

Foreign, Private Domestic, And Government Banks: New Evidence from Emerging Markets

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July 2003

Abstract

How does organizational design shape the behavior of banks? Using a panel data of over 1,600 banks in 100 emerging economies, we identify the strengths and weaknesses of the three dominant organizational designs in emerging markets. Private domestic banks have an advantage in lending to “soft information” firms which allows them to lend more, and at higher rates without substantially higher default rates. On the other hand, foreign banks have the advantage of access to “external liquidity” from their parent banks which lowers their deposit cost. The external support however comes at the cost of foreign banks being limited (presumably by the parent banks) to only lend to “hard information” firms. Whereas foreign and private domestic banks have their own comparative advantages and disadvantages, we find that government banks perform uniformly poorly, and only survive due to strong government support.

JEL Classification: G21, G32, H11, D80

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Banks as financial intermediaries are considered an important element for growth in emerging economies by most¹. Yet less is known about the strengths and weaknesses of different types of bank organization and design. The three dominant types of banks in emerging markets are government, private domestic, and foreign. This paper presents new evidence on differences between these three types of banks across a hundred emerging economies and more than 1,600 banks over a period of eight years.

The differences are important to document and analyze because the three types of banks differ in important ways in the structure of their incentives, organization, and regulation. For example, while government banks have poor cash-flows incentives and suffer from the moral hazard problem of being both the owner and the regulator, private domestic banks have higher cash-flows incentives, and greater distance between the regulator and the ownership. Foreign banks on the other hand while being relatively similar to private domestic banks in terms of incentives and regulation, differ in their organizational structure. They tend to have a more hierarchical structure, with the top management often sitting in a distant home country.

Consequently the empirical results of this paper shed helpful light on questions regarding banking structure. For instance, is strong external supervision necessary or can market-discipline coupled with private incentives be relied upon for good banking? Should governments get involved in banking in order to fix the “failures” that might plague weak financial markets? Or do the political economy and inefficiency costs of government intervention outweigh any “social” benefits? Should foreign entry of banks be encouraged in order to import the “culture”, technology, resources and human capital that might otherwise be lacking in a weak economy? Or does the very organizational design of foreign banks limit their ability to lend to clients most in need of intermediation?

Since this paper is the first broad-based bank level study (to our knowledge) of its kind, the facts established here help anchor the debate on these questions. We deliberately focus only on emerging economies because questions concerning the role of government, and the failure of the private banking system are more pronounced in these economies. Moreover, the definition

¹See for example Levine and Zervos (1998) and Rajan and Zingales (1998) for a link between finance and growth.

of a “foreign” bank is very different from an emerging country perspective, compared to a developed economy.

The paper begins by building a new data set containing ownership information on over 1,600 banks in a 100 emerging economies across the world. This allows us to classify banks into the three categories mentioned above. This data is then merged with financial data to create a bank-level panel covering a total of eight years from 1992 to 1999. Using country fixed effects, we document systematic cross-sectional differences between the three types of banks. The fixed effects procedure allows us to side step the main pitfalls of cross-country empirical work by completely controlling for country level effects such as differences in institutional, legal, political, and economic environments. Finally, we exploit the time series variation of the data to measure the sensitivity and exposure of individual banks to various macro shocks hitting the economy.

Our analysis reveals that all three types of banks - foreign, private domestic, and government - are well represented throughout the world with significant market shares. Whereas private domestic and foreign banks have similar size and age distribution across the developing world, government banks tend to be both bigger and much older than their private counterparts. This reflects the age-old resilience of the view that setting up large government banks in developing countries with weak financial markets is necessary to jump start the economy.

The cross-sectional comparison shows that private domestic banks behave differently from their foreign counterparts. In particular, private domestic banks appear to be more “aggressive” in their lending than foreign banks. They hold significantly less liquid assets than foreign banks, and correspondingly hold more assets in the form of loans. Moreover, of the loans that each type of bank gives out, private domestic banks earn 2.6% higher return than foreign banks. Surprisingly, despite a more aggressive lending policy, there is no difference in the measured default rate of private domestic and foreign banks. Independent risk ratings of loan portfolios by credit rating agencies also confirm this result. The higher return on loans despite similar default rates implies that private domestic banks are more profitable than foreign banks on the loan side. However, the picture reverses on the deposit and banking services side. Private

domestic banks have higher interest expense on deposits, and lower revenue from the sale of banking services. Consequently there is no significant difference in the average profitability of private domestic and foreign banks in emerging economies.

At first glance, the contrasting results on the loan and deposit side are puzzling. If private domestic banks indeed have higher return on loans and same default rates, why do they pay a premium over foreign banks on deposits? The answer is given by risk ratings that measure the access of banks to external sources of help such as government or shareholders in times of trouble. While both foreign and private domestic banks have similar low probabilities of being helped by the government in times of trouble, foreign banks are significantly more likely of being bailed out by their shareholders. For example, if the local subsidiary in a developing country of a foreign bank runs into trouble, it may get an injection of new capital from its shareholders (parent bank) to bail it out. This access to liquidity, and “deeper pockets” lead to a lower deposit cost for foreign banks.

The next question then is why do private domestic banks lend more aggressively and at higher rates compared to foreign banks? In other words, why can foreign banks *not* compete away the profitable loans away from private domestic banks, particularly when they have greater access to outside resources and expertise? We borrow an idea from organization theory and suggest that the answer lies in understanding the segmentation of the loan market by the two types of banks. This theory suggests that foreign banks are comparatively less likely to lend to “soft information” firms, and more likely to lend to “hard information” firms. “Soft information” refers to information that cannot be easily publicly verified by a third party. Examples of soft information may include a loan officer’s subjective evaluation about a small firm’s future outlook. “Hard information” on the other hand refers to credible and publicly verifiable information, such as a foreign firm’s authentically audited balance sheets, or government guarantees².

This idea is developed in a recent paper by Stein(2002) who argues that organizations with more hierarchical structures are more likely to rely on “hard information” as opposed

²See Petersen (2002) for an in-depth discussion of soft and hard information in financial transactions.

to organizations with flatter structures. The reason is that flatter organizations have better control and information on their managers, and thus can afford to give them more discretion. This discretion allows the managers to use soft information such as subjective evaluations, which managers in hierarchical organizations are not allowed to use. Since foreign banks are part of large multi-national chains with headquarters often in a far away developed country, they will *endogenously* choose to concentrate on “hard information” firms so that they do not have to give away too much discretion to their local managers in the developing country³. Private domestic banks on the other hand can afford to rely more on “soft information” because of their flatter organizational structure.

Since we do not observe the portfolio composition of individual banks, we cannot test the above hypothesis directly. However, we test it indirectly by measuring the relative sensitivity (correlation) of banks to different types of macro shocks. These correlations capture two effects: the *response* of the bank to the shock, and the *exposure* of the bank to the shock. Consistent with the hypothesis above, there is an interesting separation in the *type* of shocks that private domestic and foreign banks are sensitive to. In particular, private domestic banks respond more to macro shocks affecting the local (private) corporate sector, whereas foreign banks respond more to macro shocks affecting the foreign corporate and government sectors. Similarly on the deposit side, foreign banks are more sensitive to changes in the aggregate foreign currency deposits, whereas private domestic banks are more sensitive to changes in the aggregate domestic currency deposits. These results on the relative sensitivities of private domestic and foreign banks suggest a segmentation of the loan and deposit market along soft and hard information criteria as discussed above.

With respect to government banks, we find that government banks perform significantly worse than both private domestic and foreign banks in terms of overall profitability. In fact, the average government bank makes a loss in developing countries. This occurs despite the fact that government banks enjoy low deposit costs similar to those of foreign banks. Data on credit ratings shows that the low deposit costs for government banks is due to the strong

³Coval and Moskowitz (2001) show in the context of money-managers, that geographical proximity of the headquarters helps in information acquisition.

external support they receive from the government in times of trouble. Government banks are also significantly under-capitalized relative to private domestic and foreign banks, and have considerably higher loan default rates compared to private banks. The result on default rates is further verified by the independent credit ratings data. Different credit rating agencies consistently rate government bank loan portfolios as the worst performing of all banks. Similarly, time series analysis reveals that government banks have the lowest sensitivity to almost all types of macro shocks, suggesting that government banks do not respond quickly to economic fluctuations in the economy.

Our results are consistent with the view that poor incentives, political interference, and moral hazard from soft-budget constraints lead government banks to make poor lending decisions without any corresponding cost on the deposit side. One may argue that our results can also be consistent with a more benign interpretation of government banks where these banks give out loss-making loans to subsidize “social projects” such as agriculture, education etc. However, there is direct evidence that lending by government banks is based on “political” rather than “social” objectives. Using a sub-set of the data used in this paper on 22 countries, Dinc (2002) shows that loan forgiveness and restructuring of old loans, and issuance of new loans increases *more* for government banks relative to private banks during election years.

There is a vast theoretical literature on how organizational design impacts the provision of incentives, nature of tasks, and informational flows within a firm⁴. Our focus in this paper is to test, within the context of banking, how organizational differences between foreign, private domestic, and government banks lead to differences in the nature and success of banking. There has been some empirical work that looks at the effect of differences in organizational structure on banking. Berger et al (2002) focus on small and large banks in the U.S., and conclude that small banks are more efficient in collecting and utilizing soft information. Liberti (2003) in a study of a large bank in Argentina finds that decentralizing authority leads to greater effort and use of soft information by the managers. The results of this paper can also be viewed

⁴Alchian and Demsetz (1972), Williamson (1985), Aghion and Tirole (1997), Baker, Gibbons, and Murphy (1995), Holmstrom and Roberts (1998), Rajan and Zingales (2001), and Stein (2002) are only some of the well-known papers in this field.

as supporting the results of these papers: flatter (decentralized) organizational structures facilitate the use of soft information.

A few papers have looked at some of the bank-types analyzed in this paper. Sapienza (2003) studies government banks in Italy, and Goldberg, Dages, and Kinney (2000) compare private domestic and foreign banks in Mexico and Argentina. However, no single study has focused on the systematic differences between *all* the three dominant bank-types in emerging markets⁵. The contribution of this paper lies in analyzing these organizational differences at the bank level across a comprehensive list of emerging markets, which allows our results to be generalizable.

The rest of the paper is organized as follows. Section I describes the data, and Section II presents the empirical results. Section III presents our explanation for the results, and Section IV discusses some alternative explanations and why the results do not favor them. Section V concludes.

I Data

A. Description

Our data set has 1,637 banks from a hundred emerging economies spanning a period of 1992 through 1999. The three different sources used to put this data set together are described below:

(1) IBCA BankScope Data Set:

The IBCA BankScope data set contains annual financial information for more than 11,000 banks across the world. The version of the data set that we have spanned the period 1992-1999. We selected all commercial banks in the data set for the 100 developing countries listed in Table 1 of the appendix. The choice of countries was based on the World Bank classification

⁵La Porta et al [2000] use aggregate country-level data to argue that the patterns of growth in countries with dominant government sector banks suggest that the beneficial role often ascribed to government banks is missing. Claessens et al [1998] show that the entry of foreign banks is associated with lower profitability and over-head expenses for private domestic banks.

of countries into developed and developing economies. There were 1,725 commercial banks⁶ in the data set for the 100 countries. Of these we were able to assign an ownership category to 1,637 banks, which comprises our final data set. The remaining 88 banks were thus dropped as we could not assign them an ownership category. The BankScope data set is maintained for commercial reasons. The company that maintains the data set sells this information to other banks and consulting firms. For this reason, they are less likely to include the very small banks in their data set. However, the data set does include most major banks in a given country.

There is also another selection bias for foreign banks. BankScope can only keep information on a bank in a country if that bank publishes independent annual reports for its operations in that country. If the regulatory authority of the country does not require foreign banks to incorporate as a separate corporate entity, then that foreign bank may not publish separate annual reports. For example, although there is a Citibank in Pakistan, since it is not incorporated as a separate entity, BankScope does not have information on it. On the other hand, Citibank Argentina is included in the data set. This selection effect however is unlikely to have a serious (if any) effect on our results, as we explain in the empirical section.

We included all observations between 1992 and 1999 for the selected banks, to form a panel data set. Generally the coverage of BankScope keeps increasing over the years as new banks are continuously being added. This means that the panel is not balanced as some banks are missing for some years. We will analyze the entry and exit of banks from the data set in detail in the empirical section. In all, there are a total of 8,411 bank-year observations.

The data set contains annual financial information, including balance sheet and income statement information. Since different countries follow slightly different definitions for accounting variables, variable definitions have to be made consistent across countries. The consistency of variable definitions comes at the expense of losing disaggregated information. For example, some countries may classify their loans into 1 , 2, and 3+ year durations, while others may only report the aggregate loan amount. Therefore, to create a consistent definition for loans across the two countries, we have to create a single “total loan” category which simply sums

⁶We excluded all non-commercial banks, such as investment, not-for-profit and development banks.

different maturity loans into one. We also checked for the integrity of the data by making sure that sub-categories summed correctly into the aggregated categories. More than 99% of the data satisfied this check. Any observation that failed the integrity test was thrown out.

(2) IFS Macro Data

We obtained banking and financial data for the countries in our sample from the IMF IFS data set. We took a sub set of the data set that spanned our banking data. The IFS data set is available at quarterly intervals. This was quite helpful as it allowed us to match the macro data perfectly with the accounting year followed by an individual bank. Not all banks in the data set end their fiscal year at the same time. Some end the fiscal year in December, while others in June or September etc. The quarterly data allowed us to avoid any mismatch in the timing of banking and macro data. The exact variables used from the IFS data set are described in more detail later on.

(3) Author compiled Ownership Classification Data

A contribution of this paper in terms of data collection is the creation of this ownership classification data set. We do not know of any other data set that contains the ownership classification of banks at such a large scale at the bank-level. A lot of effort and time was put in the construction of this data set.

Starting from the banks in the BankScope data set, we collected ownership information on the banks in order to divide them into three categories: (i) government, (ii) private domestic, and (iii) foreign. A bank was assigned a category, if a controlling percentage (>50% usually) of the shares was held by shareholders of the given category. Information on share-holding pattern, including share holders names, was sometimes available from the BankScope data set itself. When this information was absent, we looked up the Thompson Financial banking directory that also contains ownership information for banks around the world. Even with shareholder information, sometimes it was not clear whether the shareholders were domestic, foreign, or government. We talked to country experts, and sometimes the banks themselves to clarify such issues. When ownership information was not available for a given bank, alternative sources were also scanned. These included WPA, a consulting company in Cambridge that

helped us classify many banks in Africa. We also talked to different country banking experts, or the banks themselves to classify any remaining banks into the three categories.

B. Summary Statistics

Table I in the appendix shows the distribution of banks by ownership classification across the 100 countries in our sample. The table shows a large variation in the number of banks in each country. It varies from only 1 bank in Albania to 155 in Brazil. A breakdown of banks by ownership type in Table I shows that there are 859 private domestic, 528 foreign, and 250 government owned banks in our sample. The amount of assets under each ownership type suggest that all three types of banks are major players in the banking sector in developing economies. Although foreign banks have the lowest share at 19%, this is likely to be an underestimate due to the non-reporting of financial information in countries where foreign banks are not separately incorporated. We will return to this possible selection issue in the robustness section.

Figure 1 shows the asset distribution of banks by ownership type. Foreign and domestic banks have very similar distribution of assets across the data set. However, government banks tend to be much larger than either foreign or private domestic. This does not come as a surprise since governments often set up a few big banks as opposed to many small ones for organizational simplicity. Similarly, Figure 2 shows the age distribution across ownership types. Once again foreign and private domestic banks have very similar age distributions. However, government banks differ considerably in their age composition. Typically they tend to be established a lot earlier than either foreign or private domestic banks.

Table II presents the summary statistics for the main asset, liability, and income variables used in the paper. The data was averaged out for each bank over time. Not all banks report information at the same level of disaggregation. This is why the number of observations for some variables, such as the ratio of interest income to total income, is less than 1,637⁷. A few points are useful to be kept in mind from the table. On the assets side, loans comprise

⁷as such there could be a selection effect for these variables. But the dropout rate is very low.

about half of the value, with cash and securities comprising another 40% of the assets. A breakdown of the income components suggests that banks in developing countries on average earn positive profits measured by net income before taxes. The biggest component of income is interest income from earning assets (81%), followed by Commission and Fee income (17%). The Commission and Fee income includes service fees charged to deposit holders and other clients of the bank. Since service fees generally reflect high-end business, the fraction of Commission and Fee income in the overall income suggests the market orientation of a particular bank. On the expense side, the biggest two expenditures are interest expense (54%), and operating expenses (37%) which include administrative charges, rent, and wages to employees. About 7% of the expenditure is used to provide for bad or doubtful loans.

II Empirical Results

A. Cross-sectional Analysis: Asset, Capital, and Income Structure

We start with documenting the basic cross-sectional differences between the three types of banks. To perform this analysis, we first collapse the panel data into a cross-sectional data by taking the average of each variable (in 1997 US dollars) across the years for a given bank. The cross-sectional facts will then be useful in understanding the roles and limitations of each type of bank in developing countries. Table III reports the cross-sectional differences across a number of bank characteristics. All regressions in the table include country fixed effects. As such the regressions measure the average difference across government, foreign and domestic banks within the *same* country. This is important as it controls for any differences between banks that might be a result of selective placement of banks into countries with certain political and macro characteristics. For example, foreign banks may be more likely to operate in bigger economies, and economies with more stable political and regulatory environments. Alternatively, government banks may be more likely in countries with more centralized economies and systems of administration. Such country level economic and political factors can in turn have an effect on bank variables such as profitability, and risk exposure. However, inclusion

of country fixed effects controls for all such country specific macro, political and regulatory factors.

Column (1) shows that private domestic banks are roughly the same size as foreign banks in a given country, but government banks are much bigger (about 3 times). This is consistent with the density plots shown in Figure 2. It should be stressed here that the size comparison is only an in-sample statement. As we have discussed above, very small banks are less likely to be reported on the BankScope data set. It is also likely that such small banks are mostly domestic. The reason is that potential foreign banks most likely face higher fixed costs than potential domestic banks in setting up an operation. The higher fixed cost could be driven by factors such as managing workers from a distance, or unfamiliarity with the business environment. Given such fixed costs, only those foreign banks will enter the banking market, that can sustain a minimum scale of operations. Since the BankScope data set excludes the smallest banks, which are mostly likely to be domestic banks, the true average asset size of domestic banks is likely to be smaller than column (1). However, to the extent that small banks tend to be different from larger banks independent of their ownership, we would like to compare domestic and foreign banks within the same size range. It is for this reason that we feel that the selection criteria of size used by BankScope is unlikely to be a major concern.

Columns (2) through (5) compare the asset and capital structure of banks. The assets of each bank are broken into three categories: cash plus investment securities, loans, and other/fixed assets. We only look at the major components of assets which are Net Loans and cash plus securities. Cash and investment securities can be classified as “liquid assets” since securities most often mean treasury bills held by the bank. Cash and investment securities are classified as liquid since they can be readily exchanged for their face value in the market. Columns (2) and (3) show that private domestic banks have significantly lower fraction of liquid assets in their portfolio. Their Net loan ratio is 1.9% more than foreign banks, which implies that domestic banks hold less liquid assets than foreign banks. The result shows that foreign banks like to be more conservative than their domestic counterparts. Column (5) shows that on average domestic private and government banks have lower capitalization ratios (1.5%

and 5.7%) than foreign banks. This again hints at the susceptibility of private domestic and government banks to take on greater risk than foreign banks. However, whereas the difference with government banks is statistically significant, the difference with private domestic banks is only marginally significant.

Conceptually the level of risk in a bank's portfolio is one of the most important determinant of a bank's health. Governments establish sophisticated regulatory institutions to continuously audit and monitor the level of risk taken by banks. Banks are subject to numerous prudential regulations that are aimed at limiting the extent of risky behavior that can lead to bank failures in future. Unfortunately, given the importance of risk, it is an equally difficult metric to measure. Since risk refers to expected volatility in *future* returns, measuring the level of risk at a given point in time can be an arduous task. This is particularly the case under weak disclosure laws that are common in the banking sector. While acknowledging such practical limitations in the measurement of risk, we compute a historical measure of risk across bank types by taking the ratio of loan provisioning during the sample period to net loans. To the extent that measurement problems are similar across bank-types within a given country, our measure of risk (with country fixed effects) should be an unbiased measure.

If a bank has a riskier portfolio, then it should on average have higher loan loss provisions than other banks in the country. The presence of country fixed effects implies that all banks in a country are subject to similar accounting and reporting standards. As such whether the regime is lax or strict, if a bank takes on more risk it should on average be accumulating more reserves. However, exceptions are still possible. For example, a riskier bank may deliberately try to cheat the regulatory authority, whereas a conservative bank may want to maintain the appropriate level of reserves. In such a case, even a riskier bank can show the same or even lower level of loan loss provisioning than a less risky bank. In other words, our measure of differences in risk may be an *underestimate* of the true differences. Column (6) compares the ratio of loan loss provisions over the sample period to net loans. Government banks have significantly higher provisioning for bad loans, suggesting a higher level of default rate on its loans. There are no significant differences between foreign and private domestic banks.

Columns (7) to (12) in Table III compare the income structure between banks. We are interested in answering two related questions here. First, do banks differ in *overall* profitability? Second, do they differ in their *sources* of income and expenses? The following accounting identity is useful in answering these questions:

$$Net\ Return \equiv II + CFI + OTHI - IE - OPE - LLP - OTHE \quad (1)$$

where II is interest income, CFI is commission and fee income, $OTHI$ is other income, IE is interest expense, OPE is operating expenses such as wages and rent, LLP is loan loss provisions, and $OTHE$ is other expenditure. *Net Return* and its components are all normalized by total assets of the bank. The net return refers to pre-tax return. Column (7) shows that private domestic banks earn slightly lower pre-tax profits than foreign bank. However, the difference is not significant. Government banks however systematically perform worse than both private domestic and foreign banks. Their pre-tax return on earnings is 1.6% and 1.2% less than foreign and private domestic banks respectively. The differences are significant at the 1% level. These are large differences, given the fact that the mean pre-tax return on assets is 1.46% (Table II). In fact the results imply that government banks on average earn *negative* returns. Columns (8) and (9) show that interest income is a much more important part of domestic banks' income than foreign banks. Interest income to total assets ratio is 2.2% higher for private domestic banks, and 1.1% for government banks. As we saw earlier, part of the reason for this increase is that domestic banks hold higher fraction of assets in the form of high-earning loans than foreign banks. However, column (9) shows that not only do domestic private and government banks hold more loans, but they also earn a higher return on them than foreign banks. The return on earning assets (interest income to earning assets ratio) is 2.6% higher for domestic banks and 1.2% higher for government banks. All these differences are significant even at the 1% level. Similarly, (10) and (11) look at the interest expense side. Private domestic banks hold more deposits, but they also pay out higher interest rate on deposits than foreign banks. The return on deposits is 1.7% higher for private domestic banks. Moreover this higher cost of funds pretty much takes away any gains made

out of higher interest income for domestic banks. The cost of deposits for government banks is not statistically different from foreign banks. Column (12) shows that domestic banks earn significantly lower revenue through commission and fees. These commission and fees are often tied into the high-end business, such as wire transfers. The result suggests that foreign banks have a higher-end clientele than domestic banks. Finally, column (13) reaffirms the results from Figure 2 with country fixed effects: private domestic banks do not differ significantly from foreign banks in terms of their age in the country of operation, but government banks are older by more than 17 years on average. All regressions in Table III reported heteroskedasticity consistent robust standard errors.

The results of Table III can be summarized as follows. Private domestic banks although being the same size and age as foreign banks, tend to be more aggressive in their lending. They lend out more, and lend at higher interest rates. Private domestic banks have to pay a risk-premium over foreign banks in order to attract deposits. Foreign banks earn more through service fees, reflecting their high-end clientele. However, private domestic banks are still as profitable as foreign banks overall. The table also shows that government banks are consistently the largest and oldest banks in a country. Although government banks have the riskiest loan portfolios in terms of loan losses, they still enjoy low cost of deposits, probably reflecting the implicit or explicit government guarantees that they enjoy. Finally, government banks perform a lot worse than either private domestic or foreign banks in terms of overall profitability.

The cross-sectional results raise a few important questions. First, if private domestic banks earn higher return on their loans without excessive default rates, what prevents foreign banks from lending to the same high return, and low risk clients? Second, if private domestic banks have such high return and low risk loans, why do they pay a premium over foreign banks on their deposits? Third, accounting numbers may be systematically biased in favor of worse quality banks. Is there independent non-accounting evidence to confirm our main results? We address all these question in the next half of this section.

B. Time Series Analysis: Bank Sensitivity to Macro Shocks

The fact that private domestic banks have higher return loans but relatively low default rates, hints at the possibility that loan market is segmented between private domestic and foreign banks. For example, there may be a profitable part of the loan market which the private domestic banks lend to, but foreign banks choose not to (or cannot) lend to. One potential reason for the segmentation of loan market can be derived from a recent paper by Stein (2002). A detailed discussion of the idea is given in the next section, but in brief since private domestic banks are less hierarchical than foreign banks, they should (according to the theory) focus more on “soft information” sectors than foreign banks. Foreign banks in turn focus more on “hard information” sectors. Hard information is any credible and publicly verifiable information, whereas soft information refers to subjective information which cannot be verified publicly.

To test this theory, we divide macro shocks hitting an economy into two different categories: (i) shocks that predominantly affect “hard information” firms, and (ii) shocks that predominantly affect “soft information” firms. We then measure and compare bank elasticities with respect to these shocks. The elasticities help in understanding the exposure and response of individual banks to different types of shocks. Formally the test can be written in the form of the following equation:

$$\text{Log}(Y_{jct}) = \alpha + \gamma_j + \underline{\beta}_1(\underline{B}_j * \text{Log}(X_{ct}^S)) + \underline{\beta}_2(\underline{B}_j * \text{Log}(X_{ct}^H)) + \varepsilon_{jct} \quad (2)$$

where subscripts j , c , and t refer to bank j in country c and year t respectively. Y is a bank-level variable such as total net loans, γ_j are bank fixed effects, B_j is a vector of bank type dummies, and X^S and X^H represent soft and hard information shocks hitting the economy respectively. To account for any non-stationarity in the time series variables, we first difference the variables and run regression (2) in first-differenced form⁸:

$$\Delta \text{Log}(Y_{jct}) = \underline{\beta}_1(\underline{B}_{j*} \Delta \text{Log}(X_{ct}^S)) + \underline{\beta}_2(\underline{B}_{j*} \Delta \text{Log}(X_{ct}^H)) + \Delta \varepsilon_{jct} \quad (3)$$

⁸We get qualitatively similar results in levels as well.

(3) is the formal regression we run. We run (3) on *four* different pairs of hard and soft information macro shocks. The first pair (column (1) in Table IV) consists of shocks to aggregate exports, and shocks to aggregate transfer income going abroad. Transfer income going abroad consists of profits repatriated by multi-national firms operating in a developing country. These firms are often part of a large corporate entity operating the world over. Lending to such multi-national firms with wide national and international experience is based on “hard information” provided by these firms. We therefore view shocks to the aggregate transfer income going abroad, as information reflecting shocks to the “hard information” multi-national firms. Shocks to the export sector on the other hand reflect shocks to *local* firms that sell their produce abroad. These firms by comparison to the multi-national firms are likely to be more local, and more “soft” in their information content. We therefore view shocks hitting the export sector as shocks hitting comparatively softer information firms than the multi-national firms. Column (1) of Table IV shows that private domestic banks are indeed more sensitive to export shocks than foreign banks, but less sensitive to transfer income shocks than foreign banks. Private domestic banks are 23% more sensitive than foreign banks to soft information shocks, but 11% less sensitive than foreign banks to hard information shocks. We find government banks to be the least responsive to all types of shocks. This is consistent with the theory that government banks are large inefficient entities that fail to respond to most aggregate fluctuations in the economy. Column (2) repeats the exercise of column (1), but this time we capture shocks to the “soft sector” (local and smaller firms) by changes in the log of aggregate domestic private credit, and shocks to the “hard sector” is captured by changes in the log of aggregate foreign assets in the country. Once again we find that private domestic banks are 17.8% more sensitive than foreign banks to soft information shocks, but are 1.2% less sensitive than foreign banks to hard information shocks. Although 1.2% itself is not significant, the right value to look at is $17.8 - (1.2) = 19\%$, which is significant at the 1% level. This once again suggests that private domestic banks are much more exposed to the local private firms, than foreign firms. As before, government banks are the least responsive to both types of shocks.

If lending to local private firms requires soft information, then lending to local governments

does not require any such soft information. The reason is that any loans to the government are backed by (explicit or implicit) sovereign guarantees which can be credibly communicated to a third party. Hence lending to government and its agencies will fall under “hard information” lending. In fact lending to the government is probably one of the hardest types of lending. Taking advantage of this distinction, column (3) computes differential sensitivities to shocks to private and government credit in the country. The results are once again consistent with the soft-information theory. Lending by private domestic banks is 25.7% more sensitive to private credit shocks, but 5.6% less sensitive to shocks to government credit. Government banks may be holding a greater fraction of the *stock* of government loans, but they do not respond as sharply as foreign and private domestic banks to changes in this stock.

Columns (4) instead of looking at sensitivity of bank-lending to macro credit shocks, looks at the sensitivity of bank-deposits to macro deposit shocks. The soft information theory predicted nothing about the deposit side directly. However, lending and deposit taking by commercial banks is often intimately connected. The reason is that banks are more likely to set up deposit taking bank branches where they do more lending (and vice versa). For this reason focusing on the deposit mix of banks can give us important clues regarding the markets the banks operate in. We focus on the distinction between domestic deposits and foreign deposits. The reason is that if foreign banks really cater to the high-end of the market as the soft-information theory would predict, then they are more likely to focus exclusively on big cities, compared to private domestic banks. If foreign banks mostly do business with hard-information firms, they will be disproportionately present in large cities compared to domestic banks. Domestic banks on the other hand will also serve the smaller towns and cities that foreign banks leave out. As such foreign banks will be less sensitive to overall movements in domestic deposits, and more sensitive to overall movements in foreign deposits which are primarily located in large urban centres. This is exactly what we find in column (4). The elasticity of bank deposits with respect to aggregate domestic time deposits is 16.1% higher for domestic banks, however the same elasticity with respect to foreign deposits is 5% lower than foreign banks. These results once again confirm that the markets of domestic and foreign banks are segmented

along the hard-soft information lines. It is interesting to note that the only macro shock to which government banks are more sensitive is the shock to domestic deposit base. Government banks are 12.3% more sensitive to domestic currency deposit shocks, and are 8% less sensitive to foreign currency deposit shocks. This reflects the pervasive policy among governments to set up banks in remote or economically distressed areas where private banking services often fail to reach.

C. Risk Ratings

So far we have used accounting data to measure bank performance and risk. We now use risk evaluations compiled by various credit rating agencies. There are a couple of advantages of such risk ratings compared to accounting data. First unlike accounting data, risk ratings also take into account qualitative factors such as the quality of a bank's auditors, and expected news about a bank. As such risk ratings can be seen as a robustness check on the results using accounting information. Second, in addition to historical quantitative information published in accounting data, rating agencies also take into account institutional information that may impact the risk of a bank. For example, if a bank has poor loan portfolio according to the accounting data, but the bank has strong external support from the government in case of default, then a credit rating agency can report that separately when measuring overall deposit risk of the bank. Accounting numbers alone do not provide such information.

The downside of using the ratings data is that not all banks in our data set are rated by a rating agency. Second different rating agencies select different banks to rate, determined mostly by the geographical focus of a credit-rating agency. Since there is no consistent definition of ratings across different rating agencies, we analyze the risk ratings given by each rating agency separately. The rating agencies rate different aspects of a bank's overall risk which are categorized below.

(i) "Intrinsic" risk:

This captures the likelihood that internal revenues of a bank will not be enough to cover its liabilities. Three credit-rating agencies, Fitch IBCA, Capital Intelligence, and Moody's

measure this type of risk. Fitch IBCA defines intrinsic risk as the likelihood of default “if the banks were entirely independent and could not rely on support from state authorities or its owners”. Capital Intelligence defines this in identical terms as “the probability that an institution will require external assistance from third parties to overcome adversities”. Similarly, Moody’s defines this as “the likelihood that a bank will require assistance from third parties such as its owners, its industry group, or official institutions”. In other words, intrinsic risk measures risk due to the internal operations of the bank to the exclusion of any external support.

We compare risk ratings across banks, by first translating each rating into a number. The best ranking (such as AAA) is given a 1, and then each subsequent category is assigned a number by adding a 1 to the previous category number. Higher numbers thus represent worse risk. The credit rating number that we get is then divided by the standard deviation of the credit rating so that the coefficients can be read in units of standard deviation. We then compare these normalized credit ratings across banks as before. Since the number of observations drops significantly with the ratings data, we can no longer use country fixed effects. However, we still control for country effects by putting in a control for country risk ratings. These ratings are compiled by EIU to measure the risk of the countries financial system as a whole. With the bank credit rating as the dependent variable, we then run OLS regressions on country risk ratings, a constant, and dummy variables for government and private domestic banks. As before foreign banks are the omitted category. Table V, Panel A compares the internal risk ratings across banks. The results of all rating agencies show the same pattern. Government banks have the worst intrinsic risk, with a risk rating that is 0.44 to 0.92 standard deviations above the risk rating of foreign or private domestic banks. On the other hand there is no significant difference in the credit ratings of foreign and private domestic banks. Since the intrinsic risk ratings mainly capture the default risk of loans, the results of Panel A also confirm the earlier results on default risk as measured by the loan loss provisioning ratio (Column (6), Table III).

(ii) “External” Support:

The internal risk measure measured the likelihood that a bank will have to seek external help in order to survive. Our second “external support” risk measure measures the likelihood of receiving external support *conditional* on requiring external help. It is a binary variable that captures whether a bank will receive help from outside sources such as the government and owners in times of trouble. This measure can itself be divided in two parts. Fitch IBCA and Capital Intelligence measure whether the state will support the bank in case of need. Whereas Fitch IBCA also measures separately whether the owners and shareholders will support the bank in times of need. Panel B compares how these two types of support vary across bank type by regressing the external support (0/1) variable on bank-types and country risk ratings as before. The results on government support from both Fitch IBCA and Capital Intelligence show that government banks are 27% to 31% more likely to receive state support compared to foreign banks, whereas private domestic banks do not receive the same preferential treatment. The last column of Panel B shows that foreign banks are about 43% more likely than both government and private domestic banks to receive help from their owners and shareholders in case the bank runs into liquidity problems.

The results of Panel B give important insight into the governance structure of the three bank-types that accounting numbers could not have. The management of both government and foreign banks have external support in case they run into trouble. This can potentially lead to a moral hazard problem where the management does not take adequate steps to minimize risk because they know they will be bailed out in times of trouble. However, if the external sources providing the support establish enough control mechanisms, such moral hazard can be limited. Given that foreign banks have good quality loans and good internal ratings, they are likely to have strong internal control mechanisms. One example of such control mechanisms is limiting the bank management to only lend to publicly verifiable “hard information” firms. We have already seen evidence in favor of such a possibility for foreign banks in the preceding section. For the government banks on the other hand, it appears that there is no such control mechanism in place, leading to moral hazard problems with the bank management. The soft

budget constraints make bank management lax about their risk exposure, leading to high default rates and low internal risk ratings as noted earlier. Since private domestic banks do not have an external source of support, they do not seem to suffer from this particular type of moral hazard problem. This again is reflected in their high internal ratings, and lower default rates.

(iii) “Overall” Risk:

Finally some rating agencies (Moody’s and S&P) report an overall measure of risk that includes intrinsic risk, but also takes into account any external support the bank may receive in case of liquidity or solvency problems. Panel C shows that once we look at the overall risk, (i.e. taking into account the intrinsic risk, as well as the external support mechanisms), there are no significant differences in the overall long-term deposit risk for the three types of banks. Whereas its understandable that government banks would be rated as highly as foreign banks after taking the external state support into account, its puzzling to find private domestic banks also having the same overall risk rating as foreign banks. Table III showed that private domestic banks have higher interest expense on deposits, and Table III and V showed that they have similar quality loan portfolios as foreign banks. Then given the extra external help for foreign banks, the overall rating of private domestic banks would have been expected to be lower. That this is not the case is slightly puzzling.

D. Robustness: Sample Selection

We alluded earlier to a possible sample selection problem as our panel is not balanced. Banks enter and exit the data at different times during the sample period. The entry of banks is mostly related to the fact that BankScope keeps on expanding its coverage of banks around the world. The expanding coverage of banks in the data set should not by itself be a problem, unless the expanding coverage is biased towards one particular ownership category. Table VIa shows that the relative numbers of domestic and foreign banks entering over the years remained approximately the same (50:30). The fraction of new entrants that are government banks decreases slightly, which is to be expected as government often set up a few big banks and

bigger banks are likely to be included early on. Similarly, banks exit the data set at different years. We do not know the exact reason for disappearance of banks. However, BankScope officials say that the main reason is simply delay in compilation and entry of information from these banks. Of course if a bank goes out of business or is merged with another bank, that will also show up like an exit of the bank from our data set. As before, the main question of interest is whether the exit of banks is correlated with ownership type. Table VIa shows that this is not a major concern.

Finally we test how the entry and exit of banks is correlated with certain bank characteristics such as size and age. Columns (1) and (3) in Table VIb show that, as expected, new banks being entered into the data set are younger by about 4.6 years each additional year, and significantly smaller (difference in logs of 0.21). However, as columns (2) and (4) show, there is no *differential* economically significant effect of age or size by ownership category⁹. Entry of foreign and private domestic banks does not differ significantly in terms of their age or size. When we look at exit of banks from the data, we find that there are no significant correlations with age (columns (5) and (6)). There is a difference with size, as bigger banks are likely to exit later from the data set (column (7)). However, as column (8) shows, this correlation of size with year of exit also does not vary by ownership type in an economically significant manner. Since none of the variables correlated with sample selection differ by ownership type, sample selection issues are unlikely to bias any of the coefficients reported in the paper.

III Interpreting the Differences

The previous section outlined the basic cross-sectional and time series differences between foreign, private domestic, and government banks. In this section we first discuss the main organizational and structural differences between the three types of banks, and then propose an explanation based on those differences to account for the empirical observations in the previous section. We will postpone the discussion of alternative potential explanations to the

⁹Even when the interaction with government banks is significant, the coefficients, 0.0083 and 0.0006, are economically insignificant compared to the “omitted” coefficients of -4.3 and -0.19 respectively.

next section.

A. Structural and Organizational Differences Between Foreign, Private Domestic, and Government Banks

The main structural and organizational differences between the three types of banks are based on the *identity* of who owns the cash-flow and control rights of the banks. Private Domestic banks are privately owned and managed by domestic shareholders. This means that both cash flow rights and control rights rest with the domestic shareholders of the bank. Foreign banks are also privately owned and managed, but differ in a couple of critical ways with private domestic banks. First, the cash-flow and control rights rest with *foreign* rather than *domestic* shareholders. Second, unlike their local counterparts, foreign banks are typically part of a larger chain of multi-national banks spread in different parts of the world. This separates foreign banks from private domestic banks in terms of their hierarchical organizational design. The longer distance between shareholders (typically residing in the west), and bank managers (residing in emerging economies) for foreign banks implies that foreign banks have *more* layers of bureaucracy between top management and local bank managers. Government banks on the other hand are neither privately owned nor managed. The cash-flow rights (ownership) rest with the tax-payers, and the control rights with government employees (bureaucrats) hired to run the bank.

The differences in the structural design mentioned above can lead to important real differences in the performance of banks. First, an obvious implication of private ownership is that incentives to maximize profits are high for foreign and private domestic banks, while being close to zero for government banks. For government banks such profit maximizing objectives are often replaced by other types of objectives such as political, “social” or corruption maximization.

Second within private banks, the hierarchical structure of foreign banks may give them a comparative disadvantage versus private domestic banks in utilizing “soft information”. As we have already pointed out, foreign banks due to their multi-national nature have a larger

hierarchical structure than private domestic banks. Greater distance between ownership and management in the case of foreign banks implies that management is controlled from a distance through a system of well-documented hierarchy. Rules concerning do's and don'ts are well-defined so that employees can be monitored and incentivized even at an arm's length relationship. Domestic banks on the other hand are more flexible in their organizational design. Since they are managed and controlled locally, they can afford a more decentralized system of governance where an individual manager is given more control and discretion. The basic theory concerning this idea is well laid out by Stein (2002) in a recent paper. As the paper argues, the fundamental constraint that a centralized and hierarchical structure like that of foreign banks imposes is that they have to rely on "hard information" in making lending decisions. In the context of banking, hard information includes a credible track record such as past sales, revenue, exports etc. Domestic banks on the other hand have flatter organizational structures. This (keeping everything else constant) allows top management and ownership to give a lot more power in the hands of the local bank managers allowing them to use "soft information" in making lending decisions as well.

"Soft information" is information that cannot be verified by anyone other than the person who produces it. For example, a bank manager through repeated interviews with a young firm manager might be convinced that the manager is a smart, honest and hard working entrepreneur with a high probability of success. The ability to use such "soft information" by domestic banks implies that private domestic banks are more likely to successfully lend to "soft information" firms.

Should government banks be better at using soft information as well? The answer is likely to be no. First, with a lack of incentives it is not clear whether government banks would use *any* information at all. Second, even under the efficient government hypothesis, government banks could also be organizationally-constrained to rely on hard information. The reason is that formal checks and balances in a government organization can only work when punishments and rewards are based on credible or hard information.

The third implication of differences in the ownership structure of the three banks may be

the strength of bank supervision. The strength of supervision of a bank depends both on the capacity of the regulatory authority to monitor the bank, and also on the internal incentives of a bank to be conservative. It is important to mention here that since the capacity of the regulatory authority is fixed in a given country, our methodology of using country fixed effects controls for any differences in the supervision of banks *across* countries. However, systematic differences in the supervision of different bank types can still exist in the same country either because of certain biases of the domestic regulatory authority, or because of differences in self-supervision by banks. For example, within private banks, foreign banks may be more tightly supervised than private domestic banks in an emerging economy because in addition to the domestic regulatory authority, foreign banks are also subject to their “home” country regulatory authority. Since the home regulatory authority resides in a developed country, it could be more effective in enforcing prudential regulations. Foreign banks could therefore have stricter monitoring than private domestic banks. Even if domestic and foreign banks faced the same level of regulation, foreign banks may endogenously adopt more conservative banking policies than domestic banks. The reason is that foreign banks because of their world-wide reputation at stake, could face a larger cost of default in an emerging economy, compared to domestic banks. For example, foreign banks often have a large network of branches outside the emerging economy under question. If the bank takes too much risk through imprudent banking in the developing country, leading to a bank failure or default, it can have large negative consequences through reputation on its operations worldwide. Hence, anticipating such higher cost of risky behavior, foreign banks may end up devising internal monitoring mechanisms to curb their level of risk. Another reason for a more prudent behavior by foreign banks can be understood in the context of the agency problem of bank owners trying to monitor the level of risk taken by their managers. Suppose both foreign and domestic banks have the same preference for adopting prudent behavior. However, they must incentivise their bank managers for moral hazard reasons. For example, the bank manager might collude with a firm to “loot” the bank. Foreign banks might be able to provide better incentives to managers through promises of promotion to better “global” positions that domestic banks cannot offer

due to their limited scope in operations¹⁰. However, whether foreign banks are more strictly supervised than private domestic banks in practice remains an empirical question. The reason is that oversight from the domestic regulatory authority, coupled with endogenous reasons for the private bank to maintain its reputation and hence access to future cash-flows may be sufficient to guarantee equally tight supervision for private domestic banks.

Government banks on the other hand are likely to be the least tightly regulated. Government banks have no incentives to self-regulate themselves in the absence of cash-flow rights. Moreover, the hands of the domestic regulatory authority are heavily tied up when it comes to dealing with government banks. For example, whereas a regulatory authority can credibly threaten a private bank with the suspension of license, such threats are immaterial when it comes to government banks.

B. Explanation based on Incentives and Information

The empirical results established in section II can now be understood in the light of the structural differences between government, private domestic, and foreign banks mentioned above. We begin by explaining the results on government banks.

The results showed that government banks are bigger, older, under-capitalized, and less profitable relative to private banks in emerging markets. Moreover government banks have a bigger proportion of bad loans, lower deposit cost, and are the least sensitive to macro-economic shocks. This evidence sheds important light on the history, and behavior of government banks. It shows that large banks have been set up and sustained by governments all over the world for a long time. The fact that government banks have survived despite very low profitability suggests continuous subsidies and “bail outs” by the governments to sustain these banks. The results on government banks can thus be understood in the light of such government support,

¹⁰There is actually one argument that can go in the opposite direction of foreign banks taking on higher risks. The argument is that since foreign banks can diversify themselves better internationally, they will have a higher capacity of taking on more risk than domestic banks in a single emerging economy. However, this argument only applies to the “good” type of risk, i.e. risk that leads to higher overall returns. The type of risk that regulation is most concerned with is the “bad” type of risk, such as looting or inefficiently low level of monitoring by the bank, which is the type of risk under question in this paper. In the empirical strategy that follows, we will explicitly isolate the bad type of risk to focus on the regulatory aspect of banking.

coupled with the absence of private incentives as explained in the section before. The presence of government subsidies allows government banks to operate without passing on any risk of default to their depositors. Consequently government banks enjoy low deposit costs as seen in our data. Moreover, the absence of private incentives, coupled with government subsidies creates a serious moral hazard problem. Government bank managers have low incentives, or “fear” to operate the bank efficiently, leading to high rates of default, and lending that does not respond effectively to different types of economic shocks hitting the economy. In fact the absence of cash-flow incentives, and hard budget constraints may even make the bank managers corrupt or politically motivated in their lending decisions. There is direct evidence of this in a paper by Dinc(2002) who, using a subset of the data used in this paper, shows that lending by government banks is highly correlated to political or election cycles in these countries.

We next come to differences between private domestic and foreign banks. The two types of banks have the same size and age on average, but differ in the allocation of their assets. Private domestic banks tend to be more “aggressive” in their portfolio. They allocate a lower proportion of their assets in liquid assets such as cash and government securities, and more in loans. Moreover, the loans that private domestic banks give out earn a higher rate of return without being significantly riskier than foreign banks. Foreign banks do make more money from selling services than private domestic banks, and also enjoy a lower cost of deposits than private domestic banks. However, despite these advantages, foreign banks have the same overall profitability as private domestic banks. Finally, private domestic banks are a lot more sensitive to “soft information” macro shocks compared to foreign banks that are more sensitive to “hard information” shocks. In other words, whereas the overall size, age, and profitability of private domestic and foreign banks looks very similar, the *composition* of assets and profitability is very different across the two types of banks.

The differences in the composition of assets and profits of local and foreign banks, coupled with differences in the relative sensitivities to soft and hard information shocks suggests that the two types of banks cater to comparatively different market segments. The “aggressive” lending by private domestic banks suggests that these banks have a higher willingness to expose

themselves to risk. However, private domestic banks still monitor their loans hard enough that their overall default rates are only marginally (and statistically insignificantly) higher than foreign banks. These empirical facts about the relative behavior of foreign and local banks can be understood in light of the structural differences mentioned in the preceding section. First, our results show the importance of private (cash-flow) incentives, coupled with hard budget constraints. Since both private domestic and foreign banks have incentives to maximize profits, and do not have access to government subsidies like government banks¹¹, they are much more successful than government banks in controlling their loan default rates.

Despite the similarity in lower default rates for private domestic and foreign banks, the reason for the lower default rates can be very different for private domestic and foreign banks. As pointed out in the discussion on structural differences, the management of foreign banks in developing countries have access to “deeper pockets” of their parent bank. This can potentially lead to problems similar to government banks where managers have access to the deeper pockets of the government to bail them out. However, the difference is that keeping this potential problem in mind, foreign banks are tightly controlled by their headquarters through a system of close monitoring. Private domestic banks on the other hand do not have access to such deep pockets. But private domestic banks are able to monitor themselves through market-discipline from the deposit market. If private domestic banks start taking excessive risk, then in the absence of significant deposit insurance, they will either lose future access to deposit markets altogether, or their cost of deposits will increase. This threat of losing future cash-flows from the banking business can force private domestic banks to monitor their risk closely.

IV Alternative Hypotheses

In the preceding section, we gave one particular explanation for the observed empirical facts. We now discuss some alternative hypotheses, and why they do not do as good a job in explaining the empirical observations.

¹¹Here it is important to note that in most developing countries, explicit deposit insurance is either completely absent, or is only present to a small degree (see e.g. Barth et al (2001)).

A. Absolute Advantage for Foreign Banks

This simple theory states that foreign banks are uniformly better than private domestic banks in all dimensions because of their experience, knowledge, and scope. However, this theory fails to explain the very (persistent) existence of private domestic banks in developing countries. There must be some comparative advantage, such as the soft-information advantage, for the private domestic banks to survive in the face of competition.

B. International Diversification Advantage for Foreign Banks

A second potential theory that the descriptive statistics reject is the “risk diversification” theory. This theory suggests that since foreign banks are better able to diversify international risk due to their presence in a number of regions and countries, they should be better positioned to take on riskier positions in a *given* country. However, the descriptive statistics fail to support this theory as we find no evidence that foreign banks take on more risk than their domestic counterparts.

C. Institutional Obstacles for Foreign Banks

Some emerging markets may limit the size and scope of foreign banks through legal and regulatory measures. For example, foreign banks may be limited in the number of branches they can operate, or the share of market they can hold. Whereas this may be true in some countries, it cannot explain why foreign banks fail to lend to high return firms, or why they mostly focus on hard information clients.

D. Social Theory for Government Banks

The results for government banks showed that government banks are strongly protected by the government, have high default rates, make losses on average, and are the least sensitive to different types of shocks hitting the economy. We argued that these facts are reflective of the poor incentives, moral hazard, and politicization of government banks. An alternative explanation could be that the facts actually reflect the “social objectives” of the government.

For example, suppose that market failures in emerging economies, such as missing markets or learning externalities, force the government to subsidize certain sectors such as education, agriculture, and infant industries. In such a world, government banks will be subsidized by the government, and will have high default rates and losses. They might even be insensitive to macro shocks if government is providing insurance to those adversely affected by the shocks.

Whereas the social theory is a possibility, there is direct evidence that government lending decisions are based on political rather than social criterion. A recent paper by Dinc (2002) who uses a subset of our data on 22 countries, shows that loan forgiveness and restructuring of old loans, and issuance of new loans increases *more* for government banks relative to private banks during election years.

E. Related Lending By Private Domestic Banks

A concern with private domestic banks in emerging markets is that they may indulge in “related lending”, defined as lending to family or close associates at loose terms and conditions¹². The fear is that such lending will lead to weaknesses in the banking system, and ultimately bank failures. Whereas we have no direct way of checking the extent of related lending in the data, since private domestic banks have low defaults according to accounting and ratings data it suggests that related lending is not too serious an issue. It is important to keep in mind that we may be missing the very small banks in emerging markets. The smallest banks may be more likely to engage in related lending and other shady banking practices. However, even if that is true, it is good news in the sense that it shows that banks engaging in blatant bad practices, fail to attract large deposits and grow beyond a point.

V Concluding Remarks

The questions regarding optimal banking structure posed in the introduction can now be better understood in the light of our results. There is no uniformly dominant organizational structure. Each has its own strengths and weaknesses.

¹²See for example, La Porta et al (2002) on related lending in Mexico.

Foreign banks can bring a lot of advantages, the most important of which is perhaps their ability to tap into external liquidity of their parent banks. This lowers the cost (risk) of deposits and improves banking stability in emerging markets. However, the same advantage may turn into a disadvantage on the lending side. The parent bank providing liquidity insurance, and also having its capital at risk wants to guarantee prudent banking in the emerging market. The layers of hierarchy and long distance communication necessitated by the natural distances involved implies that the top management in the parent bank cannot give much discretion to the local foreign bank. One of the ways to prevent discretion, as outlined in the theory of organization literature, is to make the foreign banks only rely on “hard information”. This however reduces the value of foreign banks for the economy as a whole, since one of the main functions of banks is to utilize “soft information” which anonymous markets on their own would not be able to¹³.

Private domestic banks do not have the advantage of foreign banks in terms of access to external liquidity. This raises the concern, particularly in emerging markets with weak regulation and legislation, that private domestic banks would be prone to “looting” leading to banking crises and failures (see e.g. Akerlof and Romer (1993)). The hope however is that market discipline in the form of the threat to loose deposit holders, and hence access to future cashflows, if the bank misbehaves would be sufficient to tame the urge to “loot”. The results of our paper show that there is hope for the market discipline mechanism to work. Private domestic banks maintain strong market shares without excessive default rates like the government banks. The view that it is the market discipline at work is further strengthened from the ratings data which shows that private domestic banks, unlike government and foreign banks, do not have any external support either from the government or from their shareholders. Moreover, the fact that private domestic banks have a flatter hierarchical structure than foreign banks, allows them to also lend based on “soft information”. The use of soft information by private domestic banks shows their importance in forming relationship specific lending alliances. Such alliances are essential for small and startup firms (see Berger and Udell (1995),

¹³For a role of banks as intermediaries acquiring information, see Diamond (1984) and (1991).

Petersen and Rajan (1994)), particularly in emerging markets with low levels of financial development.

Government banks in contrast to the private banks get heavy support from their governments. This gives them access to low cost deposits despite having the worst performing loan portfolio in the banking sector. However, even with the subsidized deposits, government banks make losses on average. The results suggest that government involvement in the banking sector should be minimized much further than its current dominant position in many developing countries. The benevolent “social” view of government banks is often not observed in practice, and instead the effects of weak incentives, and political corruption seem to dominate. There may still be legitimate grounds for government intervention in specific areas such as providing subsidized loans for education and technology adoption. However, such grounds should be viewed as exceptions rather than the rule.

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Table I
Distribution by Ownership Category

<i>Ownership Type</i>	<i>Number of Banks</i>		<i>Total Assets*</i>	
Private Domestic	859	52%	1,260	36%
Foreign	528	32%	657	19%
Government	250	15%	1,560	45%
<i>Total</i>	1637	100%	3,477	100%

*Total Assets are in Billions of US dollars

Table II
Summary Statistics of Asset, Capital, and Income structure of Banks

	<i>Variable</i>	<i># of obs.</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Min</i>	<i>Max</i>
<i>Asset Structure</i>	Log of Total Assets	1637	12.56	1.89	6.28	19.66
	Net Loans / Total Assets	1637	48.5%	19.2	0.0	95.8
	Fixed Assets / Total Assets	1637	3.5%	3.7	0.0	45.0
	Securities / Total Assets	1637	35.3%	19.0	0.0	98.6
	Cash / Total Assets	1636	5.5%	7.0	0.0	67.0
	Intangible Assets / Total Assets	1636	7.3%	7.9	0.0	75.2
<i>Capital Structure</i>	Deposits / Total Liabilities	1637	69.7%	20.3	0.0	152.4
	Money Market Funds / Total liabilities	1637	5.2%	11.0	0.0	82.2
	Other funding / Total Liabilities	1637	8.3%	7.9	0.0	81.1
	Total Equity / Total Liabilities	1637	13.3%	13.2	-128.0	96.6
<i>Income Structure</i>	Net Income Before Taxes / Total Assets	1613	1.5%	5.0	-81.8	48.1
	Interest Income / Total Income	1591	80.8%	26.2	0.0	309.3
	Commission & Fee Income / Total Income	1591	16.8%	24.7	0.0	766.7
	Other Income / Total Income	1591	2.5%	8.8	0.0	70.4
	Interest Expense / Total expense	1591	54.4%	20.1	0.0	188.2
	Operating expenses / Total expenditure	1591	37.0%	18.8	0.0	184.7
	Provisioning / Total expenditure	1591	7.0%	9.7	0.0	148.2
	Other expenses / Total Expenditure	1591	1.6%	5.4	0.0	54.5

All numbers are sample averages over 1992-1999. All ratios are given as percentages.

Table III
Differences in Assets, Capital, and Income Structure

	(1)	(2)	(3)	(4)	(5)	(6)	
<i>Dependent Variable</i>	<i>Log of Total Assets</i>	<i>Net Loan / Total Assets</i>	<i>Securities + Cash / Total Assets</i>	<i>Deposits / Total Liabilities</i>	<i>Total Equity / Total Liabilities</i>	<i>Loan Provisioning / Net Loans</i>	
<i>Private Domestic</i>	-0.12 (0.09)	1.9** (0.95)	-2.0** (0.94)	3.3** (0.98)	1.5 (0.81)	0.96 (0.85)	
<i>Government</i>	1.15** (0.13)	0.97 (1.27)	-2.2 (1.29)	4.6** (1.52)	5.7** (1.23)	2.9** (1.30)	
<i>Country Fixed Effects</i>	Yes	Yes	Yes	Yes	Yes	Yes	
<i>R-sq</i>	0.47	0.45	0.43	0.46	0.17	0.30	
<i># of obs</i>	1,637	1,637	1,636	1,637	1,637	1,602	

	(7)	(8)	(9)	(10)	(11)	(12)	(13)
<i>Dependent Variable</i>	<i>Net Income Before Taxes / Total Assets</i>	<i>Interest Income / Total Assets</i>	<i>Interest Income / Earning Assets</i>	<i>Interest Expense / Total Assets</i>	<i>Interest Expense / Deposits</i>	<i>Fee and Commission / Total Assets</i>	<i>Age</i>
<i>Private Domestic</i>	-0.4 (0.31)	2.2** (0.33)	2.6** (0.37)	1.4** (0.30)	1.7** (0.30)	-0.44** (0.12)	-2.1 (2.7)
<i>Government</i>	-1.6** (0.41)	1.1** (0.40)	1.2** (0.44)	0.78 (0.44)	0.71 (0.42)	-0.24 (0.16)	17.6** (4.0)
<i>Country Fixed Effects</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>R-sq</i>	0.14	0.61	0.65	0.51	0.59	0.51	0.22
<i># of obs</i>	1,613	1,562	1,559	1,404	1,570	1,563	880

** significant at the 1% level

Foreign Banks are the omitted category. All coefficients are in percentages.

Table IV
Sensitivity to Macro Shocks

	(1)	(2)	(3)	(4)
<i>LHS Bank Variable</i>	$\Delta\text{Log}(\text{Net Loans})$	$\Delta\text{Log}(\text{Net Loans})$	$\Delta\text{Log}(\text{Net Loans})$	$\Delta\text{Log}(\text{Total Deposits})$
<i>RHS "SOFT" Macro Variable</i>	$\Delta\text{Log}(\text{Exports})$	$\Delta\text{Log}(\text{Private Loans})$	$\Delta\text{Log}(\text{Private Loans})$	$\Delta\text{Log}(\text{Time Deposits})$
<i>RHS "HARD" Macro Variable</i>	$\Delta\text{Log}(\text{Transfer Income})$	$\Delta\text{Log}(\text{Foreign Assets})$	$\Delta\text{Log}(\text{Government Loans})$	$\Delta\text{Log}(\text{Foreign Deposits})$
<i>SOFT</i>	0.37** (0.078)	0.75** (0.036)	0.27* (0.11)	0.64** (0.034)
<i>Private Domestic * SOFT</i>	0.23* (0.099)	0.18** (0.044)	0.26* (0.13)	0.16** (0.045)
<i>Government * SOFT</i>	-0.059 (0.13)	-0.0097 (0.055)	0.14 (0.15)	0.12** (0.055)
<i>HARD</i>	0.20** (0.058)	0.09** (0.028)	0.52** (0.10)	0.14** (0.024)
<i>Private Domestic * HARD</i>	-0.11 (0.0715)	-0.012 (0.0352)	-0.056 (0.1240)	-0.050 (0.0297)
<i>Government * HARD</i>	-0.073 (0.087)	-0.079 (0.043)	-0.16 (0.15)	-0.08** (0.036)
<i># of obs.</i>	3,167	5,473	5,890	5,249

** significant at 1%. * significant at 5%.
Foreign Banks are the omitted category

Table V
Risk Ratings

	(1)	(2)	(3)
<i>Panel A: "Intrinsic" Risk</i>			
	<u>Fitch IBCA</u>	<u>Capital Intelligence</u>	<u>Moody's</u>
<i>Government</i>	0.65** (0.31)	0.44~ (0.23)	0.92** (0.16)
<i>Private Domestic</i>	-0.25 (0.25)	-0.1 (0.23)	0.03 (0.16)
<i>R-sq</i>	0.13	0.07	0.17
<i># of obs.</i>	84	169	199
<i>Panel B: "External" Support (0/1)</i>			
	<u>Government Support</u>		<u>Shareholder Support</u>
	<u>Fitch IBCA</u>	<u>Capital Intelligence</u>	<u>Fitch IBCA</u>
<i>Government</i>	0.27** (0.10)	0.31** (0.11)	-0.44** (0.09)
<i>Private Domestic</i>	0.13 (0.09)	-0.16 (0.12)	-0.43** (0.09)
<i>R-sq</i>	0.13	0.19	0.28
<i># of obs.</i>	152	170	152
<i>Panel C: Overall Long Term Deposit Risk</i>			
	<u>Moody's</u>	<u>S&P</u>	
<i>Government</i>	0.07 (0.12)	0.13 (0.17)	
<i>Private Domestic</i>	-0.09 (0.09)	0.03 (0.16)	
<i>R-sq</i>	0.51	0.28	
<i># of obs.</i>	206	136	

** significant at 1%. * significant at 5%. ~ significant at 10%.

Foreign Banks are the omitted category. All regressions include a constant, and also control for country risk rating. The intrinsic and overall risk ratings are numerical risk ratings divided by the standard deviation of the ratings. So coefficients can be read in units of standard deviation. Heteroskedasticity Robust Standard Errors reported.

Table VI a
Sample Selection Robustness: Entry and Exit of Banks in the Data Set

<i>Year</i>	<i>Bank Entry</i>				<i>Bank Exit</i>			
	<i>Foreign</i>	<i>Private Domestic</i>	<i>Government</i>	<i>Total</i>	<i>Foreign</i>	<i>Private Domestic</i>	<i>Government</i>	<i>Total</i>
<i>1992</i>	179 (30)	304 (51)	116 (19)	599 (100)				
<i>1993</i>	92 (38)	110 (46)	39 (16)	241 (100)				
<i>1994</i>	95 (35)	141 (52)	37 (14)	273 (100)	2 (13)	11 (69)	3 (19)	16 (100)
<i>1995</i>	64 (35)	97 (53)	21 (12)	182 (100)	7 (32)	10 (45)	5 (23)	22 (100)
<i>1996</i>	45 (27)	96 (59)	23 (14)	164 (100)	20 (25)	44 (55)	16 (20)	80 (100)
<i>1997</i>	31 (27)	73 (64)	10 (9)	114 (100)	55 (28)	105 (53)	40 (20)	200 (100)
<i>1998</i>	21 (37)	32 (56)	4 (7)	57 (100)	269 (32)	433 (51)	139 (17)	841 (100)
<i>1999</i>	1 (14)	0 (0)	6 (86)	7 (100)	175 (37)	256 (54)	47 (10)	478 (100)

*Percentages in parenthesis

Table VI b
Sample Selection Robustness: Entry and Exit of Banks by Age and Size

<i>Dependent Variable</i>	(1) <i>Age</i>	(2) <i>Age</i>	(3) <i>Size</i>	(4) <i>Size</i>	(5) <i>Age</i>	(6) <i>Age</i>	(7) <i>Size</i>	(8) <i>Size</i>
<i>Year of Entry</i>	-4.6** (0.79)	-4.3** (0.77)	-0.21** (0.024)	-0.19** (0.024)				
<i>Government * Year of Entry</i>		0.0083** (0.0019)		0.0006** (0.0001)				
<i>Private Domestic * Year of Entry</i>		-0.0008 (0.0013)		-0.0001 (0.0001)				
<i>Year of Exit</i>					-0.15 (1.25)	0.43 (1.22)	0.16** (0.054)	0.18** (0.052)
<i>Government * Year of Exit</i>						0.0089** (0.0020)		0.0006** (0.0001)
<i>Private Domestic * Year of Exit</i>						-0.001 (0.0014)		-0.0001 (0.0001)
<i>Country Fixed Effects</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>R-sq</i>	0.22	0.26	0.46	0.50	0.18	0.22	0.43	0.48
<i>No. of obs.</i>	880	880	1637	1637	880	880	1637	1637

** significant at 1% level

Foreign Banks are the omitted category. Size is log of total assets. Age is 2002 minus year of establishment.

Appendix: Table I
Number of banks by ownership type and country

	<i>Country</i>	<i>Private Domestic Banks</i>	<i>Foreign Banks</i>	<i>Government Banks</i>	<i>Total Banks</i>
1	ALBANIA	0	1	0	1
2	ALGERIA	0	1	4	5
3	ANGOLA	0	0	1	1
4	ARGENTINA	38	38	16	92
5	ARMENIA	4	2	1	7
6	AZERBAIJAN	6	1	2	9
7	BAHRAIN	3	5	1	9
8	BENIN	5	0	0	5
9	BHUTAN	0	0	1	1
10	BOLIVIA	6	8	0	14
11	BOTSWANA	0	5	0	5
12	BRAZIL	82	61	12	155
13	BURKINA FASO	1	0	2	3
14	BURUNDI	2	2	0	4
15	CAMBODIA	1	0	0	1
16	CAMEROON	3	2	1	6
17	CENTRAL AFRICAN REPUBLIC	0	0	1	1
18	CHAD	0	0	1	1
19	CHILE	12	17	1	30
20	CHINA-PEOPLE'S REP.	12	3	12	27
21	COLOMBIA	17	14	3	34
22	COSTA RICA	18	8	4	30
23	COTE D'IVOIRE	2	4	0	6
24	CUBA	3	0	1	4
25	DJIBOUTI	0	2	0	2
26	ECUADOR	28	12	1	41
27	EGYPT	12	5	8	25
28	EL SALVADOR	5	3	0	8
29	ETHIOPIA	4	0	2	6
30	FIJI	0	1	0	1
31	GABON	2	1	0	3
32	GAMBIA	0	1	0	1
33	GEORGIA REP. OF	3	1	0	4
34	GHANA	3	3	2	8
35	GUATEMALA	28	2	3	33
36	GUINEA-BISSAU	0	1	0	1
37	GUYANA	2	1	0	3
38	HAITI	3	2	1	6
39	HONDURAS	14	1	0	15
40	INDIA	25	1	36	62
41	INDONESIA	55	27	16	98
42	IRAN	0	0	2	2
43	JAMAICA	5	2	0	7
44	JORDAN	6	4	0	10
45	KAZAKHSTAN	7	4	0	11
46	KENYA	28	4	4	36
47	KOREA REP. OF	23	3	4	30
48	KYRGYZSTAN	0	1	0	1
49	LATVIA	9	10	1	20
50	LEBANON	38	30	1	69
51	LESOTHO	0	2	0	2
52	LIBYAN ARAB JAMAHIRIYA	0	0	3	3

	<i>Country</i>	<i>Private Domestic Banks</i>	<i>Foreign Banks</i>	<i>Government Banks</i>	<i>Total Banks</i>
53	MADAGASCAR	0	3	0	3
54	MALAWI	1	0	2	3
55	MALAYSIA	24	14	3	41
56	MALDIVES	0	0	1	1
57	MALI	1	1	2	4
58	MALTA	1	5	2	8
59	MAURITANIA	2	3	0	5
60	MAURITIUS	3	6	0	9
61	MEXICO	23	21	1	45
62	MOLDOVA REP. OF	5	1	1	7
63	MOZAMBIQUE	1	1	1	3
64	MYANMAR (UNION OF)	1	0	2	3
65	NAMIBIA	1	3	0	4
66	NEPAL	2	5	0	7
67	NICARAGUA	8	3	2	13
68	NIGER	3	1	0	4
69	NIGERIA	34	3	4	41
70	OMAN	7	0	1	8
71	PAKISTAN	8	8	6	22
72	PANAMA	26	47	1	74
73	PAPUA NEW GUINEA	2	3	1	6
74	PARAGUAY	10	14	2	26
75	PERU	13	11	1	25
76	PHILIPPINES	29	7	2	38
77	RWANDA	1	1	2	4
78	SAUDI ARABIA	10	0	1	11
79	SENEGAL	2	3	1	6
80	SIERRA LEONE	1	2	1	4
81	SLOVENIA	9	5	12	26
82	SOUTH AFRICA	8	12	1	21
83	SRI LANKA	5	0	2	7
84	SUDAN	1	0	2	3
85	SURINAME	0	1	1	2
86	SWAZILAND	0	3	0	3
87	SYRIA	0	0	1	1
88	TANZANIA	3	3	0	6
89	THAILAND	3	3	10	16
90	TOGO	2	0	2	4
91	TUNISIA	8	1	3	12
92	TURKEY	45	10	9	64
93	TURKMENISTAN	0	0	1	1
94	UGANDA	5	3	1	9
95	URUGUAY	3	15	3	21
96	UZBEKISTAN	2	1	3	6
97	VENEZUELA	14	9	2	25
98	VIETNAM	6	0	6	12
99	YEMEN	2	0	1	3
100	ZAMBIA	1	3	2	6
101	ZIMBABWE	2	3	0	5
		859	528	250	1637

Figure 1: Size distribution of Banks

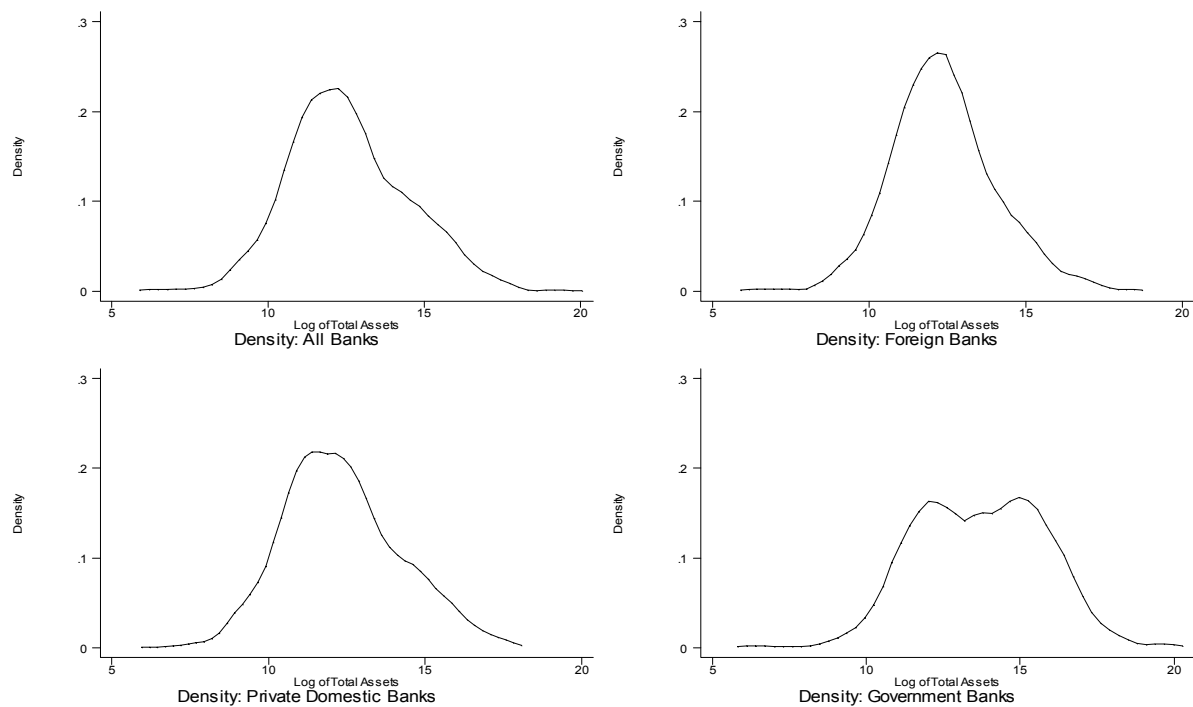


Figure 2: Age distribution of banks

