THE MIX OF INTERNATIONAL BANKS' FOREIGN CLAIMS: DETERMINANTS AND IMPLICATIONS FOR FINANCIAL STABILITY

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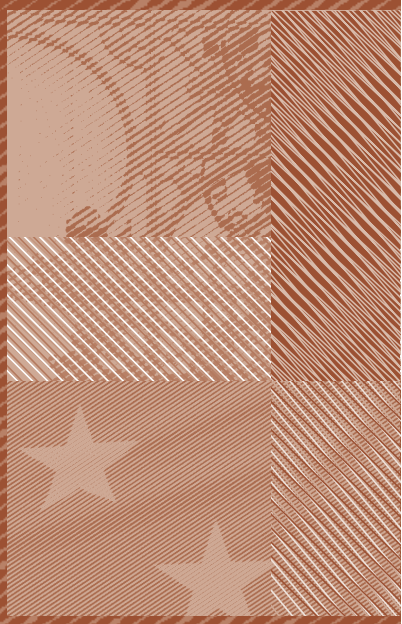

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Abstract

This paper analyzes the determinants and implications for financial stability of the mix of international banks' claims countries receive. In particular, we distinguish between local claims, extended by international banks through their affiliates in a host (or claim recipient) country, and cross-border claims, booked from outside the host country, typically from banks' headquarters in their home countries. Using data on US, Spanish, and Italian banks' foreign claims across countries, we find that the share of local foreign claims is primarily driven by the degree of "freedom" in the host banking sector and by business opportunities in the local market. Entry requirements, startup and informational costs associated with international banking also play a role, but their influence is less robust. Finally, we find that the mix of international bank claims has implications for financial stability, since foreign claim volatility is lower in countries that receive a larger share of local claims.

Keywords: foreign bank financing, financial FDI, cross-border claims.

JEL: F36, F37, G21.

1 Introduction

After a decade of financial repression and stagnant international financial flows, the 1990s saw a resurgence in financial globalization. Countries opened up their economies to capital flows and liberalized their financial sectors. As part of this process of financial integration, multinational banking gained momentum once again and international banks' foreign claims –those extended on residents outside the country in which these banks are headquartered– took off. According to Bank for International Settlement statistics, which monitor foreign claims held by banks from OECD countries vis-à-vis the rest of the world, these claims rose from 1.3 trillion dollars in 1990 to close to 3 trillion dollars in 2002.[1] In real terms, foreign claims to all non-BIS reporting countries rose by 120 percent over this period and claims to developing countries increased by 104 percent. These claims consist of financial assets such as loans, debt securities and equities, including equity participations in subsidiaries.

International banks may grow their foreign claims portfolio in two ways. First, they may establish affiliates in different countries and extend claims locally through their branches and subsidiaries in these countries. Second, international banks may also extend cross-border claims by financing and booking the claims from outside the recipient or host countries (e.g., originating the claim in their home countries, where their headquarters are located). While the first type of international bank claims involve some form of foreign direct investment in the host country's financial sector, cross-border claims do not. In practice, we observe significant disparities in how banks conduct their business across countries. In some instance, like in the case of Albania, Burundi, Bhutan, Cambodia, and Moldova, foreign banks extend only cross-border claims. While in other instances, such as in Brazil, Chile, and Hong Kong, foreign banks' exposure is largely local.

The purpose of this paper is to empirically analyze the determinants of the mix of foreign bank claims and to study its implications for financial stability. In terms of determinants of the composition of foreign bank financing, we examine the role of entry requirements, startup and informational costs, government intervention in the financial sector (primarily in the form of taxes, and restrictions in bank entry and operations), and business opportunities across host countries. The empirical model we propose is a reduced form model which tries to capture the underlying preferences of foreign banks, as well as those of governments and private agents in the host countries in our sample.[2]

With respect to the implications of the mix of foreign bank claims, we focus exclusively on the impact of the composition of these claims on the overall volatility of foreign bank financing.[3] Because FDI or local claims require paying higher fixed and irreversible costs, it seems reasonable to expect these flows to be more stable and less responsive to bad news than cross-border claims. Also, economic fixed costs aside, banks trying to shrink the size or close down their overseas operations will have to pay the reputational costs of doing so and, therefore, may be less likely to run when conditions deteriorate. At the same time, while in the

1. BIS-reporting countries over this period include: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, and US.

2. Data limitations do not allow us to study the role of bank specific characteristics or home country variables. In other words, because we only have aggregate data for banks from three countries we cannot examine the impact of bank and home country characteristics on the share of local claims.

3. There may be other implications from the mix of foreign bank claims, such as the impact on the balance of payments, which we ignore here and leave for future research.

face of good economic conditions, foreign banks can relatively quickly and, perhaps cheaply, extend cross-border financing, augmenting their local claims might require lumpy investments that are often decided on the basis of long-term rather than short-term profit opportunities.

Even though the literature on international banking is quite vast, a limitation of existing studies is that the determinants of financial FDI (or local claims) and those driving cross-border claims have been considered largely in isolation.[4] Furthermore, though some studies have documented differences in the behavior of international banks' cross-border and local claims across countries [see Haas and Lelyveld (2002), for Eastern Europe, Peek and Rosengren (2000), for Latin America, and Palmer (2000) for US bank claims around the world], the implications of the compositions of foreign bank claims have been largely overlooked in the international banking literature and still require a systematic empirical analysis.

The majority of existing papers on international or foreign banking have examined why international banks enter certain markets. An early strand of the literature on FDI by international banks focused on the experience of developed countries (especially the US) with foreign bank entry and bank internationalization during the 1970s and 1980s [e.g., Goldberg and Saunders (1980, 1981a and b), Ball and Tschoegl (1982), Nigh et al. (1986), Cho et al. (1987), Hultman and McGee (1989), Goldberg and Johnson (1990), Goldberg and Grosse (1994), Brealey and Kaplanis (1996), and Fisher and Molyneaux (1996)]. More recently, several authors have examined the decision of international banks to establish operations overseas during the 1990s, especially in developing countries [e.g., Buch (2000), Claessens et al. (2000), Focarelli and Pozzolo (2001 and 2006), Guillen and Tschoegl (2000), Buch and DeLong (2001) Moshirian (2001), Galindo, Micco and Serra (2003), Buch (2003), Buch and Lipponer (2004) and Wezel (2004).[5] At the same time, a smaller number of papers have examined the determinants and behavior of cross-border claims [e.g., Dahl and Shrieves (1999) Buch (2000), Jeanneau and Micu (2002), Kawai and Liu (2002), and Buch and Lipponer (2004)].

This paper assembles a database on foreign claims, both cross-border and local, extended by Italian, Spanish, and US banks to over 100 countries around the world during the period 1997-2002, to investigate the determinants of the share of local claims across countries and its implications for financial stability. Banks from Italy, Spain, and the United States are dominant players in the international banking market and they jointly account for approximately 30 percent of all outstanding foreign claims vis-à-vis the countries in our sample.

In studying the mix of cross-border and local claims extended by international banks across countries, we rely on the conceptual/theoretical framework used in the trade/multinational firm literature to study the choice between exporting goods (the equivalent

4. Buch and Lipponer (2004) is an exception. This study recognizes that banks have a choice to lend cross-border or to do so locally in host countries via their foreign affiliates. Using data for German banks, the authors test whether these two forms of financing are complements or substitutes by running regressions of one type of foreign funds vis-à-vis the other, while controlling for other determinants of international banking activities. They conclude that in the case of German banks both types of claims are complementary. The problem with their approach is that complementarity could be a result of endogeneity, where both types of foreign claims are driven by omitted factors. Also, the authors do not investigate why different countries get different shares of local claims relative to what they receive in cross-border flows.

5. A growing literature has examined the implications of foreign bank presence in developing countries. See Clarke et al. (2003) for a review of this literature. Among others, Claessens et al. (2000), Barajas et al. (2000), Denizer (2000), and Martínez Pería and Mody (2004) discuss the implications on competition and efficiency in the banking sector. Dages et al. (2000), Detragiache and Gupta (2004), Peek and Rosengren (2000), de Haas and Levyveld (2002 and 2004) compare the lending behavior of foreign and domestic banks during crises. Berger et al. (2001), Mian (2004), and Clarke et al. (2005) address the consequences on access to financing by small businesses.

to cross-border lending) and producing them abroad for foreign markets (FDI). In particular, studies such as Brainard (1997) and Helpman et al. (2003) discuss the tradeoff faced by multinational firms between paying the higher sunk costs of establishing affiliates overseas vis-à-vis confronting the transportation costs and trade barriers that arise from exporting their goods instead.

Following the trade literature, we investigate how the share of local claims to total foreign claims extended by international banks across countries is affected by the entry requirements and startup sunk costs of setting up operations overseas. These costs have been largely neglected in the literature on international banking. We use new survey data on the minimum capital requirements for opening banks across countries, as well as recently available information on the general costs (fees, costs of procedures and forms, fiscal stamps, legal and notary charges, etc.) of starting up a business to study their importance in driving the share of local to total foreign claims.

Also, since banking is an informationally intensive industry, we reinterpret the role of variable transportation costs in the manufacturing trade/multinational firm literature as information costs that arise in the international banking context. However, contrary to the case of transportation costs, which have an unambiguously negative effect on the share of exports to FDI, the impact of informational costs on international banking is harder to measure and a priori unclear. On the one hand, there are the informational costs of screening and monitoring foreign clients, which tend to be higher the larger the "distance" (geographic, cultural, legal, etc) between the borrower and the bank [See Petersen and Rajan (1994 and 2002), Berger et al. (2002), and Bonaccorsi and Gobbi (2001)]. Because extending claims through overseas affiliates allows banks proximity to its foreign clients, local claims are expected to carry lower informational costs of screening and monitoring borrowers than cross-border claims. On the other hand, extending claims through overseas affiliates raises the costs of information and oversight faced by international banks' CEOs and/or shareholders in trying to monitor the actions of managers and loan officers at these affiliates. In other words, extending claims through affiliates might increase information costs by augmenting the "distance" between bank CEOs, managers, and loan officers [Mian (2004)]. Thus, as a result, the net impact of information costs on the share of local claims is largely an empirical question, which we hope to address.

Relative to information costs, the banking policies of the host country are expected to have a clearer impact on the share of local claims. Policies that limit cross-border activities such as capital controls on loans from abroad are anticipated to diminish this form of bank presence, in the same way that trade tariffs discourage trade. On the other hand, limits on "banking freedom" such as restrictions on bank activities and foreign bank entry; controls on foreign currency lending by banks operating in the local market; and high corporate taxes are expected to reduce the attractiveness for international banks of extending claims locally in a foreign country.

There are a number of reasons why governments might put in place banking policies that promote one type of foreign bank claims or the other. First, by deterring foreign banks from freely operating locally in a host country, governments might seek to protect the domestic banking sector from foreign competition. Second, governments might promote certain types of foreign claims over others because of their different implications for the balance of payments. In particular, while cross-border financing virtually always implies obtaining foreign currency, in the case of local claims, beyond the initial FDI investments, the

local activity of foreign banks involves intermediating local savings. Third, as discussed above, governments might want to influence the type of foreign bank financing to the extent that this has an impact on volatility.

Finally, consistent with what other international banking studies on FDI and cross-border claims have found, we allow for measures of economies of scale, profit opportunities, as well as, default, price and expropriation risks to influence the share of local to total foreign claims extended to a country. While some of these variables have a clear expected impact on the share of local claims, the effect of others on the mix of foreign financing is an empirical question. In our view, this makes our empirical investigation all the more interesting.

Our results for the share of Italian, Spanish and US banks local claims indicate that this ratio is negatively impacted by restrictions on banks' freedom to operate in the local market. On the other hand, larger economies of scale and business opportunities lead to more local foreign claims. Other factors such as entry bank requirements, startup and informational costs are also significant, but their impact is less consistent across international banks and also varies depending on the specifications.

Regarding the implications of the mix of foreign bank claims for the stability of foreign financing, we find that countries with a higher share of local foreign claims observe lower total foreign claims volatility. This result, which is robust to controlling for a number of other factors that might affect foreign claims volatility, helps us confirm in a systematic manner some of the descriptive evidence offered by other studies favoring local foreign claims to cross-border bank financing.

The rest of the paper is organized as follows. Section 2 discusses the data on Italian, Spanish, and US foreign claims. Section 3 presents the empirical methodology pursued. Section 4 discusses the empirical results. Section 5 concludes.

2 The data on foreign claims

Perhaps, one of the reasons why not much research exists on the mix of foreign claims extended by international banks across countries has to do with the fact that this data is not readily available. The main source of international banking data is the BIS. The BIS' *Consolidated Banking Statistics* contain information on the foreign claims extended by international banks from more than 20, primarily OECD, countries (referred to as BIS-reporting countries). The data reported by the BIS aggregates the information provided by individual banks in each BIS reporting country, so it is really country level as opposed to bank level data.

An important advantage of the BIS *Consolidated Banking Statistics* is that they net out intrabank claims so, for example, loans between a bank's headquarter and its branches and or subsidiaries overseas are not included. On the other hand, the BIS data does not adequately discriminate between cross-border and local foreign claims. While cross-border claims are mainly denominated in foreign currency, local claims can be denominated either in the local currency of the country where the claimholder resides or in a foreign currency. The latter is particularly true in the case of highly dollarized countries (such as many in Latin America). In general, BIS data on local claims only captures those denominated in local currency. Foreign currency denominated local claims are combined with cross-border claims and reported under what the BIS calls "international claims". Thus, BIS data is largely ill-suited for an analysis of the determinants or the implications of the mix of cross-border versus local international bank claims.

Due to the limitations of the existing BIS information, the data used in our analysis had to be specially requested, through the BIS, from the Italian and Spanish central banks. The exception was the US, which is the only country that since 1997 reports separate information on cross-border and local claims to the BIS. For all three countries, the data available to us aggregates claims held by all banks vis-à-vis each host country. Thus, like in the case of the BIS data, the information we have is not bank, but rather country level data. For the US, we have information for the period 1997-2002. In the case of Spain and Italy the data covers the period 1998-2002. None of these countries collected separate information on local and cross-border claims prior to this period. In the case of all three countries, the information we have nets intra-bank positions.[6]

Table 1 presents information on Italian banks' foreign claims in 105 countries. Claims are zero in 9 countries (Bhutan, Botswana, Burkina Faso, Cambodia, Honduras, Niger, Papua New Guinea and Rwanda) and are 100 percent cross-border in 60 countries or 60 percent of the sample. Countries where Italian banks extend only cross-border claims include both developed and developing economies across all regions.

Italian banks hold local claims in 35 percent of the countries in our sample. These include primarily developed economies or countries in Eastern Europe and Latin America. However, among these countries, the share of local claims is never 100 percent (the largest share of local claims hovering around 90 percent is observed for countries such as Croatia, Poland, and Peru). This indicates that Italian banks do not substitute entirely local claims for

6. This is an important advantage of this dataset since it allows us to measure net exposure to a country. Bank level data from sources such as Bankscope do not disclose information on intragroup positions and on cross-border lending to specific hosts.

cross-border lending. Even in countries where most of the banking business is conducted through the local affiliates, there is still some cross-border financing taking place.

Table 2 shows information pertaining to the overseas or foreign claims of Spanish banks. Spanish banks are not active in anyway in 13 countries in the sample –Armenia, Bangladesh, Bhutan, Botswana, Burundi, Cambodia, Jamaica, Nepal, Lesotho, Nepal, Niger, Rwanda, Sri Lanka, and Zambia–, half of which are in Africa. Spanish banks hold exclusively cross-border claims vis-à-vis 48 countries or 47 percent of the sample. Like in the case of Italian banks, the list includes developed (mostly Nordic) and developing countries across all regions. Spanish banks tend to have local operations in developed countries and in emerging economies. The extent of local presence is particularly high in Latin America (especially Mexico and Bolivia) where in many countries the share of local presence exceeds 75 percent, but never reaches 100.

As shown in Table 3, US banks appear to be active in one way or the other in all but 5 countries in our sample (i.e., Armenia, Burkina Faso, Burundi, Madagascar, and Rwanda). Furthermore, contrary to the case of Spanish and Italian banks, US banks have some form of local presence in more than three-quarters of the sample and those countries where US claims are exclusively cross-border are mainly small developing economies (with the exception of Saudi Arabia). Finally, relative to Spain and Italy, it is harder to detect any regional pattern in the share of US bank local foreign claims, since countries with high shares include both developed and developing countries in almost every region.

3 Empirical Methodology

The empirical analysis conducted in this paper has two objectives: (1) to study the determinants of the mix of foreign claims and (2) to examine the implications of this mix for the stability of foreign bank financing. Below, we discuss the empirical strategies pursued to accomplish these objectives. Because the time span covered by the data is relatively short and since many of the variables of interest do not vary over time, we focus on explaining differences across countries. Therefore, we consider only the average share of local foreign claims across countries and, for each country, the volatility of total foreign claims over the entire sample period.

Taking into account the existing empirical international banking literature and borrowing from the theoretical framework used in related trade and multinational firm studies, we model the average share of local to total foreign claims held by Italian, Spanish, and US banks overseas as follows:

$$\textit{Share of local foreign claims}_{i,j} = \beta_0 + \beta_1 \textit{Entry requirements \& startup costs}_j +$$

$$\beta_2 \textit{Informational costs}_{i,j} + \beta_3 \textit{Bank Regulation}_j + \beta_4 \textit{Taxes}_j +$$

$$\beta_5 \textit{Scale \& profit opportunities}_j + \beta_6 \textit{Risks}_j + \varepsilon_{i,j} \qquad (1)$$

where i indicates the international banks' country of origin and j refers to the host or claim recipient country. We estimate separate cross-country equations for Italian, Spanish, and US banks' foreign claims.[7] In each of these equations, the *Share of local foreign claims* refers to the ratio of local foreign claims from *i* country banks to host country *j* out of the total foreign claims extended from *i* country banks to host country *j*.

Equation (1) is a reduced form model that tries to capture the underlying preferences of foreign banks and of governments and private agents in the host countries. Unfortunately, because we only have aggregate data for foreign banks from three countries, we cannot examine the role of home country factors and the importance of certain bank specific characteristics.

According to the trade/multinational firm literature, one of the main differences between exports and FDI, is that the latter involves paying sunk costs, typically associated with entry requirements and startup costs. Depending on their size, sunk costs can in principle be an important consideration for banks in deciding the type of presence to have in a country. If significant, we expect to find that sunk costs have an adverse effect on the share of local claims held by foreign banks. Obviously, measuring sunk costs is difficult. In the trade literature, these have often been captured by country fixed effects. However, this cannot be applied to a cross-section analysis such as ours. Furthermore, many other characteristics of a country not necessarily related to sunk costs may be captured by the fixed effects.

7. A panel estimation would not add much information given the very small number of home countries for which this data is available. In addition, cross-country equations allow us to compare the results obtained for each home country and for each regressor.

In our study, we interpret sunk costs as the costs associated with entering the market and starting up a business. We include two separate measures of these costs. Our first measure controls for the minimum capital requirements banks need to comply with to begin operations in the countries in our sample. These data comes from a worldwide survey of bank regulators summarized by Barth, Caprio and Levine (2001). We use data on the actual monetary amount of capital (expressed in US dollars) banks have to put down and we also take into account the regulations in each country as to what may constitute bank capital. In particular, we build an index of initial capital stringency that can take values from 0 to 3, with higher number indicating greater stringency. This index comes from summing up responses to the questions below in the following way:

(1) Can initial and subsequent infusions of regulatory capital include assets other than cash or government securities? 1 if no.

(2) Can the initial infusion of capital be based on borrowed funds? 1 if no.

(3) Are the sources of funds that count as regulatory capital verified by the

regulatory or supervisory authorities? 1 if yes.

Finally, we combine the dollar measure with the index of initial capital stringency by obtaining the principal component of the two series. We refer to the first principal component of the two series as *Minimum capital requirements.*[8]

Our second measure of entry and startup costs, tries to capture the actual number of procedures, time, and costs to initiate operations in a country. Data on the procedures required to open banks across countries come from Barth, Caprio and Levine (2001). They construct an index of bank entry requirements that takes values from 0 to 8 depending on whether banks are required to submit none, some, or all of the following to issue a bank license:

(1) Draft by-laws.

(2) Intended organizational chart.

(3) First 3-year financial projections.

(4) Financial information on main potential shareholders.

(5) Background/experience of future directors.

(6) Background/experience of future managers.

(7) Sources of funds to be used to capitalize the new bank.

(8) Intended differentiation of new bank from other banks.

8. It should be noted that cross-border lending also requires capital for the head office and that it will generally be higher for more vulnerable host countries, for the same loan size. While the two needs (the minimum capital requirement to operate locally and the capital needed for cross-border lending) are not easily comparable, minimum capital requirements should generally involve larger costs when a bank starts to operate locally.

This index is combined using the method of principal components with two other measures of the costs of starting a business that come from the World Bank *Doing Business Indicators.* In particular, we include survey estimates of the actual monetary costs (in dollars) and, separately, the time (in number of days) involved in opening a business across countries. The first measures all identifiable official expenses in setting up any business (not necessarily banking), namely fees, costs of procedures and forms, fiscal stamps, legal and notary charges, etc.[9] The second, the time variable, captures the number of days to satisfy all procedures that need to be completed before a business license is issued. We refer to the first principal component of the entry bank requirement index, the costs, and time to start a business as *Non-capital entry requirements and start up costs*.

In the export vs. FDI literature, the higher sunk costs involved in the latter are traded off against the higher transport costs involved in the former. In banking, physical transportation costs are not likely to be as important. Instead, the literature has discussed the role of *informational costs* [see for example Buch (2003) and Galindo et al. (2003)]. There are two main types of informational costs in the international banking business. On the one hand, there are the costs of screening and monitoring borrowers. These costs will tend to increase the larger the distance between the bank and its customers. On the other hand, there are the costs to banks' CEO and shareholders of monitoring the affiliates' managers and loan officers on the ground. These costs will also increase the larger the distance between the CEO and the manager/loan officer. Therefore, in extending bank claims overseas, the informational costs of monitoring borrowers decline when banks decide to extend claims locally to foreign countries via their affiliates in these countries. But, at the same time, by growing the share of foreign claims they extend locally, international banks increase the costs of monitoring loan officers and affiliate managers. Thus, the net impact of informational costs on the share of local lending is an empirical question.

Testing the importance of informational costs in international banking decisions is complicated further by the fact that these cannot be measured directly. Instead, they are often captured by indicators of geographic, cultural, legal and economic "distance" between countries that are expected to affect information costs. As distance between an international bank and a country increases, both, the costs of monitoring foreign clients and bank managers or loan officers in bank affiliates rise. The discussion above suggests that the distance between the bank and its customers increases the comparative advantage to international banks of extending claims locally, since local presence helps to overcome some of these informational costs. Therefore, on the basis of the costs of monitoring borrowers, distance measures should have a positive impact on the share of local claims. On the other hand, as distance measures increase, the rising costs of monitoring loan officers and affiliate managers suggest that distance might have a negative impact on the share of local claims. Thus, a priori the sign of distance measures on the share of local claims is unclear.

We control for the geographic distance between the foreign banks' country of origin and the host country by including the log of the miles between the two countries' capital cities. This information comes primarily from Glick and Rose (2002) and the Central

9. As stated in the Doing Business Report "the text of the Company Law, the Commercial Code, and specific regulations and fee schedules are used to calculate the costs [of starting a business]. If there are conflicting sources and the laws are not clear, the most authoritative source is used. The constitution supersedes the company law, and the law prevails over regulations and decrees. If conflicting sources are of the same rank, the source indicating the most costly procedure is used, since an entrepreneur never second-guesses a government official. In the absence of fee schedules, a governmental officer's estimate is taken as an official source. In the absence of a government officer's estimates, estimates of incorporation lawyers are used. If several incorporation lawyers provide different estimates, the median reported value is applied. In all cases, the cost excludes bribes." A list of all procedures considered in estimating the costs of starting a business can be found in:
http://rru.worldbank.org/Documents/DoingBusiness/Methodology/StartingBusiness/StartingBusiness.pdf

Intelligence Agency (CIA) *World Factbook*.[10] We also take into account that, nowadays, instant methods of communications like phones and internet connections can help bridge physical distances, making project and management oversight and access to information possible from far away places. In our regressions, we use the number of internet hosts per 1000 people in each borrowing/claim recipient country as measures of access to communications, which are like to affect monitoring and informational costs.[11] These data come from the World Bank *World Development Indicators*. We expect that lending cross-border is easier to countries with better communications, allowing project monitoring and information gathering to be done "offsite". Thus, we foresee that this variable will have a negative impact on the share of local to total foreign claims.

We measure "economic" proximity between the home and the host country by including a measure of bilateral trade between these economies. This information comes from the IMF *Direction of Trade Statistics*.[12] Finally, we measure home-host country "cultural" and "institutional" distance by including, respectively, a dummy that equals one if countries share a common language with the lender country and a dummy that equals one if countries have a common legal origin (which will then result in similar institutions). Data on common language and legal origin come from Glick and Rose (2002) and the CIA *World Factbook*.

Government intervention in a country's financial sector via regulations and/or taxation might affect the share of local to total foreign claims countries receive in different ways, depending on the kind of intervention. For example, controls on cross-border activity will negatively affect the level of cross-border claims and, therefore, will increase the share of local claims. Similarly, restriction on on-shore foreign currency lending, might also lead to a rise in cross-border claims to the degree that banks prefer to extend claims in foreign currencies. On the other hand, limits on "banking freedom", in particular restrictions on bank activities and controls that affect foreign entry and foreign ownership of banks, will have the opposite effect.

In our estimations, we control for regulations affecting the volume of cross-border and local claims, respectively. First, we include a dummy that equals one if the country has controls on cross-border financial credits. Second, we control for restrictions on on-shore foreign currency lending by including a dummy for the countries where such restrictions are in place. Data for both variables come from the IMF *Annual Report on Exchange Arrangements and Restrictions.* Third, in order to control for restrictions on bank activities and on financial FDI, we include the *Index of Banking Freedom* produced by the Heritage Foundation. This index takes into account the extent of restrictions on the ability of foreign banks to open branches and/or subsidiaries, how heavily regulated the financial system is, the presence of state-owned banks, whether the government influences the allocation of credit, and whether banks are free to offer all types of financial services. This index takes values from 1 to 5, where higher values represent less freedom in the banking sector.

Bank profits arising from cross-border activities are taxed at the rate prevalent in the banks' country of origin, while taxes on their FDI activities or local claims depend on the hosts' tax rates. Other things equal, we expect to find relatively lower levels of FDI activity or a lower share of local claims in countries with higher corporate taxes. In our study, *taxes* refer to

10. When data was missing from this source, we used a software provided on the US Department of Agriculture webpage that calculates distances between more than 220 capital cities worldwide.
(See http://www.wcrl.ars.usda.gov/cec/java/capitals.htm).
11. In estimations that we do not report here, we also included measures of the number of phone lines in each claim recipient country. The results are not significantly different. Therefore, to save space we only report results using the number of internet hosts.
12. Ideally, we would have liked to control as well for the share of non-financial FDI from the home to the host country, however, this information was missing for many of the countries in our sample.

the top corporate income taxes in each country as reported by the Heritage Foundation. Ideally, we would have also liked to control for taxes on financial intermediation, but such data is not available on a cross-country basis.

Studies on both, cross-border claims and financial FDI, document that economies of scale, profit opportunities, and risks might also affect banks' decisions to expand internationally. Thus, the degree to which each of these factors might affect the share of local claims is an empirical question. However, a priori we could speculate that since the returns from cross-border lending are limited to the initial claims extended plus an interest rate, while extending local claims often implies an equity participation in a local affiliate (bringing the potential for unbounded gains and losses[13]) scale economies, profit opportunities, and risks might be more important in driving FDI or local claims relative to cross-border loans.

Following existing international banking studies, we capture the potential for *scale economies and profit opportunities* in two ways. First, we include the log of constant dollar GDP. Second, we include the growth of GDP as a measure of growth opportunities in the country. Economic growth may also be interpreted as a measure of default risk, since in countries that do not grow, borrowers might have a harder time repaying their obligations to banks. Data on both of these variables come from the World Bank *World Development Indicators* or the IMF *International Financial Statistics*, depending on the country.

In international banking, pricing risks materialize when the value of the claims or return on the claims held by foreign banks declines as a result of exchange rate or other price changes. We measure price risk by controlling for inflation in our estimations.[14] Data on inflation comes from the *World Development Indicators.*

While both cross-border and local foreign claims are exposed to price and default risks, local claims are also subject to expropriation risks. We capture the extent of expropriation risks by including a measure of property rights in the host countries. This measure is an index compiled by the Heritage Foundation and reported as part of the *Index of Economic Freedom*. Higher levels of this index indicate worse property rights in the country. In some estimations, we replace the measure of default, price, and expropriation risks for one composite country risk measure as collected by the International Country Risk Guide (ICRG) in its *country risk index.*[15]

We estimate the following equation to investigate the implications for financial stability of the mix (cross-border versus local) of foreign claims:

$$\textit{Foreign claims volatility}_{i,j} = \gamma_0 + \gamma_1 \textit{Share of local claims}_{i,j} + \gamma_2 \textit{Growth volatility}_j + \gamma_3 \textit{Price volatility}_j + \gamma_4 \textit{Volatility of claims to other countries}_{i,j} + \gamma_5 \textit{Banking crisis indicator}_j + \mu_{i,j} \quad (2)$$

where, as before, *i* indicates the lender or home country and *j* refers to the host or borrowing country. Once again, we estimate separate cross-country equations for Italian, Spanish and US bank claims. In each of these equations, *Foreign claims volatility* refers to the standard deviation of *i* country banks' total foreign claims vis-à-vis country *j* over the sample period divided by the average level of foreign claims to that country.

13. This might be different for branches and subsidiaries due to the financial independence but also differences exist depending on the banks' country of origin.
14. Results remain unchanged if we used the change in the exchange rate instead.
15. This index is defined by ICRG so that higher values mean less risk, but in our estimations we reverse the sign on this variable to give it the more intuitive interpretation that higher values mean more risk.

The purpose of estimating equation (2) is to uncover whether, as some have argued [see de Haas and Levyled (2002), Peek and Rosengren (2000), and Palmer (2000)], the volatility of foreign claims is lower for countries where foreign claims are predominantly local (i.e., extended through the overseas affiliates of international banks). Thus, we are primarily interested in the coefficient on the share of local claims. However, in order to obtain consistent estimates of this coefficient, it is important to adequately control for other factors that might influence the volatility of foreign claims. Specifically, we control for the volatility of growth and inflation in the host economy, for whether the host country experienced a banking crisis over the period of study, and for the volatility of foreign claims to countries other than *j.*

Growth and inflation volatilities are captured by the standard deviation of GDP growth and inflation in the host countries over the entire period of study. In some estimations, we replace these variables for the composite ICRG country risk index. The crisis indicator is a dummy, which equals one for those host countries that experienced a banking crisis over the period of study [see Caprio and Klingebiel (2003)]. The variable labeled *volatility of claims to other countries* is the standard deviation of claims from banks from country *i* to countries other than host *j* divided by the average level of foreign claims to countries other than *j*. The idea behind this variable is that the volatility of claims to a specific host might be influenced by what foreign banks do and experience in other host countries or even in their home countries (which affect all hosts simultaneously).

4 Empirical Results

We first discuss our results on the determinants of the mix of foreign bank claims across countries and then proceed to present our findings regarding the volatility of total foreign claims. A detailed list and explanation of all the variables included in our empirical models is presented in Table 4.

Because in many cases the share of local claims is zero, we report Tobit estimations to take into account the censoring that occurs at zero. In other words, we assume that the underlying dependent variable is a latent variable, which measures the desired share of local claims that banks would like to hold. As a result, the observed share is above zero only when this latent variable is above a certain threshold.[16]

Table 5 presents the result from six specifications, two for each country. In particular, the first three columns report results for Italian, Spanish and US banks, controlling for minimum capital requirements. Because this information is missing for a number of countries, we also report estimations excluding this variable, as shown on the last three columns of Table 5.

A number of interesting results emerge from the estimations shown in Table 5. First, lack of freedom for banks to operate in a host country has a significant negative impact on the willingness of foreign banks to extend local claims. A standard deviation change in this variable leads to at least a 0.7, 0.5 and 0.35 standard deviation reduction in the share of Italian, Spanish, and US bank local foreign claims, respectively. Other forms of government intervention in the economy, such as restrictions on foreign credits or the level of taxation, are only significant for Spanish and Italian banks, respectively.

Second, scale economies and profit opportunities, as captured primarily by the size of the country, have a consistently positive impact on the share of local claims. Foreign banks are more willing to extend claims locally where the potential for business is larger. In small countries, banks might not be willing to establish local operations, which involve paying fixed cost of entry and operations, given that the potential for business is limited. A one standard deviation change in the log of constant dollar GDP leads to at least a 1.8, 1.2, and 0.7 standard deviation change in the share of Italian, Spanish, and US bank local foreign claims, respectively.

Third, controlling for size, minimum capital requirements and other entry costs are also important determinants of the share of local claims, but less consistently so than the other factors mentioned so far. Minimum capital requirements have a negative impact on the share of local claims held by Spanish banks, while non-capital entry startup costs seem to affect US banks' share of local claims. A one standard deviation change in minimum capital requirements leads to a 0.35 standard deviation decline in Spanish banks' share of local claims. A one standard deviation change in entry costs results in a 0.2 standard deviation drop in US banks' share of local claims.

16. We also tried to estimate a Heckman model to take into account the possibility of selection bias, but estimations did not converge because there are two few cases when total claims are 0 (i.e., when the share of local claims is not observed).

Fourth, informational costs matter, since several of the variables included to proxy for these costs are found to be significant. Better means of communications (as proxied by the number of internet hosts) have a negative impact on the share of local claims across all banks, suggesting that access to communications may lessen the need for local operations and increase banks' willingness to conduct more of their business cross-border. A one standard deviation change in the number of internet hosts per 1,000 people, results in at the least a 0.6, 0.2, and a 0.35 standard deviation change in the share of local claims from Italian, Spanish, and US banks, respectively. On the other hand, controlling for access to communications, geographic distance has a negative impact on the share of local claims, signifying perhaps that banks feel that their ability to monitor local operations is adversely affected by distance. However, this is true only for Italian and Spanish banks, maybe because US banks' governance structure or greater experience in international banking allows them to view distance as less of an obstacle.

Cultural and institutional affinity is especially important for both Spanish and US banks, since we find that having a common language in the case of Spanish banks and sharing the same legal origin both for Spanish and US banks has a positive impact on the share of local claims. The share of Spanish banks' local claims is approximately 63 percentage points higher in Spanish speaking countries, relative to those where Spanish is not the local language. For countries with a common legal origin with the US, the share of US banks' local claims is up to 18 percentage points higher than the rest.

Fifth, economic and expropriation risks do not seem to affect the mix of foreign bank claims, once we control for other factors. This does not necessarily mean that banks do not pay attention to these factors. It might be that these factors affect both cross-border and local claims in similar ways, making their impact on the ratio statistically indistinguishable from zero. Also, it is worthwhile pointing out that there is a significant correlation between country size and property right protection, which might cause the latter to be insignificant in our sample.

To verify the robustness of the results reported so far, Table 6 presents a number of additional estimations. In particular, in the first three columns of Table 6 we substitute the measure of lack of banking freedom for a more direct measure of restrictions on foreign bank entry, as measured by the actual percentage of foreign bank applications denied. This data come from Barth, Caprio, and Levine (2001). The number of countries for which this information is available is smaller than in our previous estimations. This might explain why this variable is significant for Italian and Spanish banks, but not for US banks.

In columns (3)-(6) of Table 6, we present estimations where real GDP growth, inflation and property rights, treated so far as measures of default, price and expropriation risks, respectively, are replaced by one composite country risk measure. As with the individual measures, we find that risks do not seem to consistently affect the mix of foreign bank claims.

Finally, the last three columns in Table 6 show results controlling for the total level of foreign bank claims each country receives. These estimations try to address the point that perhaps local presence is larger in countries where banks are willing to have a larger exposure. We find no consistent evidence of this.

Our second set of results, reported on Tables 7 through 9, examine the implications of the mix of local versus cross-border foreign claims for the stability of foreign bank financing

across countries. In each table, we include seven different specifications from least to most general. In the first column of each table, we include only the variable of interest: the share of local to total foreign claims.[17] The remaining columns include other controls that might also affect total foreign bank claims volatility. In particular, we control for price and output volatility, the level of financial sector development (as proxied by the ratio of private credit to GDP), and the behavior of foreign claims vis-à-vis other countries. Furthermore, in some estimations, we include a composite measure of country risk.

Table 7 presents the results for Italian banks. The share of local claims has a consistently negative impact on the volatility of foreign bank claims, no matter what other variables are included in the regression. On average, a one standard deviation change in the share of Italian banks' local claims would result in a 0.19 standard deviation change in the volatility of Italian banks' total claims. In some estimations, the volatility of Italian banks' foreign claims is also impacted by the volatility of prices, the level of development of the local financial sector, and the composite measure of country risk in the host countries.

Results for the volatility of Spanish bank foreign claims are shown on Table 8. Here too, we find that the share of local claims seems to be associated with lower foreign bank claims volatility. A one standard deviation change in the share of local Spanish banks' claims would result in a 0.24 standard deviation change in the volatility of total Spanish banks' claims. In the case of Spain, there is also evidence that output volatility in the host country contributes to foreign bank lending volatility or procyclicality.

The negative relationship between the volatility of foreign bank claims and the composition of these claims is further supported by the results for US banks. Once again, we find that the volatility of foreign bank claims is lower in countries where banks' exposure to the country is primarily in the form of local claims. A one standard deviation change in US banks' share of local claims would result in a 0.45 standard deviation change in the volatility of US banks' total foreign claims. As in the case of Spanish banks, US bank volatility seems to be higher for countries with large output volatility and less developed financial sectors.

17. We treat as outliers and, therefore, we exclude from the regressions cases where the volatility of the share was very high due to some unusual event or transaction. This meant dropping Croatia, Poland, and the Slovak republic from our sample of countries in the estimates for Italian banks, since these countries experienced an abrupt change in the share of local Italian claims due to mergers and acquisitions.

5 Conclusions

While a vast literature exists analyzing the cross-border and local activities of multinational banks across countries, the determinants and implications of the mix of international bank claims had not, to our knowledge, been explored before. Using data on the Italian, Spanish, and US bank claims vis-à-vis more than 100 countries, this paper sought to fill this void in the multinational banking literature.

First, we estimated a reduced form empirical model of the share of local to total foreign claims across host countries. In particular, we modeled the share of local to total foreign claims as a function of entry requirements and startup costs, informational costs, regulatory barriers to banking activities and foreign bank participation (or what we call lack of banking freedom), taxation, as well as profit opportunities and risks. We found that regulatory barriers to banking and measures of business opportunities and scale economies have the most consistently significant impact on the share of local bank claims. This share is smaller in countries that limit banking freedom. On the other hand, the share of local foreign bank claims tends to be higher in larger countries with better business opportunities. Entry requirements and startup costs, as well as informational costs, also seem to be important determinants of the share of local claims, but their impact is smaller and less robust.

Second, we presented evidence that the mix or composition of foreign bank financing affects the stability of foreign bank claims to host countries. Countries where a larger share of foreign claims is extended through the local affiliates of foreign banks, rather than through cross-border loans, tend to enjoy more stable foreign financing.

Our findings suggest that in order to reduce the volatility of foreign bank financing, countries should try to increase the share of foreign claims channeled through the local affiliates of foreign banks in their countries. According to our results on the determinants of the share of local presence, host countries can influence this share by lowering regulatory barriers to bank activities and foreign bank participation and by improving business opportunities in their market.

While this study is, to our knowledge, the first to examine the determinants and implications of the mix of foreign bank claims, the analysis conducted is not without limitations. In particular, the time series analyzed is short and the number of home countries considered is small. Thus, it would be important that as more data becomes available, further research is conducted to verify the robustness of our results over more comprehensive datasets. Also, it should be noted that the mix of local versus cross-border foreign financing may have a bearing on questions other than financial stability, which host countries may consider important. For example, host countries may be concerned about the type of financing received, because of its balance of payment needs. Exploring these alternative implications from the mix of foreign bank claims is also left for future research.

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Table 1: Italian banks' foreign claims vis-à-vis other countries

No presence	Only cross border	Share of local claims (% of total foreign claims)			
		0.1%-25%	25%-50%	50%-75%	>75%
Bhutan	Albania	Slovenia	China	Singapore	Japan
Botswana	Algeria	Austria	Chile	Canada	Brazil
Burkina Faso	Armenia	Netherlands	UnitedKingdom	Colombia	Hungary
Burundi	Australia	Turkey	Lebanon	Argentina	Slovak Rep.
Cambodia	Bangladesh	Ukraine	France	Hong Kong	Croatia
Honduras	Belarus	Czech Rep.	United Arab Emirates		Poland
Niger	Bolivia	Israel	Bulgaria		Paraguay
Papua	Congo	Greece	Spain		Peru
Rwanda	Costa Rica	Belgium	United States		
	Cote d'Ivoire	Ireland			
	Ecuador	Switzerland			
	Egypt	Panama			
	El Salvador	Germany			
	Estonia	Romania			
	Finland				
	Ghana				
	Guatemala				
	India				
	Indonesia				
	Jamaica				
	Jordan				
	Kazakhstan				
	Kenya				
	Korea				
	Kuwait				
	Latvia				
	Lesotho				
	Lithuania				
	Madagascar				
	Malawi				
	Malaysia				
	Mali				
	Mexico				
	Moldova				
	Morocco				
	Namibia				
	Nepal				
	New D11Zealand				
	Nicaragua				
	Nigeria				
	Norway				
	Oman				
	Pakistan				
	Philippines				
	Portugal				
	Russia				
	SaudiArabia				
	Senegal				
	SouthAfrica				
	SriLanka				
	Sweden				
	Sweden				
	Taiwan				
	Thailand				
	Togo				
	Tunisia				
	Venezuela				
	Vietnam				
	Zambia				
	Zimbabwe				

Table 2: Spanish banks' foreign claims vis-à-vis other countries

		Share of local claims (% of total foreign claims)			
No presence	Only cross border	0.1%-25%	25%-50%	50%-75%	>75%
Armenia	Albania	Poland	Switzerland	Czech Rep.	Colombia
Bangladesh	Algeria	Australia	Morocco	United States	Argentina
Bhutan	Belarus	China	France	Philippines	Hong Kong
Botswana	Bulgaria	Turkey	Italy	India	Portugal
Burundi	Congo	Korea		Panama	Brazil
Cambodia	Cote d'Ivoire	Netherlands			Chile
Jamaica	Croatia	Russia			Peru
Lesotho	Egypt	Ecuador			Paraguay
Nepal	Estonia	Austria			Venezuela
Niger	Finland	South Africa			Mexico
Rwanda	Ghana	CostaRica			Bolivia
SriLanka	Guatemala	Canada			
Zambia	Indonesia	Greece			
	Israel	Singapore			
	Jordan	Honduras			
	Kazakhstan	Ireland			
	Kenya	Hungary			
	Kuwait	Japan			
	Lebanon	Belgium			
	Lithuania	El Salvador			
	Madagascar	Germany			
	Malawi	United Kingdom			
	Malaysia				
	Mali				
	Moldova				
	Namibia				
	New Zealand				
	Nicaragua				
	Nigeria				
	Norway				
	Oman				
	Pakistan				
	Papua				
	Romania				
	Saudi Arabia				
	Senegal				
	Slovak Republic				
	Slovenia				
	Sweden				
	Taiwan				
	Thailand				
	Togo				
	Tunisia				
	Ukraine				
	United Arab Emirates				
	Vietnam				
	Zimbabwe				

Table 3: U.S. banks' foreign claims vis-à-vis other countries

		Share of local claims (% of total foreign claims)			
No presence	Only cross border	0.1%-25%	25%-50%	50%-75%	>75%
Armenia	Albania	Kuwait	CostaRica	Mexico	Singapore
Burkina Faso	Belarus	Slovenia	Germany	Lebanon	Cote d' Ivoire
Burundi	Bhutan	Ghana	Morocco	Brazil	Taiwan
Madagascar	Botswana	Austria	China	Romania	Pakistan
Rwanda	Cambodia	Zimbabwe	Oman	Nigeria	Senegal
	Congo	Finland	Indonesia	Panama	Malaysia
	Croatia	Netherlands	Peru	Hungary	Paraguay
	Estonia	Malawi	Colombia	Greece	Zambia
	Latvia	Norway	South Africa	Korea	
	Lithuania	Sweden	Bolivia	Argentina	
	Mali	Sweden	Algeria	Philippines	
	Moldova	Israel	Jamaica	Slovak Republic	
	Namibia	Ecuador	Spain	New Zealand	
	Nepal	France	Kazakhstan	Chile	
	Nicaragua	Bulgaria		Japan	
	Niger	Honduras		Egypt	
	Saudi Arabia	Guatemala		Jordan	
	Togo	Switzerland		Bangladesh	
		Venezuela		Canada	
		Italy		Kenya	
		Russia		SriLanka	
		Ireland		Papua	
		Turkey		Vietnam	
		Portugal		Poland	
		El Salvador		Thailand	
		Ukraine		United Arab Emirates	
		Belgium		Tunisia	
				India	
				Australia	
				Czech Republic	
				Hong Kong	

Table 4: Definition and sources for the variables used

Variable Name	Definition	Source
Dependent variables		
Banks' share of local to total foreign claims vis-à-vis host (claim recipient) country j.	Banks' local claims vis-à-vis host j divided by banks' total foreign claims to that host. (Constructed separately for Italian, Spanish, and U.S. banks)	*Consolidated Banking Statistics* (BIS), the Italian, and Spanish central banks.
Banks' foreign claims volatility vis-à-vis host (claim recipient) country j.	Standard deviation of foreign claims vis-à-vis host j divided by the average foreign claims to that host. (Constructed separately for Italian, Spanish, and U.S. banks)	*Consolidated Banking Statistics* (BIS), the Italian, and Spanish central banks.
Independent variables		
Minimum capital requirements	First principal component of (1) dollar capital requirements to start a bank and (2) an index of initial capital stringency which varies between 0 and 3 depending on whether the country (a) prohibits capital in forms other than cash or government paper, (b) prohibits the use of borrowed funds, and (c) verifies the sources of capital. Larger values indicate greater stringency.	Regulatory survey summarized in Barth, Caprio, and Levine (2001)
Non-capital entry requirements and startup costs	First principal component of (1) index of entry bank requirements a la Barth et al. (2001), (2) all identifiable official expenses in setting up a business (fees, costs of procedures and forms, fiscal stamps, legal and notary charges, etc.) from *Doing Business Indicators* (World Bank) and (3) time it takes to start up a business from the same source.	World Bank *Doing Business Report*
Bilateral distance	Log of the distance in miles from a host (claim recipient) country's capital to the banks' country of origin. Constructed separately for Italy, Spain, and the U.S., respectively.	Glick and Rose (2002) and *World Factbook* (CIA).
Bilateral trade	Share of exports plus imports between a host (claim recipient) country and the banks' country of origin (home) relative to home GDP. Constructed separately for Italy, Spain and the U.S.	Export and import data are from *Direction of Trade Statistics* (IMF). GDP is from the *World Development Indicators* (World Bank).
Common language	Dummy equal to 1 if the host (or claim recipient country) and home country (Italy, Spain, and U.S., respectively) speak the same language.	*World Factbook* (CIA)
Common legal origin	Dummy equal to 1 if the host (or claim recipient country) and home country (Italy, Spain, and U.S., respectively) share the same legal origin.	*World Factbook* (CIA)
Internet hosts	Internet hosts per 1000 people in host or claim recipient country.	*World Development Indicators* (World Bank)
Log of GDP	Logarithm of constant dollars GDP.	*World Development Indicators* (World Bank)
Corporate tax rate	Top corporate tax rate.	*Index of Economic Freedom* (Heritage Foundation)
Restriction on foreign credits	Dummy variable that equals one if there are any restrictions on non-resident lending to residents (i.e., cross-border loans).	*Annual Report on Exchange Arrangements and Exchange Restrictions* (IMF)

Table 4: Definition and sources for the variables used (cont'd)

Variable Name	Definition	Source
Independent variables		
Lack of banking freedom	An index from 1 to 5 with 1 indicating the fewest controls. Index measures the following factors: (1) government ownership of banks (2) restrictions on the ability of foreign banks to open branches and subsidiaries (3) government influence over the allocation of credit (4) government regulations (5) restrictions on bank activities.	*Index of Economic Freedom* (Heritage Foundation)
Proportion of foreign bank applications denied	Percentage of requests by foreign banks to start operations that were rejected out of total applications received.	Barth, Caprio, and Levine (2001)
Restrictions on foreign currency lending	Dummy variable that equals 1 if the country restricts foreign currency lending in the local banking sector.	*Annual Report on Exchange Arrangements and Exchange Restrictions* (IMF)
Inflation	Change in host (claim recipient) country GDP deflator.	*World Development Indicators* (World Bank)
GDP growth	Host (claim recipient) GDP growth (annual percentage).	*World Development Indicators* (World Bank)
Property rights	Index of Property Rights from 1 to 5 with 1 being the highest level of protection. The index considers (1) freedom from government influence over the judicial system, (2) commerical code defining contracts, (3) sanctioning of foreign arbitration, (4) government expropriation, (5) delays in the judicial system, (6) legally granted and protected property.	*Index of Economic Freedom* (Heritage Foundation)
Country risk	An index from 1 to 100 that is the composite of twelve variables measuring political, economic and financial risk. Higher values indicate more risk.	International Country Risk Guide
Inflation volatility	The standard deviation of the change in host (claim recipient) GDP deflator.	*World Development Indicators* (World Bank)
Real growth volatility	The standard deviation of host (claim recipient) GDP growth.	*World Development Indicators* (World Bank)
Private credit to GDP	Bank claims on the private sector in current local currency over local currency GDP.	*International Financial Statistics* (IMF)
Bank crisis	Dummy variable that equals one if the host experienced a bank crisis between 1995 and 2002.	Caprio and Klingebiel (2003)
Volatility of banks' claims to other countries	Standard deviation of all banks' foreign claims to countries other than j divided by the average claims to countries other than host j.	*Consolidated Banking Statistics* (BIS), Italian and Spanish central banks.

Table 5: Determinants of the share of local to total foreign claims

Tobit regressions for the share of Italian, Spanish, and U.S. banks' local claims, respectively, vis-à-vis a given host (claim recipient country), divided by their total claims to that host. t-statistics are in brackets. *, **, *** denote significance at 10, 5, and 1 percent respectively.

	Controlling for minimum capital			Excluding minimum capital		
Variables	Italian banks	Spanish banks	U.S. banks	Italian banks	Spanish banks	U.S. banks
Minimum capital requirements	10.692	-9.631	-0.706			
	[1.48]	[2.08]**	[0.23]			
Non-capital entry req. & startup costs	-4.002	4.448	-5.472	-3.65	2.397	-6.561
	[0.62]	[0.94]	[1.84]*	[0.58]	[0.50]	[2.38]**
Bilateral distance	-16.357	-15.253	9.129	-20.187	-13.46	4.025
	[2.21]**	[2.03]**	[1.02]	[2.76]***	[1.95]*	[0.52]
Bilateral trade	-12.433	-5.143	2.201	-10.304	-3.654	1.736
	[1.73]*	[1.17]	[0.30]	[1.38]	[0.79]	[0.24]
Common language		62.74	4.535		76.095	0.964
		[3.47]***	[0.67]		[4.64]***	[0.14]
Common legal origin	0.376	20.901	12.865	0.345	24.258	18.526
	[0.03]	[1.93]*	[1.52]	[0.02]	[2.15]**	[2.38]**
Number of internet hosts	-0.199	-0.121	-0.064	-0.09	-0.029	-0.072
	[2.29]**	[1.87]*	[2.54]**	[1.79]*	[0.84]	[2.83]***
Log of GDP	28.27	19.046	10.293	29.062	21.217	10.644
	[3.94]***	[3.67]***	[4.15]***	[3.75]***	[4.13]***	[4.60]***
Corporate tax rate	-1.409	-0.321	-0.57	-2.145	-0.562	-0.56
	[1.72]*	[0.52]	[1.45]	[2.59]**	[0.87]	[1.45]
Restrictions on foreign credits	2.584	28.549	4.555	6.833	16.417	-0.186
	[0.13]	[2.10]**	[0.51]	[0.33]	[1.21]	[0.02]
Lack of banking freedom	-25.159	-20.695	-10.679	-27.706	-17.751	-12.38
	[2.47]**	[2.76]***	[2.20]**	[2.70]***	[2.47]**	[2.59]**
Restrictions on foreign currency lending	-10.624	3.195	6.231	-10.931	11.264	6.109
	[0.67]	[0.25]	[0.80]	[0.65]	[0.90]	[0.78]
Inflation	-0.003	-0.514	-0.231	0.047	-0.245	-0.193
	[0.01]	[1.45]	[1.78]*	[0.18]	[0.68]	[1.47]
Real GDP growth	0.549	-2.615	0.644	0.114	1.142	0.231
	[0.13]	[0.80]	[0.34]	[0.03]	[0.34]	[0.12]
Property righs	7.993	-0.902	8.041	17.413	0.676	8.966
	[0.70]	[0.10]	[1.57]	[1.56]	[0.08]	[1.78]*
Constant	-472.093	-305.304	-280.08	-474.176	-399.861	-239.39
	[2.80]***	[2.45]**	[3.00]***	[2.70]***	[3.21]***	[2.97]***
Observations	76	73	79	86	79	88
Pseudo R-squared	0.099	0.195	0.069	0.096	0.181	0.066

Table 6: Robustness tests on the determinants of the share of local to total foreign claims

Tobit regressions for the share of Italian, Spanish, and U.S. banks' local claims, respectively, vis-à-vis a given host (claim recipient country), divided by their total claims to that host. t-statistics are in brackets. *, **, *** denote significance at 10, 5, and 1 percent respectively.

	Including foreign applications denied			Including country risk			Including total foreign claims		
Variables	Italian banks	Spanish banks	U.S. banks	Italian banks	Spanish banks	U.S. banks	Italian banks	Spanish banks	U.S. banks
Non-capital entry requirements and startup costs	-13.621	-5.28	-6.812	-1.308	3.14	-5.879	-3.321	1.728	-6.807
	[1.76]*	[1.17]	[2.03]**	[0.21]	[0.70]	[2.11]**	[0.53]	[0.39]	[2.50]**
Bilateral distance	-7.991	-16.953	-2.457	-19.552	-9.774	2.852	-20.004	-8.441	5.413
	[0.97]	[2.45]**	[0.29]	[2.59]**	[1.41]	[0.36]	[2.76]***	[1.23]	[0.71]
Bilateral trade	-9.333	-3.724	-1.263	-8.91	-3.072	0.494	-11.812	-4.182	10.392
	[1.43]	[0.78]	[0.17]	[1.18]	[0.69]	[0.07]	[1.41]	[0.97]	[1.25]
Common language		94.626	-1.894		74.667	2.31		55.559	0.449
		[5.02]***	[0.23]		[4.73]***	[0.34]		[3.02]***	[0.07]
Common legal origin	33.076	38.842	21.952	2.95	31.347	19.206	0.488	22.36	16.734
	[1.93]*	[3.49]***	[2.38]**	[0.20]	[2.61]**	[2.39]**	[0.03]	[2.11]**	[2.17]**
Number of internet hosts	-0.109	0.008	-0.073	-0.09	-0.032	-0.078	-0.091	-0.041	-0.08
	[2.40]**	[0.29]	[2.54]**	[1.77]*	[0.96]	[2.99]***	[1.81]*	[1.20]	[3.14]***
Log of GDP	30.93	17.727	9.284	23.492	18.981	9.026	27.733	15.44	12.989
	[3.54]***	[3.03]***	[2.99]***	[3.59]***	[4.53]***	[4.12]***	[3.36]***	[2.89]***	[4.94]***
Corporate tax rate	-3.207	-0.159	0.151	-1.697	-0.45	-0.489	-2.06	-0.328	-0.523
	[3.16]***	[0.22]	[0.30]	[2.18]**	[0.72]	[1.30]	[2.43]**	[0.54]	[1.37]
Restrictions on foreign credits	23.809	38.23	-1.445	14.38	23.215	-1.72	6.865	18.698	-1.489
	[1.09]	[2.71]**	[0.13]	[0.73]	[1.62]	[0.20]	[0.33]	[1.47]	[0.17]
Lack of banking freedom				-22.145	-16.692	-8.424	-26.438	-19.894	-12.867
				[2.23]**	[2.42]**	[1.86]*	[2.48]**	[2.84]***	[2.73]***
Proportion of foreign bank applications denied	-119.599	-56.757	0.896						
	[2.96]***	[3.52]***	[0.10]						
Restrictions on foreign currency lending	-22.761	9.024	0.715	-7.502	11.137	7.452	-9.89	4.45	6.558
	[1.12]	[0.59]	[0.07]	[0.45]	[0.90]	[0.93]	[0.58]	[0.36]	[0.85]
Inflation	0.608	-0.107	-0.309				0.041	-0.22	-0.21
	[1.39]	[0.20]	[1.31]				[0.16]	[0.68]	[1.60]
Real GDP growth	1.869	4.045	-0.487				-0.147	-0.293	-0.276
	[0.45]	[1.29]	[0.21]				[0.04]	[0.09]	[0.15]
Property righs	1.343	0.775	5.458				15.979	-0.473	8.188
	[0.10]	[0.09]	[0.95]				[1.38]	[0.06]	[1.65]
Country risk				0.175	-1.212	0.194			
				[0.18]	[1.65]	[0.44]			
Total foreign claims							0.000	0.001	-0.001
							[0.40]	[1.80]*	[1.91]*
Constant	-614.906	-351.975	-189.716	-319.382	-470.825	-167.329	-444.721	-282.523	-300.124
	[3.03]***	[2.54]**	[2.02]**	[2.29]**	[4.03]***	[2.34]**	[2.38]**	[2.24]**	[3.49]***
Observations	57	51	60	85	79	86	86	79	88

Table 7: The impact of the share of Italian banks' local foreign claims on the volatility of Italian banks' total foreign claims

OLS regressions of the volatility of Italian banks' foreign claims across host (claim recipient) countries. t-statistics are in brackets
*, **, *** denote significance at 10, 5, and 1 percent respectively

	No controls	Including inflation and growth volatility			Including country risk index		
Share of local foreign claims	-0.005	-0.005	-0.005	-0.004	-0.004	-0.004	-0.004
	[3.05]***	[2.98]***	[2.90]***	[2.62]**	[2.56]**	[2.48]**	[2.45]**
Inflation volatility		0.001	0.001	0.001			
		[1.68]*	[1.68]*	[0.62]			
Real growth volatility		-0.019	-0.02	-0.031			
		[0.50]	[0.51]	[0.83]			
Country risk index					0.017	0.017	0.012
					[3.03]***	[3.03]***	[1.61]
Banking crisis dummy		0.139	0.141	0.068	0.014	0.014	0.008
		[1.00]	[1.01]	[0.49]	[0.11]	[0.11]	[0.07]
Volatility of claims to other countries			-38.607	-44.619		-45.778	-44.656
			[1.05]	[0.99]		[1.30]	[1.04]
Private Credit to GDP				-0.005			-0.002
				[3.06]***			[1.29]
Constant	0.554	0.531	0.963	1.289	1.759	2.277	1.98
	[7.70]***	[4.81]***	[2.15]**	[2.39]**	[3.89]***	[3.64]***	[2.74]***
Observations	83	83	83	83	82	82	82
R-squared	0.05	0.08	0.08	0.15	0.16	0.16	0.17

Table 8: The impact of the share of Spanish banks' local foreign claims on the volatility of Spanish banks' total foreign claims

OLS regressions of the volatility of Spanish banks' foreign claims across host (claim recipient) countries. t-statistics are in brackets
*, **, *** denote significance at 10, 5, and 1 percent respectively

	No controls	Including inflation and growth volatility			Including country risk index		
Share of local foreign claims	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003
	[2.92]***	[2.71]***	[2.82]***	[2.76]***	[3.00]***	[3.15]***	[2.98]***
Inflation volatility		0.000	0.000	0.000			
		[0.07]	[0.08]	[0.19]			
Real growth volatility		0.051	0.051	0.048			
		[1.90]*	[1.89]*	[1.83]*			
Country risk index					0.005	0.006	0.003
					[0.93]	[0.97]	[0.55]
Banking crisis dummy		-0.035	-0.04	-0.051	-0.001	-0.012	-0.01
		[0.36]	[0.40]	[0.47]	[0.00]	[0.10]	[0.09]
Volatility of claims to other countries			-4.058	-3.501		-6.227	-4.781
			[0.76]	[0.66]		[1.02]	[0.76]
Private Credit to GDP				-0.001			-0.001
				[0.73]			[0.67]
Constant	0.421	0.29	0.483	0.515	0.785	1.122	0.93
	[8.16]***	[5.26]***	[1.83]*	[1.80]*	[1.72]*	[1.60]	[1.33]
Observations	79	79	79	79	79	79	79
R-squared	0.05	0.11	0.12	0.12	0.07	0.07	0.08

Table 9: The impact of the share of U.S. banks' local foreign claims on the volatility of U.S. banks' total foreign claims

OLS regressions of the volatility of U.S. banks' foreign claims across host (claim recipient) countries. t-statistics are in brackets
*, **, *** denote significance at 10, 5, and 1 percent respectively

	No controls	Including inflation and growth volatility			Including country risk index		
Share of local foreign claims	-0.005	-0.005	-0.006	-0.005	-0.005	-0.006	-0.005
	[4.36]***	[4.36]***	[4.74]***	[4.12]***	[4.49]***	[4.44]***	[3.93]***
Inflation volatility		0.000	0.000	-0.001			
		[0.39]	[0.60]	[1.01]			
Real growth volatility		0.055	0.046	0.046			
		[2.75]***	[2.14]**	[2.31]**			
Country risk index					0.01	0.008	0.004
					[2.96]***	[1.41]	[0.71]
Banking crisis dummy		0.06	0.036	0.01	0.053	0.045	0.039
		[0.99]	[0.61]	[0.16]	[0.81]	[0.69]	[0.61]
Volatility of claims to other countries			4.559	2.097		2.715	1.553
			[2.21]**	[0.80]		[0.80]	[0.46]
Private Credit to GDP				-0.002			-0.002
				[2.53]**			[1.76]*
Constant	0.527	0.364	0.208	0.408	1.245	0.965	0.836
	[8.18]***	[5.99]***	[2.64]***	[2.95]***	[4.44]***	[1.76]*	[1.51]
Observations	87	87	87	87	85	85	85
R-squared	0.2	0.32	0.36	0.4	0.32	0.33	0.35

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