14)
Loans / Total Assets	-1.135*** (0.05)	-1.116*** (0.06)	-1.311*** (0.13)	-1.141*** (0.18)
Non-Interest Income to Net Income	-0.071*** (0.00)	-0.090*** (0.00)	-0.026** (0.01)	-0.013 (0.01)
ROAA	0.094*** (0.01)	0.142*** (0.01)	0.013 (0.02)	0.184*** (0.03)
Bank size (logTA)	0.474*** (0.01)	0.487*** (0.01)	0.514*** (0.02)	0.437*** (0.03)
Number of observations	134,683	60,634	31,523	42,526

The table presents regression results of the 1st step of the Heckman two-step sample-selection estimation of Eq. (1): the likelihood for a bank i from EU country j to have an exclusive foreign affiliate form in the host country $k \neq j$ (Presence $Foreign_{i,j,k} = 1$), for the whole sample of countries and the three high, middle, and low-income groups. A constant is estimated but not reported. All the variables have been defined in Section 2 and the descriptive statistics can be found in Table 4 (Country-level Bank regulation and supervision), Table 5 (Country-level Institutional) and Table 6 (Individual bank-specific characteristics). This table reports the standard errors in parentheses and the significance of p-value by * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 21

2nd Step – Heckman two-step sample-selection estimation of Eq. (2): the likelihood for a bank to operate only with foreign branch(es) and no subsidiary in the host country. **Economic Freedom – Limited Government (fiscal freedom, government spending)**

	Foreign Organizational Form choice: Only Subsidiary(ies) = 0 vs Only branch(es) = 1			
	(1) All countries	(2) Host_High Income	(3) Host_Middle Income	(4) Host_Low Income
Host_Entry into Banking Requirements	-0.096*** (0.02)	-0.060*** (0.02)	-0.104** (0.04)	0.091 (0.11)
Host_Bank Activity Restrictions	-0.002 (0.00)	0.007** (0.00)	-0.008 (0.01)	0.104*** (0.01)
Host_Capital Regulatory index	0.005** (0.00)	-0.001 (0.00)	0.029*** (0.01)	0.048*** (0.02)
Host_Official Supervisory Power	-0.051*** (0.01)	-0.074*** (0.01)	0.035*** (0.01)	0.096*** (0.03)
Host_Foreign Bank Share	-0.006 (0.04)	-0.102** (0.05)	-0.094 (0.08)	-0.407*** (0.14)
Host_GDP per Capita (log)	-0.029*** (0.01)			
Host_Size (log GDP)	-0.076*** (0.01)	-0.114*** (0.01)	-0.060*** (0.02)	-0.090*** (0.02)
Business Specialization	-0.099*** (0.02)	-0.050** (0.02)	-0.052 (0.05)	0.203 (0.16)
Cost to Income Ratio	0.202*** (0.04)	0.087** (0.04)	0.702*** (0.09)	0.622*** (0.16)
Equity / Total Assets	-1.239*** (0.11)	-1.600*** (0.13)	1.011*** (0.24)	-0.330 (0.41)
Net Interest Margin	0.010 (0.01)	0.007 (0.01)	-0.026* (0.01)	-0.007 (0.03)
Non-Interest Income to Net Income	0.007*** (0.00)	0.004* (0.00)	0.002 (0.01)	-0.011 (0.01)
Bank size (logTA)	-0.085*** (0.01)	-0.065*** (0.01)	-0.059*** (0.01)	-0.017 (0.04)
Number of observations (step 1)	134,683	60,634	31,523	42,526
Number of foreign affiliates	20,850	10,134	9,010	1,706
N° Censored (step 1 → step 2)	131,570	58,245	30,980	42,345
Uncensored (step 2)	3,113	2,389	543	181
Wald test of indep. Eqns. (rho=0)	794.7	826.8	175.6	161.8
Prob > chi2	0.000	0.000	0.000	0.000

The table presents regression results of the 2nd step of the Heckman two-step sample-selection estimation of Eq. (2): the likelihood for a bank i from EU country j to operate with foreign branch(es) only in the host country $k \neq j$ (Only branch(es) $Affiliate_{i,j,k} = 1$) instead of with foreign subsidiary(ies) only in the host country $k \neq j$ (Only subsidiary(ies) $Affiliate_{i,j,k} = 0$), for the whole sample of countries and the three high, middle, and low-income-group. A constant is estimated but not reported. All the variables have been defined in Section 2 and the descriptive statistics can be found in Table 4 (Country-level Bank regulation and supervision), Table 5 (Country-level Institutional) and Table 6 (Individual bank-specific characteristics). This table reports the standard errors in parentheses and the significance of p-value by * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 22

1st Step – Heckman two-step sample-selection estimation of Eq. (1): the likelihood for a bank to have an exclusive foreign affiliate form in the host country. **Economic Freedom – Regulatory Efficiency (business freedom, labor freedom, monetary freedom)**

	Foreign Host Country choice:			
	Presence = 1 ; Absence = 0			
	(1) All countries	(2) Host_High-income	(3) Host_Middle-income	(4) Host_Low-income
Host_Entry into Banking Requirements	0.019 (0.02)	0.038* (0.02)	-0.161** (0.08)	0.442*** (0.13)
Diff (Home-Host)_Bank Activity Restrictions	-0.005 (0.00)	-0.011** (0.01)	-0.034*** (0.01)	0.060*** (0.02)
Diff (Home-Host)_Capital Regulatory index	-0.022*** (0.00)	-0.030*** (0.00)	-0.025*** (0.01)	-0.028** (0.01)
Diff (Home-Host)_Official Supervisory Power	-0.019*** (0.01)	0.010 (0.01)	-0.091*** (0.01)	-0.069*** (0.02)
Diff (Home-Host)_Regulatory Efficiency Score	-0.018*** (0.00)	-0.017*** (0.00)	-0.022*** (0.00)	-0.002 (0.00)
Host_Foreign Bank Share	0.699*** (0.05)	0.770*** (0.07)	0.515*** (0.16)	-0.302* (0.18)
Host_Bank Concentration	-0.960*** (0.06)	-0.910*** (0.08)	-0.255 (0.26)	-0.859*** (0.23)
Host_Depth of Credit Information Index	0.157*** (0.01)	0.171*** (0.02)	0.393*** (0.05)	-0.109*** (0.04)
Host_GDP per Capita (log)	-0.032** (0.01)			
Host_Size (log GDP)	-0.005 (0.01)	-0.007 (0.02)	0.212*** (0.04)	0.102** (0.04)
Common Official Language	0.184*** (0.03)	0.286*** (0.04)	0.535*** (0.11)	0.460*** (0.11)
Distance between capitals	-0.277*** (0.01)	-0.201*** (0.01)	-1.009*** (0.05)	-0.474*** (0.07)
Bilateral Trade ratio	0.142*** (0.00)	0.138*** (0.01)	0.179*** (0.03)	0.400*** (0.14)
Business Specialization	-0.023 (0.03)	-0.071** (0.03)	0.077 (0.07)	0.719*** (0.13)
Cost to Income Ratio	0.339*** (0.05)	0.526*** (0.06)	-0.232* (0.13)	0.409*** (0.14)
Loans / Total Assets	-1.135*** (0.05)	-1.125*** (0.06)	-1.334*** (0.13)	-1.144*** (0.18)
Non-Interest Income to Net Income	-0.068*** (0.00)	-0.086*** (0.00)	-0.022** (0.01)	-0.013 (0.01)
ROAA	0.096*** (0.01)	0.143*** (0.01)	0.010 (0.02)	0.184*** (0.03)
Bank size (logTA)	0.471*** (0.01)	0.487*** (0.01)	0.516*** (0.02)	0.437*** (0.03)
Number of observations	134,683	60,634	31,523	42,526

The table presents regression results of the 1st step of the Heckman two-step sample-selection estimation of Eq. (1): the likelihood for a bank i from EU country j to have an exclusive foreign affiliate form in the host country $k \neq j$ (Presence $Foreign_{i,j,k} = 1$), for the whole sample of countries and the three high, middle, and low-income groups. A constant is estimated but not reported. All the variables have been defined in Section 2 and the descriptive statistics can be found in Table 4 (Country-level Bank regulation and supervision), Table 5 (Country-level Institutional) and Table 6 (Individual bank-specific characteristics). This table reports the standard errors in parentheses and the significance of p-value by * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 23

2nd Step – Heckman two-step sample-selection estimation of Eq. (2): the likelihood for a bank to operate only with foreign branch(es) and no subsidiary in the host country. **Economic Freedom – Regulatory Efficiency (business freedom, labor freedom, monetary freedom)**

	Foreign Organizational Form choice: Only Subsidiary(ies) = 0 vs Only branch(es) = 1			
	(1) All countries	(2) Host_High Income	(3) Host_Middle Income	(4) Host_Low Income
Host_Entry into Banking Requirements	-0.098*** (0.02)	-0.059*** (0.02)	-0.107*** (0.04)	0.088 (0.10)
Host_Bank Activity Restrictions	-0.002 (0.00)	0.007* (0.00)	-0.008 (0.01)	0.103*** (0.01)
Host_Capital Regulatory index	0.005** (0.00)	-0.001 (0.00)	0.028*** (0.01)	0.048*** (0.02)
Host_Official Supervisory Power	-0.051*** (0.01)	-0.076*** (0.01)	0.037*** (0.01)	0.096*** (0.03)
Host_Foreign Bank Share	-0.026 (0.04)	-0.096* (0.05)	-0.090 (0.08)	-0.403*** (0.14)
Host_GDP per Capita (log)	-0.034*** (0.01)			
Host_Size (log GDP)	-0.079*** (0.01)	-0.113*** (0.01)	-0.062*** (0.02)	-0.090*** (0.02)
Business Specialization	-0.091*** (0.02)	-0.048** (0.02)	-0.061 (0.05)	0.201 (0.16)
Cost to Income Ratio	0.192*** (0.04)	0.082** (0.04)	0.672*** (0.09)	0.625*** (0.16)
Equity / Total Assets	-1.236*** (0.11)	-1.574*** (0.13)	0.929*** (0.23)	-0.353 (0.41)
Net Interest Margin	0.003 (0.01)	0.003 (0.01)	-0.028** (0.01)	-0.008 (0.03)
Non-Interest Income to Net Income	0.008*** (0.00)	0.004* (0.00)	0.001 (0.01)	-0.011 (0.01)
Bank size (logTA)	-0.094*** (0.01)	-0.064*** (0.01)	-0.061*** (0.01)	-0.024 (0.04)
Number of observations (step 1)	134,683	60,634	31,523	42,526
Number of foreign affiliates	20,850	10,134	9,010	1,706
N° Censored (step 1 → step 2)	131,570	58,245	30,980	42,345
Uncensored (step 2)	3,113	2,389	543	181
Wald test of indep. Eqns. (rho=0)	817.6	828.0	176.9	160.5
Prob > chi2	0.000	0.000	0.000	0.000

The table presents regression results of the 2nd step of the Heckman two-step sample-selection estimation of Eq. (2): the likelihood for a bank i from EU country j to operate with foreign branch(es) only in the host country $k \neq j$ (Only branch(es) $Affiliate_{i,j,k} = 1$) instead of with foreign subsidiary(ies) only in the host country $k \neq j$ (Only subsidiary(ies) $Affiliate_{i,j,k} = 0$), for the whole sample of countries and the three high, middle, and low-income-group. A constant is estimated but not reported. All the variables have been defined in Section 2 and the descriptive statistics can be found in Table 4 (Country-level Bank regulation and supervision), Table 5 (Country-level Institutional) and Table 6 (Individual bank-specific characteristics). This table reports the standard errors in parentheses and the significance of p-value by * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 24

1st Step – Heckman two-step sample-selection estimation of Eq. (1): the likelihood for a bank to have an exclusive foreign affiliate form in the host country. **Economic Freedom – Market Openness (trade freedom, investment freedom, financial freedom)**

	Foreign Host Country choice:			
	Presence = 1 ; Absence = 0			
	(1) All countries	(2) Host_High-income	(3) Host_Middle-income	(4) Host_Low-income
Host_Entry into Banking Requirements	0.012 (0.02)	0.023 (0.02)	-0.128* (0.08)	0.469*** (0.12)
Diff (Home-Host)_Bank Activity Restrictions	-0.004 (0.00)	-0.019*** (0.01)	-0.009 (0.01)	0.058*** (0.01)
Diff (Home-Host)_Capital Regulatory index	-0.021*** (0.00)	-0.032*** (0.00)	-0.015* (0.01)	-0.034*** (0.01)
Diff (Home-Host)_Official Supervisory Power	-0.020*** (0.01)	0.006 (0.01)	-0.057*** (0.02)	-0.077*** (0.02)
Diff (Home-Host)_Market Openness Score	-0.023*** (0.00)	-0.023*** (0.00)	-0.017*** (0.00)	-0.016*** (0.00)
Host_Foreign Bank Share	0.518*** (0.05)	0.632*** (0.07)	0.139 (0.19)	-0.411** (0.18)
Host_Bank Concentration	-1.015*** (0.06)	-1.043*** (0.08)	-0.213 (0.26)	-1.079*** (0.24)
Host_Depth of Credit Information Index	0.137*** (0.01)	0.157*** (0.02)	0.335*** (0.05)	-0.154*** (0.04)
Host_GDP per Capita (log)	-0.126*** (0.02)			
Host_Size (log GDP)	0.023* (0.01)	0.002 (0.02)	0.155*** (0.04)	0.116** (0.05)
Common Official Language	0.205*** (0.03)	0.297*** (0.04)	0.441*** (0.11)	0.446*** (0.11)
Distance between capitals	-0.249*** (0.01)	-0.164*** (0.01)	-0.953*** (0.05)	-0.486*** (0.07)
Bilateral Trade ratio	0.134*** (0.01)	0.132*** (0.01)	0.211*** (0.03)	0.415*** (0.14)
Business Specialization	-0.024 (0.03)	-0.061* (0.03)	0.021 (0.07)	0.732*** (0.13)
Cost to Income Ratio	0.317*** (0.05)	0.499*** (0.06)	-0.229* (0.12)	0.411*** (0.14)
Loans / Total Assets	-1.141*** (0.05)	-1.138*** (0.06)	-1.350*** (0.13)	-1.156*** (0.18)
Non-Interest Income to Net Income	-0.067*** (0.00)	-0.085*** (0.00)	-0.022** (0.01)	-0.013 (0.01)
ROAA	0.092*** (0.01)	0.140*** (0.01)	0.012 (0.02)	0.182*** (0.03)
Bank size (logTA)	0.468*** (0.01)	0.485*** (0.01)	0.519*** (0.02)	0.435*** (0.03)
Number of observations	134,683	60,634	31,523	42,526

The table presents regression results of the 1st step of the Heckman two-step sample-selection estimation of Eq. (1): the likelihood for a bank i from EU country j to have an exclusive foreign affiliate form in the host country $k \neq j$ (Presence $Foreign_{i,j,k} = 1$), for the whole sample of countries and the three high, middle, and low-income groups. A constant is estimated but not reported. All the variables have been defined in Section 2 and the descriptive statistics can be found in Table 4 (Country-level Bank regulation and supervision), Table 5 (Country-level Institutional) and Table 6 (Individual bank-specific characteristics). This table reports the standard errors in parentheses and the significance of p-value by * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 25

2nd Step – Heckman two-step sample-selection estimation of Eq. (2): the likelihood for a bank to operate only with foreign branch(es) and no subsidiary in the host country. **Economic Freedom – Market Openness (trade freedom, investment freedom, financial freedom)**

	Foreign Organizational Form choice: Only Subsidiary(ies) = 0 vs Only branch(es) = 1			
	(1) All countries	(2) Host_High Income	(3) Host_Middle Income	(4) Host_Low Income
Host_Entry into Banking Requirements	-0.094*** (0.01)	-0.060*** (0.02)	-0.088** (0.04)	0.079 (0.10)
Host_Bank Activity Restrictions	-0.001 (0.00)	0.008** (0.00)	-0.008 (0.01)	0.102*** (0.01)
Host_Capital Regulatory index	0.003 (0.00)	-0.003 (0.00)	0.024*** (0.01)	0.045*** (0.02)
Host_Official Supervisory Power	-0.050*** (0.01)	-0.075*** (0.01)	0.025** (0.01)	0.096*** (0.03)
Host_Foreign Bank Share	-0.038 (0.04)	-0.110** (0.05)	-0.092 (0.08)	-0.391*** (0.14)
Host_GDP per Capita (log)	-0.037*** (0.01)			
Host_Size (log GDP)	-0.082*** (0.01)	-0.116*** (0.01)	-0.057*** (0.02)	-0.088*** (0.02)
Business Specialization	-0.083*** (0.02)	-0.046** (0.02)	-0.068 (0.05)	0.208 (0.16)
Cost to Income Ratio	0.184*** (0.04)	0.070* (0.04)	0.681*** (0.09)	0.638*** (0.16)
Equity / Total Assets	-1.248*** (0.10)	-1.564*** (0.13)	0.844*** (0.23)	-0.352 (0.40)
Net Interest Margin	0.006 (0.01)	0.002 (0.01)	-0.024* (0.01)	-0.010 (0.03)
Non-Interest Income to Net Income	0.009*** (0.00)	0.005** (0.00)	0.002 (0.01)	-0.012 (0.01)
Bank size (logTA)	-0.103*** (0.01)	-0.071*** (0.01)	-0.068*** (0.01)	-0.036 (0.03)
Number of observations (step 1)	134,683	60,634	31,523	42,526
Number of foreign affiliates	20,850	10,134	9,010	1,706
N° Censored (step 1 → step 2)	131,570	58,245	30,980	42,345
Uncensored (step 2)	3,113	2,389	543	181
Wald test of indep. Eqns. (rho=0)	848.8	836.1	159.8	155.7
Prob > chi2	0.000	0.000	0.000	0.000

The table presents regression results of the 2nd step of the Heckman two-step sample-selection estimation of Eq. (2): the likelihood for a bank i from EU country j to operate with foreign branch(es) only in the host country $k \neq j$ (Only branch(es) $Affiliate_{i,j,k} = 1$) instead of with foreign subsidiary(ies) only in the host country $k \neq j$ (Only subsidiary(ies) $Affiliate_{i,j,k} = 0$), for the whole sample of countries and the three high, middle, and low-income-group. A constant is estimated but not reported. All the variables have been defined in Section 2 and the descriptive statistics can be found in Table 4 (Country-level Bank regulation and supervision), Table 5 (Country-level Institutional) and Table 6 (Individual bank-specific characteristics). This table reports the standard errors in parentheses and the significance of p-value by * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix A: Sample mean comparison of bank size (total assets)

Test (1)

Sample of 962 banks without any foreign activity (Group 0) versus sample of 289 banks with foreign activity (Group 1).

Group	Obs.	Mean	Std. Err.	Std. Dev.
0: Without Foreign	962	9.70	0.86	26.68
1: With Foreign	289	73.52	8.46	143.85
combined	1,251	24.44	2.20	77.71
◇ Two-sample t test with unequal variances				
difference	1,251	-63.82	8.51	77.71
diff = mean(0) - mean(1)				t = -
Ho: diff = 0		Welch's degrees of freedom = 294.014		
Ha: diff < 0	Ha: diff ≠ 0	Ha: diff > 0		
Pr(T < t) = 0.0000	Pr(T > t) = 0.0000	Pr(T > t) = 1.0000		

Group	Variable	Obs.	Mean	Std. Dev.	Median	Min	Max
0: Without Foreign	TA (bil. USD)	962	9.70	26.68	2.04	0.01	413.61
	LogTA	962	0.72	1.86	0.71	-4.29	6.02
1: With Foreign	TA (bil. USD)	289	73.52	143.85	13.65	0.04	621.25
	LogTA	289	2.57	2.09	2.61	-3.26	6.43
Total	TA (bil. USD)	1,251	24.44	77.71	2.88	0.01	621.25
	LogTA	1,251	1.15	2.07	1.06	-4.29	6.43

Test (2)

Sample of 962 banks without any foreign activity (Group 0) versus sample of 193 banks with an exclusive form of foreign presence (branch or subsidiary) (Group 1).

Group	Obs	Mean	Std. Err.	Std. Dev.
0 : Without Foreign	962	9,70	0,86	26,68
1 : Exclusive form	193	34,14	5,92	82,19
combined	1,155	13,78	1,25	42,42
◆ Two-sample t test with unequal variances				
difference		-24,44	3,27	
diff = mean(0) - mean(1)				t = -
Ho: diff = 0		Welch's degrees of freedom = 200.268		
Ha: diff < 0	Ha: diff ≠ 0	Ha: diff > 0		
Pr(T < t) = 0.0000	Pr(T > t) = 0.0001	Pr(T > t) = 1.0000		

Group	Variables	Obs	Mean	Std. Err.	Median	Min	Max
0 : Without Foreign	TA (bil. USD)	962	9.70	26.68	2.04	0.01	413.61
	TA_LOG	962	0.72	1.86	0.71	-4.29	6.02
1 : Exclusive form	TA (bil. USD)	193	34.14	82.19	6.16	0.04	621.25
	TA_LOG	193	1.91	1.91	1.82	-3.26	6.43
Total	TA (bil. USD)	1,155	13.78	42.42	2.41	0.01	621.25
	TA_LOG	1,155	0.92	1.92	0.88	-4.29	6.43

Test (3)

Sample of 962 banks without any foreign activity and 96 banks with both foreign branch(es) and subsidiary(ies) (Group 0) versus sample of 193 banks with an exclusive form (foreign branch or foreign subsidiary) (Group 1).

Group	Obs	Mean	Std. Err.	Std. Dev.
0: Other banks	1,058	22.67	2.36	76.77
1: Exclusive form	193	34.14	5.92	82.19
combined	1,251	24.44	2.20	77.71
◇ Two-sample t test with unequal variances				
difference		-11.47	6.37	
diff = mean(0) - mean(1)				t = -
Ho: diff = 0		Welch's degrees of freedom = 257.46		
Ha: diff < 0	Ha: diff ≠ 0	Ha: diff > 0		
Pr(T < t) = 0.0365	Pr(T > t) = 0.0730	Pr(T > t) = 0.9635		

Group	Variables	Obs	Mean	Std. Err.	Median	Min	Max
0: Other banks	TA (bil. USD)	1,058	22.67	76.77	2.48	0.01	621.25
	LogTA	1,058	1.01	2.07	0.91	-4.29	6.43
1: Exclusive form	TA (bil. USD)	193	34.14	82.19	6.16	0.04	621.25
	LogTA	193	1.91	1.91	1.82	-3.26	6.43
Total	TA (bil. USD)	1,251	24.44	77.71	2.88	0.01	621.25
	LogTA	1,251	1.15	2.07	1.06	-4.29	6.43

Test (4)

Sample of 962 banks without any foreign activity (Group 0) versus sample of 96 banks with both foreign branch(es) and subsidiary(ies) (Group 1).

Group	Obs	Mean	Std. Err.	Std. Dev.
0 : Without Foreign	962	9,70	0,86	26,68
1: Both forms	96	152.68	20.31	198.98
combined	1,058	22.70	2.36	76.77
◇ Two-sample t test with unequal variances				
difference		-142.99	20.33	
diff = mean(0) - mean(1)				t = -
Ho: diff = 0		Welch's degrees of freedom = 95.3483		
Ha: diff < 0	Ha: diff ≠ 0	Ha: diff > 0		
Pr(T < t) = 0.0000	Pr(T > t) = 0.0000	Pr(T > t) = 1.0000		

Group	Variables	Obs.	Mean	Std. Err.	Median	Min	Max
0 : Without Foreign	TA (bil. USD)	962	9.70	26.68	2.04	0.01	413.61
	TA_LOG	962	0.72	1.86	0.71	-4.29	6.02
1: Both forms	TA (bil. USD)	96	152,68	198,98	54,66	0,42	621,25
	TA_LOG	96	3,90	1,78	4,00	-0,87	6,43
Total	TA (bil. USD)	1,058	22.67	76.77	2.48	0.01	621.25
	TA_LOG	1,058	1.01	2.07	0.91	-4.29	6.43

Test (5)

Sample of 962 banks without any foreign activity and 193 banks with foreign branch(es) or foreign subsidiary(ies) only (Group 0) versus sample of 96 banks with both foreign branch(es) and subsidiary(ies) (Group 1).

Group	Obs	Mean	Std. Err.	Std. Dev.
0: Other banks	1,155	13.78	1.25	42.42
1: Both forms	96	152.68	20.31	198.98
combined	1,251	24.44	2.20	77.71
◇ Two-sample t test with unequal variances				
difference		-138.91	20.35	
diff = mean(0) - mean(1)				t = -
Ho: diff = 0		Welch's degrees of freedom = 95.7343		
Ha: diff < 0	Ha: diff ≠ 0	Ha: diff > 0		
Pr(T < t) = 0.0000	Pr(T > t) = 0.0000	Pr(T > t) = 1.0000		

Group	Variables	Obs.	Mean	Std. Err.	Median	Min	Max
0: Other banks	TA (bil. USD)	1,155	13,78	42,42	2,41	0,01	621,25
	TA_LOG	1,155	0,92	1,92	0,88	-4,29	6,43
1: Both forms	TA (bil. USD)	96	152,68	198,98	54,66	0,42	621,25
	TA_LOG	96	3,90	1,78	4,00	-0,87	6,43
Total	TA (bil. USD)	1,251	24,44	77,71	2,88	0,01	621,25
	TA_LOG	1,251	1,15	2,07	1,06	-4,29	6,43