



# Foreign bank participation and access to credit across firms in developing countries

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Combining responses from a survey of firms operating in 35 developing and transition economies with data on the degree of foreign bank presence across these countries, we investigate whether higher foreign bank participation improves the accessibility of external financing for firms. The results suggest that all enterprises, including small and medium-sized ones, report facing lower financing obstacles in countries having higher levels of foreign bank presence. The results are robust to the inclusion of many controls and to econometric adjustments for the potential endogeneity of foreign bank presence and for the likely correlation of responses across firms within countries. *Journal of Comparative Economics* **34** (4) (2006) 774–795. Development Research Group, The World Bank, 1818 H Street NW, MSN MC3-300, Washington, DC 20433, USA.

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## 1. Introduction

In recent years, financial markets have become increasingly integrated as governments have liberalized domestic financial sectors and capital accounts. One facet of the larger process of financial globalization is the increased participation of foreign financial institutions in local bank-

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ing sectors, especially in developing economies. According to data reported in Barth et al. (2001), foreign bank participation in developing countries reached 46 percent of banking assets by 2001. The growth in foreign bank presence in developing countries has fostered an increased interest in this worldwide phenomenon. Recent studies focus on the causes and consequences of foreign bank participation. Buch (2000, 2003), Claessens et al. (2001), Galindo et al. (2003), Wezel (2004) and Focarelli and Pozzolo (2005) analyze the factors that encourage foreign banks to operate in developing countries. Barajas et al. (2000), Claessens et al. (2001), Denizer (2000), Crystal et al. (2001), and Martínez Pería and Mody (2004) investigate the comparative performance of domestic banks and foreign banks. Demirgüç-Kunt et al. (1998), Dages et al. (2000), Goldberg (2002), Peek and Rosengren (2000), Barth et al. (2001), de Haas and van Lelyveld (2003), and Detragiache and Gupta (2004) analyze the consequences of foreign bank participation on the stability of the banking sector in host countries.

Despite this growing literature on foreign bank participation, the issue of whether access to credit is easier in countries having greater foreign bank presence is not resolved.<sup>1</sup> Existing theoretical and empirical studies are inconclusive. Detragiache et al. (2006) develop a model in which entry by foreign banks results in a reduction in the cost of monitoring hard information embodied in financial statements but not in the cost of soft information, which is usually not found in financial statements. The latter is acquired through direct and repeated interaction with the borrower so that it is hard to transmit through the communication channels of large and complex organizations. Detragiache et al. (2006) show that for some parameter configurations, foreign bank entry might increase cost-efficiency, lending, and welfare. However, for other parameter values, foreign bank entry can cause cream skimming and can lead to an overall decline in lending, cost efficiency, and welfare. In this scenario, borrowers with soft information are never better off and sometimes are made worse off by the entry of foreign financial institutions. In contrast, Dell’Ariccia and Marquez (2004) propose a model in which credit, and in particular, loans available to soft-information borrowers, might increase as a result of foreign bank entry. In their model, a lender with an informational advantage, i.e., a domestic bank, competes for borrowers with an outside lender, i.e., a foreign bank, having worse information but with a cost advantage in extending loans. These authors show that, faced with increased competition from foreign banks for less opaque and typically large customers, domestic banks are forced to concentrate on lending to soft-information borrowers, such as small and medium-sized enterprises (SMEs). Consequently, credit becomes more available for this class of borrowers that might have been neglected previously by lenders.

Empirically, the evidence on the impact of foreign bank participation on credit availability and allocation is also inconclusive. Most studies compare the lending portfolios of foreign and domestic banks in one or a few countries. Berger et al. (2001) find that small businesses in Argentina were less likely than larger ones to receive credit both from large banks and from foreign banks in 1998. In Mexico, Haber and Musacchio (2005) find that the banking system has

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<sup>1</sup> This concern stems from the finding that finance has a positive impact on growth at the macroeconomic level, as shown by King and Levine (1993) and Beck et al. (2000), among others. Furthermore, similar evidence exists at the microeconomic level. For example, Beck et al. (2005) find that financing constraints affect firm growth. In our sample of firms and countries, financing constraints also have a negative impact on firm growth. These results are available upon request from the corresponding author. However, if the variables representing foreign bank participation are added, the coefficients on the variables representing financing constraints are insignificant at conventional significance levels, suggesting that foreign bank participation affects firm growth primarily through its impact on credit conditions, i.e., interest rates and access to long-term loans. Hence, we focus on this channel in our paper.

become more stable and profitable as a result of foreign bank entry. However, banks, in particular foreign ones, have retreated from the business of lending to the private sector. Drawing on an exceptionally rich loan-level dataset for Pakistan, Mian (2006) finds that private banks in that country lend more to informationally opaque businesses than do foreign banks. Finally, based on the experience of four Latin American countries, Clarke et al. (2005) obtain more nuanced results. They find that foreign banks in Argentina, Chile, Colombia, and Peru lent a smaller fraction of their funds to SMEs than did similar domestic banks in the late 1990s. However, the differences between foreign and domestic banks were far less pronounced for large banks than for small banks in all four countries. In some instances, large foreign banks appeared to lend more to SMEs than did large domestic banks.

By focusing only on direct comparisons of foreign and domestic bank lending to SMEs, case studies are unable to assess whether the presence of foreign banks might indirectly affect the financing available to SMEs through the impact that such entry has on performance of the banking sector and on lending by domestic institutions. Two recent studies attempt to overcome this important limitation. Using cross-country aggregate data for a sample of 60 lower-income countries, Detragiache et al. (2006) investigate the impact of foreign bank presence on economy-wide private credit levels and growth rates. They find that foreign bank participation in low-income countries is associated with lower levels of private-sector credit and slower credit growth. However, because of their use of country level data, Detragiache et al. (2006) are unable to investigate the effects of foreign bank participation on credit allocation across different types of borrowers. In contrast, using firm-level data, Giannetti and Ongena (2005) analyze the differential impact of foreign bank lending on the growth of large and small firms. They find that, even though large firms benefit the most from foreign bank participation, other firms also profit from this process. However, the sample used in this study may not include genuinely small firms and the results may not hold for a larger sample of developing countries.

Our analysis is more representative of the experience of small firms in a more geographically diverse sample of developing countries. By examining the impact of foreign bank participation on financing constraints, we explore an important channel through which foreign bank entry can affect firm growth. Combining responses from a survey of about 3000 enterprises in 35 developing and transition economies with data on the degree of foreign bank presence across countries, we consider the issue of access to bank credit by firms, in general, and by SMEs, in particular. We find that enterprises in countries having high levels of foreign bank participation tend to rank interest rates and access to long-term loans as lesser constraints on their operations and growth than do enterprises in countries with less foreign bank presence. Furthermore, the benefits of higher levels of foreign bank participation do not accrue only to large enterprises. Although some evidence suggests that the presence of foreign banks benefits large enterprises more than small enterprises, we find strong evidence that even small enterprises benefit.

The remainder of the paper is organized as follows. In Section 2, we describe the data and discuss the estimation method. The empirical results and robustness checks are reported in Section 3. Finally, Section 4 concludes with policy implications. We relegate information about the sample to the appendix.

## 2. The data and the econometric methodology

To investigate how foreign bank participation affects firm access to finance, we combine firm-level data with information on the degree of foreign bank participation across countries, along with other macro-level variables that might either affect the degree of firm access to finance or

the extent of foreign bank presence. Table A.1 in the appendix reports the sources of our data along with descriptive statistics for each variable. The firm-level data, including the responses to questions assessing a firm's access to credit, come from the World Business Environment Survey (WBES). The WBES is a major cross-sectional survey of industrial and service enterprises conducted in 1999 by the World Bank and several other agencies. The survey has a large number of questions about the effects on business operations of taxation and regulation, the performance of the financial sector, the institutional environment, and corruption. In addition, the survey provides some information on the broad sector of operations and ownership.<sup>2</sup> In contrast, the survey includes little information on enterprise performance.

Representative samples of firms in developing countries are difficult to obtain. However, *Batra et al. (2003)* and *Hellman et al. (2000)* summarize the strategies that were used to ensure cross-country comparability in the WBES. In particular, some sampling targets were used in all countries to ensure representation of certain firm types. Specifically, the ratio of manufacturing to service companies was determined according to their relative contribution to GDP, with a minimum of fifteen percent of the sample for each type of firm. Regarding size, at least fifteen percent of the sample is comprised of small firms with fewer than 50 employees and at least fifteen percent is made up of large firms with more than 500 employees. Foreign-controlled companies comprise at least fifteen percent of the sample, as do firms that exported at least twenty percent of their output. Finally, at least fifteen percent of the sample is firms located in towns with fewer than 50,000 people.

Because samples were drawn from the complete company registers in most countries and because the same set of minimum sampling guidelines were applied in each case, the samples are likely to be reasonably representative across countries.<sup>3</sup> In Table A.2 in the appendix, we compare the share of sales by sector from our sample with the share of value added by sector as reported in World Development Indicators (*World Bank, 2005*), hereafter WDI, for the four regions for which we have at least five country observations. Excluding Africa, the share of value added from services is similar to the share of sales from that sector in our sample. In contrast, the share of sales from manufacturing (agriculture) in our sample is much higher (lower) than that sector's contribution to value added for all four regions. Therefore, empirical results obtained with these data are likely to be most reflective of the effects of foreign bank presence in easing financial constraints in the manufacturing sector.<sup>4</sup> However, we do not consider this to be a serious limitation. Based on the criteria laid out in *Rajan and Zingales (1998)* to assess the dependence of firms on external finance, including the initial project scale, the gestation period, the cash harvest period, and the requirements for continued investment, manufacturing firms are likely to be among the most financially dependent in an economy. Hence, we focus on the set of firms for which access to financial services is particularly critical.

As part of the WBES survey, enterprise managers were asked to assess how problematic several financing issues were to the operation and growth of their businesses using a four-point scale on which higher numbers indicate greater problems.<sup>5</sup> We focus primarily on the two measures

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<sup>2</sup> More information on the survey is at <http://www.ifc.org/ifcext/economics.nsf/Content/ic-wbes>.

<sup>3</sup> *Beck et al. (2004, 2005)* are other published studies using these data.

<sup>4</sup> The results remain largely the same if we exclude manufacturing firms and focus instead on the remaining sectors.

<sup>5</sup> Managers were asked to respond to questions such as “[using a four-point scale], can you please tell in turn how problematic are these different financing issues [high interest rates, access to long-term loans, and access to non-bank equity] for the operation and growth of your business.” The scores are as follows: 1 indicates no obstacle, 2 indicates a minor obstacle, 3 indicates a moderate obstacle, and 4 indicates a major obstacle.

most directly related to the formal banking sector, namely, perceptions about both interest rates and access to long-term loans. Using perception-based measures can be problematic and lead to biased estimates if the responses of enterprise managers are correlated systematically with enterprise or country-level characteristics.<sup>6</sup> In particular, bias could occur if the managers' pessimism is correlated systematically with the degree of foreign bank participation. If managers tend to be more optimistic in countries having stronger macroeconomic fundamentals or better institutional environments and foreign entry is also more common in these countries, spurious correlation could exist between these variables. To verify that our analysis does not suffer from perception biases, we also examine the perceptions of enterprise managers about access to non-bank market equity. Although foreign ownership in the banking sector might have a small long-term influence on the development and performance of informal and formal equity markets, this effect should be less pronounced than the impact that foreign entry has on the banking sector.

In Table A.3 in the appendix, we report the average responses to questions related to access to finance provided by enterprise managers in the sample countries by enterprise type. The WBES separates firms by size in a standard way. Small enterprises have fewer than 50 employees, medium enterprises have 50 to 500 employees, and large enterprises have more than 500 employees. Across countries, small enterprises rated access to long-term loans as a greater constraint than did medium-sized or large enterprises, which is consistent with the literature on financial constraints reviewed by Schiantarelli (1996). However, medium-sized enterprises rated interest rates as a bigger problem than did small or large enterprises. In addition, foreign-owned enterprises considered all three issues to be less constraining than did private domestic enterprises. Finally, state-owned firms reported facing less severe constraints in accessing long-term financing than did private domestic firms. These results are consistent with the notions that state-owned enterprises have easy access to government financing and that foreign-owned enterprises in developing countries, which are often subsidiaries of firms from developed countries, have access to financing from their home countries.

Data on foreign bank participation across countries and banking sector structure, as well as information on bank regulation and supervision, comes from a survey of bank regulators conducted by the World Bank, mostly between late 1998 and early 2000, and is summarized in Barth et al. (2001). The survey contains questions on bank ownership, including the share of assets held by banks that are over 50 percent foreign-owned that we take as the measure of foreign bank participation in this study. The survey also provides information on concentration in the banking sector, which is another factor that might affect the availability or cost of financing. If banks in concentrated markets have market power or are able to collude, they may be able to raise interest rates and restrict access to long-term loans. However, market concentration might also improve the supply of credit if it allows banks to reap economies of scale, especially in retail banking and in servicing SMEs.

To disentangle the independent impact of foreign bank participation on access to credit from macroeconomic and institutional factors that influence both foreign bank presence and credit conditions, we control directly for such factors.<sup>7</sup> These data come primarily from the World Bank *World Development Indicators*. Our baseline regressions control for the share of money and quasi-money (M2) to GDP, the change in this variable, the level and the growth rate of GDP per

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<sup>6</sup> Hellman et al. (2000) assess whether firms in 20 transition economies that are included in the WBES appear to over- or under-estimate systematically several non-financial sector constraints. These authors find little evidence of any such bias.

<sup>7</sup> In addition, a larger set of variables are included in some specifications as discussed below.

capita, inflation, and a measure of political competitiveness. M2 as a percent of GDP is included as a proxy for overall financial development. In general, we expect perceptions about access to credit and interest rates to be more favorable in countries having better developed financial markets. Moreover, recent changes in financial sector development may have a disproportionate impact on perceptions. On the one hand, perceptions might improve considerably if access to credit improves or in response to deregulation even though actual improvements are smaller than the anticipated ones. On the other hand, perceptions about financing might lag significantly behind actual changes. Managers who have not applied for loans recently but have been rejected in previous years might remain pessimistic about access even if the credit market has improved subsequently. To control for these possibilities, we include the change in M2 to GDP between 1995 and 1998 in the regression.<sup>8</sup>

Per capita GDP is included to control for both market opportunities and for differences in institutional quality across countries. A large literature, e.g., Acemoglu et al. (2001), indicates that richer countries tend to protect property rights and the rule of law better. Since lending is easier if institutions are stronger and institutions may also affect the willingness of foreign banks to enter a market, leaving out this variable could lead to omitted variable bias. Inflation is included as a measure of macroeconomic stability. To the extent that it affects interest rates and a bank's willingness to lend, macroeconomic instability could affect perceptions about the cost of financing or access to finance. Finally, we control for per capita GDP growth because it can affect the banks' assessments of the investment opportunities of firms and also the banks' perceptions of the country's business climate.

In addition to controls for financial-sector and macroeconomic conditions, the regression includes a measure of the competitiveness of elections from Beck et al. (2001). Holding regular competitive elections may be a signal of institutional development but it might also affect the responses to the survey questions. In particular, enterprise managers might be more willing to complain to survey takers in countries that are freer politically.

Our sample consists of close to 3000 firms operating in 35 developing countries.<sup>9</sup> Since firms in developing countries are likely to depend relatively more on bank financing than those in developed countries, we investigate differential access to credit across developing countries having differing levels of foreign bank participation. From a practical perspective, WBES data are available for very few OECD countries so that including them would have little impact on the empirical results.<sup>10</sup>

We examine the issue of whether firms have better access to credit in countries having higher levels of foreign bank participation and whether this effect is common across firms of different sizes by estimating different variants of the following equation:

$$\begin{aligned} \text{Obstacle}_{ij} = & \beta_1 \text{Size}_{ij} + \beta_2 \text{Foreign Bank Participation}_j \\ & + \beta_3 \text{Size}_{ij} \text{Foreign Bank Participation}_j + \beta_4 X_{ij} + \beta_5 C_j + u_{ij}, \end{aligned} \quad (1)$$

<sup>8</sup> We use a relatively short period for the change in M2 due to problems with missing data because M2 is not available for many of the countries in our sample before 1995.

<sup>9</sup> The countries are: Argentina, Bangladesh, Belarus, Bolivia, Botswana, Brazil, Cambodia, Chile, Croatia, Czech Republic, Egypt, Estonia, Ghana, Guatemala, Honduras, India, Indonesia, Lithuania, Malawi, Malaysia, Mexico, Moldova, Nigeria, Panama, Peru, Philippines, Poland, Romania, Russia, Slovenia, South Africa, Thailand, Trinidad and Tobago, Venezuela, and Zambia.

<sup>10</sup> Although the WBES survey was conducted in nine OECD countries, only one or two OECD countries could have been included due to missing data for other variables.



where  $i$  is the firm identifier and  $j$  is the country identifier. *Obstacle* refers to the main variables of interest, namely the responses of enterprise managers to questions about whether high interest rates, access to long-term loans, and access to non-bank equity represents an impediment to enterprise operations and growth. All three variables are limited dependent variables that take four discrete values corresponding, in ascending order, to no obstacle, minor obstacle, moderate obstacle, and major obstacle. Since the responses to the questions about perceptions are rankings but are not actual count data, Eq. (1) is estimated as an ordered response model.

In Eq. (1), *Size* is a set of dummies indicating whether firm  $i$  in country  $j$  is small, i.e., it has less than 50 employees, medium-sized, i.e., it has between 50 and 500 employees, or large, i.e., it has more than 500 employees. *Foreign Bank Participation* controls for the share of assets held by foreign banks in country  $j$ . The interaction terms between *Size* and *Foreign Bank Participation* are included to test whether the presence of foreign banks impacts firms of all sizes equally or whether SMEs are affected disproportionately. The variables  $X_{ij}$  are various characteristics of enterprise  $i$  in country  $j$ , e.g., export behavior and ownership type, that affect managers' perceptions about obstacles to growth. The variables  $C_j$  are characteristics of country  $j$ , other than the degree of foreign bank participation, that affect managers' perceptions such as M2 to GDP, GDP per capita, GDP per capita growth, inflation, and bank concentration. Finally,  $u_{ij}$  is a disturbance term.

The model is estimated using standard maximum likelihood estimation. Positive coefficients indicate that increases in that variable make enterprise managers more likely to rate the obstacle as a greater problem, or in other words, it increases the likelihood that they rate the problem as major. We assume that the disturbance term, which includes differences in individual managers' perceptions about what constitutes a major, minor, or moderate problem, has a normal distribution. To avoid inflating artificially the  $t$ -statistics on the country-level variables, the results are presented using robust clustered standard errors, following Huber (1967) and Rogers (1993). Hence, we allow the error terms for individual firms to be correlated within countries. Also, we conduct separate estimations after aggregating the firm-level data to the country level to deal with the potential problem of over-inflated  $t$ -statistics.

One important concern with estimating Eq. (1) is the possibility that foreign bank presence may be correlated with the error terms. Given the firm-level structure of the data, direct reverse causality seems unlikely. In other words, the perceptions of the manager of an individual firm included in the survey are not likely to have a direct effect on the level of foreign bank participation observed in a country. However, country-level variables that are correlated with foreign bank participation and with the perceptions of all enterprises regarding access to finance within a country may be omitted. For example, if foreign banks are drawn to countries with favorable institutional environments and access to credit is easier for enterprises in these same countries, a failure to control adequately for the quality of the institutional environment could result in spurious correlation. Although our baseline estimations include several variables that should address this concern, we include a larger number of country-level variables to control better for the institutional environment and we instrument for foreign bank presence in additional estimations discussed below.

### 3. The empirical results

We begin by studying the direct impact of foreign participation in the banking sector, while controlling for macroeconomic conditions and other factors that might explain access to credit. In Table 1, columns (4) and (5), the results indicate that enterprise managers rate high interest

Table 1  
The effect of foreign bank participation on the access to credit of firms

Obstacle (high values indicate greater obstacle)	High interest rates (1)	Access to long-term loans (2)	Access to non-bank equity (3)	High interest rates (4)	Access to long-term loans (5)	Access to non-bank equity (6)
Number of observations	2913	2049	2182	2913	2049	2182
Regional and sector of operations dummies	Included	Included	Included	Included	Included	Included
<i>Foreign Bank Participation</i>						
Foreign bank assets (% of total banking system assets in 1999)				−0.0098*** (4.57)	−0.0108** (2.29)	−0.0028 (1.58)
<i>Enterprise Characteristics</i>						
Small enterprise (dummy variable)	0.0127 (0.16)	0.1441 (1.52)	0.1508** (2.10)	0.0584 (0.72)	0.1670* (1.92)	0.1659** (2.26)
Medium enterprise (dummy variable)	0.1031 (1.28)	−0.0059 (0.06)	0.1433* (1.66)	0.1159 (1.53)	−0.0102 (0.12)	0.1474* (1.70)
State ownership (% of enterprise equity that is state-owned)	−0.0027* (1.94)	−0.0034* (1.76)	−0.0010 (0.67)	−0.0023* (1.71)	−0.0034* (1.80)	−0.0009 (0.61)
Foreign enterprise (% of enterprise equity that is foreign-owned)	−0.0025*** (2.93)	−0.0050*** (5.00)	−0.0046*** (4.77)	−0.0023*** (2.58)	−0.0047*** (5.03)	−0.0046*** (4.56)
Enterprise exports (% of sales)	−0.0016 (1.53)	0.0022** (2.01)	0.0018** (2.33)	−0.0016 (1.56)	0.0019 (1.61)	0.0018** (2.34)
Export growth (1996 to 1998)	−0.0007 (1.25)	0.0006 (0.84)	0.0010 (1.55)	−0.0009* (1.67)	0.0006 (0.90)	0.0009 (1.44)
<i>Macroeconomic Variables</i>						
Concentration—5 largest banks (% of deposits held by 5 largest banks in 1999)	0.0004 (0.09)	0.0096** (2.03)	0.0030 (0.80)	0.0075** (2.06)	0.0165*** (3.33)	0.0057 (1.40)
Per capita GDP (natural log, 1998)	−0.4637*** (5.55)	−0.2535** (2.43)	−0.3065*** (3.47)	−0.5475*** (6.58)	−0.4184** (2.54)	−0.3319*** (3.44)
M2 (money and quasi-money) (% of GDP in 1998)	0.1839 (1.15)	−0.2148 (1.42)	−0.2085 (1.24)	0.0304 (0.21)	−0.2674* (1.84)	−0.2333 (1.38)
Change in M2 to GDP (between 1995 and 1998)	0.6165 (1.40)	1.2674* (1.91)	0.3807 (1.20)	0.4741 (1.49)	1.0213** (1.97)	0.3532 (1.17)
Inflation (1998)	0.0069*** (3.77)	0.0079*** (4.52)	−0.0061*** (4.71)	0.0035*** (2.82)	0.0029 (1.04)	−0.0070*** (4.87)
Per capita GDP growth (1998)	−0.0554*** (3.50)	−0.0918*** (5.60)	−0.0405*** (4.60)	−0.0381*** (3.10)	−0.0738*** (5.19)	−0.0368*** (4.18)
Index of electoral competitiveness (higher values indicate more democratic)	0.1025** (2.06)	0.4454*** (3.04)	−0.0016 (0.07)	0.1587*** (4.63)	0.3640*** (2.78)	0.0105 (0.40)

Notes. (1) *t*-statistics are shown in parentheses.

(2) The standard errors reported in columns (1) through (6) are Huber–White robust standard errors allowing error terms to be correlated within countries.

(3) The regressions include dummy variables indicating region and sector of operations as specified in Table A.1.

\* Statistical significance at the 10 level.

\*\* Idem, 5%.

\*\*\* Idem, 1%.



rates and access to long-term loans as lesser obstacles to their operations and growth in countries having higher foreign participation in the banking sector, i.e., countries in which foreign banks account for a greater share of banking sector assets.<sup>11</sup> In both cases, the coefficient on foreign bank participation is statistically significant at a 5 percent level or better. In contrast, foreign bank participation is not significantly correlated with enterprises' perceptions concerning access to non-bank equity, as shown in column (6). Since we expect foreign participation in the banking sector to have less impact on equity markets, this result provides some reassurance that the correlation between foreign participation and the perceptions of enterprise managers about the banking sector is not spurious. The statistical significance of the coefficients on most other variables is not sensitive to the inclusion of the variable for foreign bank participation, as can be observed by comparing columns (1) through (3) with columns (4) through (6).<sup>12</sup>

Regarding the effect of enterprise size measured by employment on financing, columns (4) and (5) reveal no clear pattern when comparing small and medium-sized enterprises with large enterprises. The coefficient for small enterprises is positive and significant in the regression for access to long-term loans, but only at a ten percent level. In all other cases, the coefficients for both small and medium-sized enterprises are insignificant regarding interest rates and access to long-term credit. By contrast, column (6) indicates that managers of small and medium-sized enterprises rate access to non-bank equity as a greater constraint than managers of large enterprises.

Although on average managers rate interest rates and access to long-term loans as lesser constraints in countries having higher foreign bank participation, the benefits may still go only to large enterprises. To test for this possibility, we include interaction terms between enterprise size and the extent of foreign bank participation in the regressions in columns (1) through (3) of Table 2. Although the coefficient estimates indicate that large enterprises, which is the omitted category, appear to benefit more than small enterprises from foreign participation in the banking sector, the differences are not statistically significant. The null hypothesis that foreign participation affects all enterprises equally cannot be rejected in either of the two regressions in columns (1) and (2).<sup>13</sup> In addition, we can reject the null hypothesis that the sums of the coefficients on foreign bank assets and the interaction terms are zero at a ten-percent level or better for SMEs in both regressions.<sup>14</sup> Hence, we conclude that foreign bank participation may improve the perceptions of SME managers that high interest rates and limited access to long-term loans affect adversely their possibility of obtaining external financing.

<sup>11</sup> Since the index increases as the perception of enterprise managers about the obstacle imposed by the various constraints rises, a negative coefficient implies that greater foreign participation is correlated with improved perceptions.

<sup>12</sup> If foreign bank participation is omitted, the main difference is that the coefficient on bank concentration becomes statistically insignificant in the regression for high interest rates, although it remains statistically significant in the regression for access to long-term loans. This result may be due to the fact that bank concentration and foreign bank participation are positively correlated, with a correlation coefficient of 0.42 at the country level. Hence, omitting foreign bank participation should result in omitted variable bias that might affect the coefficient on this variable.

<sup>13</sup> In the regression for high interest rates, the test statistic for the null that the small and medium firms' interaction terms are zero is chi-squared(2) equal to 3.04 with a *p*-value of 0.22. In the regression for access to long-term loans, the test statistic for the null that the small and medium firms' interaction terms are zero is chi-squared(2) equal to 1.33 with a *p*-value of 0.51.

<sup>14</sup> In the regression for high interest rates, the test statistic for the null that the sum of foreign bank participation plus the small(medium) firm interaction term is chi-squared(1) equal to 10.11 (19.37) with a *p*-value of 0.00 in each case. In the regression for access to long-term loans, the test statistic for the null that the sum of foreign bank participation plus the small(medium) firm interaction term is chi-squared(1) equal to 2.78 (7.19) with a *p*-value of 0.09 (0.01).

Table 2

The effect of foreign bank participation on access to credit with firm size interactions

Obstacle (high values indicate greater obstacle)	Ordered probit			Foreign banks assets considered endogenous		
	High interest rates	Access to long-term loans	Access to non-bank equity	High interest rates	Access to long-term loans	Access to non-bank equity
	(1)	(2)	(3)	(4)	(5)	(6)
Number of observations	2913	2049	2182	2299	1655	1767
Regional and sector of operations dummies	Included	Included	Included	Included	Included	Included
<i>Foreign Bank Participation</i>						
Foreign bank assets (% of total banking system assets in 1999)	-0.0105*** (4.05)	-0.0105** (1.98)	-0.0010 (0.45)	-0.0225*** (3.92)	-0.0541*** (2.64)	-0.0085 (1.05)
Foreign bank assets * Small enterprise (interaction term)	0.0023 (1.20)	0.0013 (0.34)	-0.0021 (0.77)	0.0126** (1.97)	-0.0058 (0.34)	-0.0072 (0.81)
Foreign bank assets * Medium enterprise (interaction term)	-0.0003 (0.10)	-0.0017 (0.44)	-0.0023 (1.11)	0.0111* (1.73)	-0.0208 (1.16)	-0.0009 (0.10)
<i>Enterprise Characteristics</i>						
Small enterprise (dummy variable)	-0.0017 (0.02)	0.1332 (1.11)	0.2092** (2.18)	-0.1511 (0.86)	0.3887 (0.96)	0.1211 (0.48)
Medium enterprise (dummy variable)	0.1203 (1.30)	0.0261 (0.21)	0.1930* (1.75)	-0.0469 (0.30)	0.4785 (1.19)	0.0861 (0.39)
State ownership (% of enterprise equity that is state-owned)	-0.0023* (1.72)	-0.0035* (1.87)	-0.0009 (0.61)	-0.0020* (1.65)	-0.0044*** (2.67)	-0.0007 (0.46)
Foreign enterprise (% of enterprise equity that is foreign-owned)	-0.0022** (2.47)	-0.0046*** (4.66)	-0.0046*** (4.53)	-0.0027** (2.46)	-0.0034* (1.91)	-0.0057*** (3.01)
Enterprise exports (% of sales)	-0.0015 (1.51)	0.0021 (1.63)	0.0018** (2.31)	-0.0023** (2.15)	-0.0007 (0.40)	-0.0007 (0.44)
Export growth (1996 to 1998)	-0.0009* (1.71)	0.0005 (0.81)	0.0009 (1.48)	-0.0008 (1.09)	0.0016 (1.38)	0.0003 (0.25)
<i>Macroeconomic Variables</i>						
Concentration—5 largest banks (% of total deposits held by 5 largest banks in 1999)	0.0072* (1.94)	0.0162*** (3.30)	0.0058 (1.41)	0.0078* (1.65)	0.0594*** (3.80)	0.0147* (1.83)
Per capita GDP (natural log, 1998)	-0.5480*** (6.54)	-0.4212** (2.55)	-0.3331*** (3.47)	-0.5645*** (4.27)	-1.6444*** (3.95)	-0.5853*** (3.07)
M2 (money and quasi-money) (% of GDP in 1998)	0.0419 (0.28)	-0.2533* (1.65)	-0.2308 (1.37)	-0.4800*** (3.16)	-0.7556*** (3.93)	-0.4628** (2.22)
Change in M2 to GDP (between 1995 and 1998)	0.4716 (1.47)	1.0197** (1.97)	0.3465 (1.14)	0.3941 (1.29)	0.2706 (0.66)	0.1480 (0.35)
Inflation (1998)	0.0037*** (2.86)	0.0032 (1.09)	-0.0071*** (4.82)	0.0010 (0.28)	-0.0198** (2.34)	-0.0086* (1.84)
Per capita GDP growth (1998)	-0.0393*** (3.20)	-0.0750*** (5.19)	-0.0365*** (4.09)	-0.0338*** (2.66)	-0.0028 (0.11)	-0.0235 (1.53)

(continued on next page)

Table 2 (continued)

Obstacle (high values indicate greater obstacle)	Ordered probit			Foreign banks assets considered endogenous		
	High interest rates	Access to long-term loans	Access to non-bank equity	High interest rates	Access to long-term loans	Access to non-bank equity
	(1)	(2)	(3)	(4)	(5)	(6)
Index of electoral competitiveness (higher values indicate more democratic)	0.1592*** (4.54)	0.3672*** (2.79)	0.0093 (0.35)	−0.3366 (1.09)	−0.2362 (0.65)	−0.0951 (0.26)

Notes. (1) *t*-statistics are shown in parentheses.

(2) The standard errors reported in columns (1) through (3) are Huber–White robust standard errors allowing error terms to be correlated within countries.

(3) The regressions include dummy variables indicating region and sector of operations as specified in Table A.1.

(4) In columns (4) through (6), the instruments are a dummy variable indicating whether the country has restrictions on foreign ownership of banks in place and the interaction terms between enterprise size dummies and restrictions on foreign ownership.

\* Statistical significance at the 10 level.

\*\* Idem, 5%.

\*\*\* Idem, 1%.

Approximately 19 percent of the firms in our sample are either majority owned by the government or by foreigners. State-owned enterprises are more likely to have access to government financing and foreign-owned enterprises may have access to loans from banks in their home countries. To control for this possibility, we include separate dummies for each type of firm. We find that the managers of both state-owned and foreign-owned enterprises rate interest rates and access to long-term loans as lesser constraints than do those of private domestic enterprises, which is the omitted category in Table 2. In addition to these ownership dummies, we include two variables related to export performance, namely, exports as percent of sales and export growth. These variables may be endogenous if, for example, access to bank loans or lower interest rates fosters faster export growth. However, the results are similar if these variables are omitted. Moreover, neither one appears to have a statistically significant impact on perceptions about financing.

Several variables are included to account for the macroeconomic and institutional factors that may affect access to external financing due to better economic or legal conditions. Overall, these variables have the expected signs and are statistically significant in at least one of the two regressions concerning perceptions about high interest rates and access to long-term loans. In particular, the coefficient on banking-sector concentration is statistically significant and positive in the regressions concerning access to long-term loans and high interest rates suggesting that concentration tends to make access to such financing more difficult and more expensive. In addition, managers of enterprises in countries with better-developed financial markets, as measured by the ratio of money and quasi-money to GDP, rated access to long-term loans as a lesser constraint than did those of firms in countries with less developed financial markets. Finally, the coefficient on the change in financial development is positive in both regressions and statistically significant in the regression for access to long-term loans. Since the regression already controls for the size of the financial sector in 1998, we interpret the coefficient on this variable as the effect of a change in financial sector size between 1995 and 1998, given that the financial sector is a certain size by 1998. Hence, the positive coefficient suggests that, after controlling for the current size of the financial system, enterprise managers tend to rate access as a greater problem in countries in which the financial sector recently had been expanding. This result implies that

managers base their perceptions on impressions built up over an extended period of time, i.e., beyond the 1995 to 1998 window for which that we control.<sup>15</sup>

As shown in columns (1) through (3) of Table 2, managers of enterprises in countries with higher per capita income report that high interest rates, access to long-term loans, and access to non-bank equity are lesser constraints than do those in countries with lower per capita income. In addition, enterprises managers in countries that are growing more rapidly also report that all three aspects of financing are lesser constraints than do those in slower growing economies. Consistent with the idea that macroeconomic instability increases the perceived cost of borrowing, we find that enterprise managers in countries having higher rates of inflation tend to report that high interest rates are a greater constraint on enterprise operations and growth but they do not perceive access to long-term loans to be affected by higher inflation. Finally, enterprise managers in countries having competitive elections perceive that high interest rates and access to long-term loans are more problematic than do those in countries without competitive elections. Rather than reflecting the influence of political freedom on banking-sector performance, this result may indicate that enterprise managers are more willing to complain to survey takers in countries that are freer politically. In addition to the baseline macroeconomic controls, we also include a set of regional dummies for Eastern Europe, the Former Soviet Union, the Caribbean, East Asia, Latin America, the Middle East and North Africa, South Asia, and Sub-Saharan Africa to proxy for regional differences that might not be completely captured by the other macroeconomic variables. Although the coefficients of these variables are not reported, they are jointly statistically significant at a 1-percent level or better in all regressions.

The results reported so far assume foreign bank participation to be exogenous. To address a possible endogeneity problem, in Table 2 columns (4) through (6) we take an instrumental variables approach using a dummy variable indicating whether the country places limits or restrictions on the degree of foreign ownership in the banking sector as an instrument for the level of foreign bank participation.<sup>16</sup> This variable, taken from the data set described in Barth et al. (2001), is an appropriate instrument in that it is correlated with the potentially endogenous variable.<sup>17</sup> Moreover, although legal and regulatory restrictions on foreign ownership are correlated with the actual level of foreign presence in the banking sector, this variable should not affect the desired level of participation of foreign banks, which in turn is likely to be driven by the quality of the economic or business environment. Thus, using legal and regulatory restrictions on foreign ownership as an instrument for the observed level of foreign bank participation should help to address concerns about endogeneity caused by the desire of foreign banks to enter countries with favorable business environments.

Controlling for endogeneity in this manner poses several practical problems. First, since the variable representing restrictions on foreign ownership is available for only a sub-sample of countries, sample size is reduced considerably. Second, the dependent variable is not continuous so that the estimation becomes more complicated than simply using standard two-stage least

<sup>15</sup> As a robustness check, we also included a variable representing the number of years since foreign banks first entered the country, calculated based upon BIS data. This variable was also intended to see if recent banking sector liberalization affected perceptions in the same way as recent financial sector development. The results are available upon request; they are very similar to those reported.

<sup>16</sup> To provide instruments for the interaction terms, we interact the dummy variables indicating restrictions on foreign ownership with the enterprise size dummies.

<sup>17</sup> After controlling for other macroeconomic variables, foreign bank participation is 28% lower in countries having restrictions on foreign ownership. This difference is statistically significant at a 10-percent level in a country-level regression with 21 observations.

squares estimation. To facilitate the estimation procedure, we collapse the dependent variable to a dummy variable indicating whether the enterprise manager perceived the obstacle as a major constraint on enterprise operations and growth. Because of this change, the magnitudes of the coefficients for the regressions treating foreign bank participation as endogenous and exogenous are not comparable. We estimate the model using a generalized least-squares procedure proposed by Amemiya (1978). Finally, we can no longer present clustered errors with this estimation procedure.<sup>18</sup>

For the most part, the results are qualitatively similar regardless of whether we treat foreign bank assets as endogenous or exogenous, as a comparison of columns (1) through (3) and (4) through (6) indicates. The coefficient on foreign bank assets remains statistically significant and negative for both obstacles to external financing, i.e., high interest rates and lack of access to long-term loans. Furthermore, foreign bank participation appears to relax financing constraints across firms of all sizes and not just for large firms because we are able to reject the null that small and medium firms do not benefit from foreign bank participation at a 10-percent significance level or better.

Our discussion on the impact of foreign bank participation has focused on statistical significance to this point. In Table 3, we report some quantitative estimates of the effect of changes in this variable on the perceptions of enterprise managers about the impact of interest rates and access to long-term loans. For each enterprise, the probabilities are calculated using the coefficients from columns (1) and (2) of Table 2 and setting all variables, except for the share of assets in foreign banks, at the actual level for that enterprise. Rather than using the actual value for the share of assets in foreign banks in the country in which the enterprise operates, the calculation sets assets in foreign banks at the level of the 20th percentile, the median level, and the level of the 80th percentile for non-OECD countries. Then, the probabilities are averaged over all enterprises of that type. As the table indicates, increasing foreign bank participation from that in the 20th percentile of countries in the sample, i.e., 5%, to that in the 80th percentile, i.e., 48%, decreases the probability that the average enterprise manager would perceive interest rates and access to long-term loans to be a major constraint by 16 and 17%, respectively. However, the estimates suggest that the impact is slightly less for small enterprises at 14 and 15%, respectively, than for large enterprises at 17 and 16%, respectively. The other entries in Table 3, which focus on the impact of other macroeconomic variables, can be interpreted in a similar manner.

The relatively small number of countries for which we have data on both constraints and foreign bank participation limits the number of country-level variables that we can include in the analysis. However, foreign bank presence may be correlated with the error terms due to the omission of country-level variables. The base estimates reported include a number of country-level variables to address this issue. To reduce further such concerns, in Table 4 we report additional regressions that include more detailed controls for the quality of the business and institutional environment. The additional country-level controls include dummy variables reflecting the type of legal origin in each country, indices of bank supervisory powers, subjective survey-based measures of the quality of the institutional environment, the observed share of foreign investment to GDP, and the share of the population living in urban areas. A large literature, initiated by La Porta et al. (1997, 1998) among others, identifies a link between legal origin and the protection of creditor and property rights that affects financial sector development and economic growth.

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<sup>18</sup> To reduce concerns about whether correlation between error terms of enterprises affects the size of the *t*-statistics, we also present results treating foreign bank participation as endogenous in the cross-country analysis in Table 5.

Table 3  
Quantifying the impact of foreign bank participation and other macroeconomic factors

Foreign bank assets set at:	20th percentile	Median	80th percentile	Change from 20th to 80th percentile
<i>Average Estimated Probability that Enterprise Will Rate High Interest Rates as a Major Problem</i>				
Foreign bank participation	66	61	50	–16
Small	65	61	51	–14
Medium	67	62	50	–18
Large	64	59	46	–17
Concentration in 5 largest banks	55	58	62	8
Per capita GDP	74	54	51	–23
M2	59	59	60	1
Change in M2 to GDP	56	59	61	5
Inflation	59	59	60	1
Per capita GDP growth	65	60	53	–12
Electoral competitiveness	59	62	62	3
<i>Average Estimated Probability that Enterprise Will Rate Access to Long-Term Loans as a Major Problem</i>				
Foreign bank participation	46	41	29	–17
Small	49	45	34	–15
Medium	43	37	25	–19
Large	45	40	29	–16
Concentration in 5 largest banks	29	36	46	16
Per capita GDP	54	37	35	–20
M2	41	39	34	–7
Change in M2 to GDP	30	35	41	11
Inflation	38	38	39	1
Per capita GDP growth	51	37	28	–23
Electoral competitiveness	35	41	41	6

*Notes.* To gauge the impact of foreign participation, the estimated probabilities are calculated for each enterprise using the coefficients from columns (1) and (2) of Table 2 and setting all variables except for the share of assets in foreign banks at the actual level for that enterprise. Instead of using the actual value for the share of assets in foreign banks in the country that the enterprise operates, the calculation sets assets in foreign banks at the level of the 20th percentile, the median level, and the level of the 80th percentile for non-OECD countries. Then the probabilities are averaged over all enterprises of that type. Similar calculations are done for the other explanatory variables listed in the first column.

This literature suggests that legal origin may affect both perceptions about access to credit and also the observed level of foreign bank participation across countries, perhaps due to its impact on creditor rights. Consequently, we include dummy variables representing legal origin to test for the robustness of our results.<sup>19</sup>

Foreign bank participation may be affected by the quality of bank regulation and supervision; for example, foreign banks may be more willing to enter countries having a strong record in solid bank supervision. However, these same countries might also have stronger and more competitive domestic banking sectors, which would lead to more favorable external financing for enterprises. To control for this possibility, a variable representing supervisory power is also added to the base regression.<sup>20</sup> We also include subjective measures of the quality of the business environment

<sup>19</sup> All countries in the sample are of British, French, or Socialist legal origin. However, the dummy variable for socialist legal origin is collinear with the regional dummy variables so that we drop it from the analysis.

<sup>20</sup> We also checked the robustness of the main results by substituting a measure of bank entry restrictions into this regression to replace the bank supervision variable. The results are similar to those reported.

Table 4

The effect of foreign bank participation on access to credit including additional controls

Obstacle (high values indicate greater obstacle)	High interest rates	Access to long-term loans	Access to non-bank equity
	(1)	(2)	(3)
Number of observations	2603	1838	2049
Regional and sector of operations dummies			
<i>Foreign Bank Participation</i>	Included	Included	Included
Foreign bank assets (% of total banking system assets in 1999)	−0.0140*** (4.04)	−0.0118** (1.96)	0.0007 (0.26)
Foreign bank assets * Small enterprise (interaction term)	0.0034* (1.75)	0.0007 (0.17)	−0.0030 (1.07)
Foreign bank assets * Medium enterprise (interaction term)	0.0017 (0.99)	−0.0011 (0.34)	−0.0023 (1.06)
<i>Additional Country Level Controls</i>			
Supervisory power (index—higher values mean greater power)	0.0068 (0.17)	−0.0411 (0.74)	−0.0465 (1.56)
Rule of law (index—higher values mean stronger rule of law)	0.1958 (1.32)	0.0388 (0.40)	0.0092 (0.11)
Urban population (percent of total)	−0.0023 (0.65)	−0.0025 (0.60)	−0.0161*** (7.13)
Foreign investment (% of GDP)	0.0246 (1.25)	0.0628 (1.60)	0.0210 (1.10)
Legal origin—British (dummy)	−0.3557** (2.09)	0.0596 (0.22)	−0.1377 (1.41)
<i>Enterprise Characteristics</i>			
Small enterprise (dummy variable)	−0.0388 (0.37)	0.2315* (1.94)	0.2372** (2.32)
Medium enterprise (dummy variable)	0.0579 (0.61)	0.0499 (0.40)	0.1951* (1.74)
State ownership (% of enterprise equity that is state-owned)	−0.0025* (1.89)	−0.0029 (1.50)	−0.0011 (0.67)
Foreign enterprise (% of enterprise equity that is foreign-owned)	−0.0027*** (2.69)	−0.0039*** (3.52)	−0.0039*** (3.92)
Enterprise exports (% of sales)	−0.0014 (1.38)	0.0023* (1.85)	0.0017** (2.15)
Export growth (1996 to 1998)	−0.0007 (1.35)	0.0008 (1.27)	0.0010 (1.49)
<i>Macroeconomic Variables</i>			
Concentration—5 largest banks (% of total deposits held by 5 largest banks in 1999)	0.0062** (2.08)	0.0098** (2.24)	0.0052* (1.92)
Per capita GDP (natural log, 1998)	−0.5313*** (4.35)	−0.3515** (2.53)	−0.1323 (1.31)
M2 (money and quasi-money) (% of GDP in 1998)	−0.5720*** (4.26)	−1.0550*** (5.90)	−0.3924*** (3.04)
Change in M2 to GDP (% of GDP, between 1995 and 1998)	0.8541*** (3.51)	1.8838*** (4.79)	0.4513 (1.49)
Inflation (1998)	0.0022 (1.24)	−0.0051 (1.31)	−0.0088*** (5.40)
Per capita GDP growth (1998)	−0.0321*** (3.17)	−0.0734*** (6.43)	−0.0415*** (4.33)

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Table 4 (continued)

Obstacle (high values indicate greater obstacle)	High interest rates	Access to long-term loans	Access to non-bank equity
	(1)	(2)	(3)
Index of electoral competitiveness (higher values indicate more democratic)	0.1973*** (4.49)	−0.0111 (0.07)	−0.0322 (1.05)

Notes. (1) The standard errors reported in columns (1) through (3) are Huber–White robust standard errors allowing error terms to be correlated within countries.

(2) The regressions include dummy variables indicating region and sector of operations as specified in Table A.1.

\* Statistical significance at the 10 level.

\*\* Idem, 5%.

\*\*\* Idem, 1%.

derived from surveys of experts, business people, and citizens within the relevant countries.<sup>21</sup> The main variable is a measure of the extent to which agents have confidence in, and abide by, legal rules, i.e., the extent of the rule of law.<sup>22</sup> As a fourth additional variable, we include the share of foreign direct investment (FDI) to GDP.<sup>23</sup> Such a variable could have an important influence if openness increases competitive pressure on interest rates.<sup>24</sup> As a final additional control variable, we add the share of the population living in urban areas to control for the degree of urbanization. If banks are located mainly in urban areas, access to credit might be better on average in countries that are more urbanized.

The results of adding these additional control variables are presented in Table 4. The coefficient on foreign bank participation is statistically significant at a 1-percent level in the regression for interest rates and at a 5-percent level for access to long-term loans. In addition, we continue to find that not only large firms but also SMEs benefit from foreign bank participation as we are able to reject the null hypothesis that SMEs do not benefit from this activity at a 5-percent level or better. These additional measures of the quality of the business environment should reduce further any concerns about bias due to the omission of country-level variables. However, correlation of the error terms across firms within a country could lead us to underestimate the size of the standard errors on coefficients, especially for country-level characteristics, and hence overestimate *t*-statistics, as discussed in Moulton (1986). Our main set of regressions addressed this issue by correcting standard errors to allow for clustering across firms within each country. As an additional robustness check, we report results in which we aggregate the data to the country level and rerun the regressions for enterprises of different sizes. Although this strategy is inefficient because of the small number of observations, the standard errors in the country-level regressions

<sup>21</sup> Similar measures are included in other studies of the impact of the business and institutional environment on economic outcomes, e.g., Knack and Keefer (1995) and Mauro (1995).

<sup>22</sup> In addition, we substituted other measures of institutional quality for the rule of law variable. In particular, we used a measure of government policy towards foreign investment in terms of risk to operations, taxation, repatriation of profits, and labor costs produced by ICRG and a measure of the control of corruption. We also used the first principal component of the three measures. The results for perceptions about high interest rates are similar if these other variables are substituted. The coefficient on foreign bank participation remains negative in the three additional regressions for access to long-term loans but its significance level decreases.

<sup>23</sup> This variable comes from the World Development Indicators database.

<sup>24</sup> The results are similar if we include a broader measure of international capital flows in the extended regression in place of the current measure of foreign investment.

will not suffer from the downward bias of non-robust standard errors that may be found in the enterprise-level regressions.

In the cross-country results, we treat foreign bank participation as both endogenous and exogenous. The former results are of particular interest because we were unable to present clustered errors in the enterprise-level analysis when foreign bank participation is treated as endogenous in [Table 2](#) columns (4) through (6). Given that we have only a few large enterprises in many countries in our sample, often fewer than ten, we pool medium and large enterprises together to calculate averages. The dependent variables are averaged over all enterprises of that type in each country and these scores are regressed on banking-sector and macroeconomic variables. Despite the small number of observations, the results shown in [Table 5](#) are similar to those found for enterprise-level analysis. The managers of both small enterprises and the group of medium-sized and large enterprises perceived high interest rates to be a lesser constraint in countries having higher foreign bank participation, regardless of whether foreign bank presence is treated as endogenous or exogenous. In addition, the managers of medium-sized and large enterprises also perceived access to long-term loans to be less constraining in these countries. The coefficients on the other variables follow the expected patterns.

#### **4. Conclusion**

Policymakers in developing countries are often concerned that, even if increased participation by foreign banks improves the efficiency, stability, and competition of the banking sector, such entry may have some harmful side effects. In particular, foreign bank participation may reduce access to credit, especially to some sectors of the economy such as small and medium-sized enterprises (SMEs). Given that SMEs account for a significant share of employment in many developing countries, reduced access to credit for these firms could have a considerable impact on the overall economy. In this paper, we combine responses from a survey of about 3000 enterprises in 35 developing and transition economies with data on the degree of foreign bank participation in those countries to investigate whether access to credit is easier for firms in countries having higher foreign bank participation. The empirical results indicate the concerns of policymakers are misplaced. Controlling directly for the potential endogeneity of foreign bank participation and also for a wide range of factors that might affect perceptions about financing, we find that the managers of enterprises in countries having higher levels of foreign bank presence perceive interest rates and access to long-term loans to be less constraining on enterprise operations and growth than do their counterparts in countries having less foreign participation. Furthermore, the benefits of foreign bank participation do not appear to accrue only to large enterprises. Although some of the results suggest that the presence of foreign banks benefits large enterprises more than it does SMEs, we find evidence suggesting that even SMEs benefit and we find no evidence that these enterprises are harmed by foreign bank participation.

These results may appear to be inconsistent with case-study findings that foreign banks lend smaller shares of their portfolios to SMEs than do similar domestic banks. We suggest two reasons for this discrepancy. First, cross-country evidence suggests that increased foreign bank participation is associated with lower interest margins and overhead costs. If improved efficiency results in an expansion in total lending, the amount of lending to SMEs may increase even if their share of lending decreases. Second, increased foreign bank participation may cause domestic banks to modify their behavior. In particular, foreign competition for larger clients may force existing domestic banks to seek new market niches, which could benefit small borrowers in the medium term.

Table 5  
Cross-country results on the effects of foreign bank participation on enterprises' access to credit

Estimation Method	Ordinary least squares				Two stage least squares			
	Small enterprises		Medium and large enterprises		Small enterprises		Medium and large enterprises	
Obstacle (high values indicate greater obstacle)	High interest rates	Access to long-term loans	High interest rates	Access to long-term loans	High interest rates	Access to long-term loans	High interest rates	Access to long-term loans
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Number of observations	36	28	36	28	25	21	25	21
Regional dummies	Included	Included	Included	Included	Included	Included	Included	Included
<i>Foreign Bank Participation</i>								
Foreign bank assets (% of total banking system assets in 1999)	-0.0063*** (3.10)	-0.0095 (1.45)	-0.0096*** (3.17)	-0.0142* (2.07)	-0.0118** (2.54)	0.0017 (0.07)	-0.0171** (2.47)	-0.0421* (2.10)
<i>Macroeconomic Variables</i>								
Concentration—5 largest banks (% of total banking system deposits in 1999)	0.0023 (0.64)	0.0113 (1.53)	0.0061 (1.09)	0.0136 (1.72)	0.0089 (1.63)	0.0072 (0.40)	0.0148* (2.21)	0.0407* (1.98)
Per capita GDP (natural log, 1998)	-0.2130** (2.30)	-0.1718 (0.77)	-0.2393 (1.73)	-0.2188 (0.65)	-0.3121* (1.92)	-0.2922 (1.21)	-0.4611** (2.60)	-0.8111 (1.45)
M2 (money and quasi-money) (% of GDP in 1998)	-0.0789 (0.50)	-0.3671 (1.44)	-0.0962 (0.37)	-0.3414 (1.01)	-0.4705* (2.20)	-0.5264 (1.46)	-0.4523 (1.65)	-0.7199 (1.27)
Change in M2 (% of GDP, between 1995 and 1998)	-0.0615 (0.23)	0.3679 (0.59)	0.0971 (0.24)	0.5099 (0.75)	0.2869 (0.82)	0.3166 (0.52)	0.1642 (0.36)	-0.0697 (0.07)
Inflation (1998)	0.0007 (0.43)	0.0020 (0.31)	0.0024 (0.82)	-0.0025 (0.33)	-0.0049 (1.29)	0.0068 (0.52)	-0.0052 (0.94)	-0.0138 (1.57)
GDP growth (1998)	-0.0311*** (3.06)	-0.0406* (1.87)	-0.0263 (1.46)	-0.0465* (2.00)	-0.0322** (2.62)	-0.0549* (2.26)	0.0010 (0.06)	-0.0167 (0.43)
Index of electoral competitiveness (higher values indicate more democratic)	0.0583** (2.15)	0.2144 (1.11)	0.0670 (1.57)	0.0145 (0.06)	-0.7073** (2.61)	-0.8818 (1.39)	0.1422 (0.28)	-0.0970 (0.15)

Notes. (1) *t*-statistics are shown in parentheses.

(2) The standard errors reported in columns (1) through (6) are Huber–White robust standard errors.

(3) The regressions include dummy variables indicating region, i.e., Eastern Europe; Former Soviet Union; Caribbean; East Asia; Latin America; Middle East and North Africa; South Asia; and Sub-Saharan Africa.

(4) The instrument in the two-stage least-squares regressions is a dummy variable indicating whether the country has restrictions on foreign ownership of banks in place.

\* Statistical significance at the 10 level.

\*\* Idem, 5%.

\*\*\* Idem, 1%.

A potential limitation of our study is that we have survey responses for only one year, i.e., 1999. Ideally, we would investigate the impact of changes in foreign bank participation on access to credit both across countries and over time. Hence, the optimal data set would have a time-series dimension. However, our database includes firms from 35 countries that have pursued different policies regarding the nature and timing of foreign bank participation. In that sense, our data are not a single snapshot of the foreign entry process but rather multiple pictures of countries following different approaches and at different stages of that process. These data limitations notwithstanding and recognizing that foreign bank entry in developing countries is a fairly recent and ongoing process, we conclude that foreign bank participation does not have negative consequences on access to credit for firms, in general, or for SMEs, in particular. To the contrary, our empirical results indicate that firms in developing countries having higher levels of foreign bank participation appear to face lower financial constraints.

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### Appendix A

Table A.1  
Descriptive statistics and sources for the main independent variables

Variable	Description	Source	Mean	Standard dev.
<i>Foreign Banks</i>				
Foreign bank assets	Percent of total banking system assets in 1999	Barth et al. (2001)	25.79	26.41
<i>Enterprise Characteristics</i>				
Small enterprise (fewer than 50 employees)	Dummy variable	WBES	0.385	0.487
Medium enterprise (between 50 and 500 employees)	Dummy variable	WBES	0.437	0.496
State ownership	Percentage of firm equity that is state-owned	WBES	8.761	25.713
Foreign ownership	Percentage of firm equity that is foreign-owned	WBES	11.88	28.91
Sales growth	1996 to 1998	WBES	14.63	59.26
Export growth	1996 to 1998	WBES	4.28	37.78
Enterprise exports	Percent of sales	WBES	17.09	30.01

(continued on next page)

Table A.1 (Continued)

Variable	Description	Source	Mean	Standard dev.
<i>Macroeconomic Factors</i>				
Per capita GDP	Natural log (1998)	WDI	8.53	0.74
M2 (quasi-money and money)	Percent of GDP (1998)	WDI	35.75	23.04
Change in M2	Percent of GDP (1995–1998)	WDI	0.20	0.33
Inflation	1998	WDI	18.04	20.71
Per capita GDP growth	1998	WDI	−0.31	5.18
Index of electoral competitiveness (1–7)	Average of indices for executive and legislature (1997)	Beck et al. (2001)	6.74	0.85
<i>Banking Sector</i>				
Concentration—5 largest banks	Percent of total banking system deposits held by the five largest banks in 1999	Barth et al. (2001)	69.19	14.96
<i>Regional Dummies</i>				
Caribbean	Dummy variable	WBES	0.014	0.119
Central and Eastern Europe	Dummy variable	WBES	0.286	0.452
Commonwealth of Independent States	Dummy variable	WBES	0.230	0.421
East Asia and China	Dummy variable	WBES	0.146	0.353
Latin America	Dummy variable	WBES	0.094	0.292
Middle East and North Africa	Dummy variable	WBES	0.062	0.241
South Asia	Dummy variable	WBES	0.042	0.200
Sub-Saharan Africa	Dummy variable	WBES	0.125	0.331
<i>Sector of Operations</i>				
Manufacturing	Dummy variable	WBES	0.403	0.491
Services	Dummy variable	WBES	0.376	0.484
Other	Dummy variable	WBES	0.033	0.178
Agriculture	Dummy variable	WBES	0.098	0.298
Construction	Dummy variable	WBES	0.091	0.287

Notes. (1) WBES indicates The World Business Environment Survey (WBES) ©2000 The World Bank Group.

(2) WDI refers to the World Development Indicators (World Bank, 2005).

(3) The averages are calculated for the sample from the regression shown in column (1) of Table 1.

Table A.2

Value added by sector vs. share of sales by sector: WBES sample

Regions	Manufacturing		Services		Agriculture	
	Value added (% of GDP)	% Total sales in WBES	Value added (% of GDP)	% Total sales in WBES	Value added (% of GDP)	% Total sales in WBES
Africa	10.5	36.4	46.0	25.9	22.6	1.7
East Asia and the Pacific	25.2	40.3	43.0	49.5	19.9	1.9
Europe and Central Asia	23.9	38.7	49.0	43.7	10.2	8.2
Latin America & Caribbean	15.0	35.0	54.5	51.1	9.4	4.2

Notes. (1) WBES refers to the World Business Environment Survey.

(2) Data on the value added by sector come from the World Development Indicators (World Bank, 2005).

Table A.3  
Average financial sector constraints by enterprise type

	All	State-owned	Foreign-owned	Small	Medium-sized	Large
<i>Number of observations</i>	2913	234	343	1121	1272	520
High interest rates	3.30	3.24	3.10 <sup>***</sup>	3.25	3.36 <sup>***</sup>	3.27
Access to long-term loans	2.61	2.44 <sup>**</sup>	2.25 <sup>***</sup>	2.70 <sup>*</sup>	2.60	2.61
Access to non-bank equity/partners	2.05	2.03	1.73 <sup>***</sup>	2.11	2.10	1.91

Notes. (1) The data come from the World Business Environment Survey (WBES) ©2000 The World Bank Group.

(2) The tests are based upon Wilcoxon rank-sum for differences in means between that group and all other firms.

(3) The averages are calculated using the observations included in regressions in column (1) of Table 1. The observations are for high interest rates because fewer observations are available for the other two measures. The averages are simple averages of ratings given by enterprise managers in answer to questions such as: "Using [a four-point scale], can you please tell in turn how problematic are these different financing issues for the operation and growth of your business?" The scores are as follows: 1 indicates no obstacle; 2 indicates a minor obstacle; 3 indicates a moderate obstacle; and 4 indicates a major obstacle.

(4) The labels state-owned and foreign-owned imply that at least 50 percent of the shares of the enterprises in each group are owned by that source.

(5) Small enterprises have fewer than 50 employees, medium-sized enterprises have between 50 and 500 employees, and large enterprises have over 500 employees.

\* Statistical significance at the 10 level.

\*\* Idem, 5%.

\*\*\* Idem, 1%.

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