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Is Small Beautiful?

Financial Structure, Size and Access to Finance

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Abstract

Combining two unique data sets, this paper explores the relationship between the relative importance of different financial institutions and their average size and firms' access to financial services. Specifically, the authors explore the relationship between the share in total financial assets and average asset size of banks, low-end financial institutions, and specialized lenders, on the one hand, and firms' access to and use of deposit and lending services, on the other hand. Two findings stand out. First, the dominance of banks in most developing and emerging markets is associated with lower use of financial services by firms of all sizes. Low-end financial institutions and specialized lenders seem particularly suited to ease access to finance in low-income countries. Second, there is no evidence that smaller institutions are better in providing access to finance. To the contrary, larger specialized lenders and larger banks might actually ease small firms' financing constraints, but only at low levels of gross domestic product per capita.

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Is Small Beautiful? Financial Structure, Size and Access to Finance

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1. Introduction

The structure of the financial system is again in the headlines. Moving beyond the questions of banks vs. markets, policy makers are looking for advice on which kind of financial institutions and which market structures serve best in pushing out the access frontier. Which institutions are best suited to expand financial services to low-end customers, including small and medium-sized enterprises? Are these banks which can exploit scale and technological capacity, or specialized lenders, such as leasing or factoring companies which can offer expertise in tailored lending products, or low-end financial institutions which are closest to customers? Similarly, are small or large financial institutions better in serving low-end customers? On the one hand, large institutions can exploit scale economies and better diversify risks; on the other hand, small institutions might have better local market knowledge and flatter hierarchies, both of which facilitate serving low-end customers.

Combining two unique data sets, this paper explores the relationship between the importance of different financial institutions, including low-end financial institutions, specialized lenders and banks, as well as the average size of these institutions and firms' access to financial services, including account and lending services. In addition, we explore the potential heterogeneity of these relationships both across countries at different levels of economic development, across industries with different needs for external finance and across firms of different sizes, thus taking into account the different needs and capacities of countries in supporting different financial structure, different constraints of firms of different sizes and different needs for external finance across different industries.

The relationship between financial structure, the average size of different financial institutions and access to finance is a critical question for policy makers. Access to financial services, especially by small and medium-sized enterprises, has become critical in many developing countries. Small and medium-sized enterprises make up a large part of the emerging private sector in most countries, but are also more constrained in their access to financial services than large firms (Ayyagari, Beck and Demirguc-Kunt, 2007; Beck, Demirguc-Kunt and Maksimovic, 2005). While micro-finance has helped alleviate access to finance by the poor by adapting specific lending techniques such as group lending, it seems less conducive to easing financing constraints of more formal and larger enterprises. More recently, specific financing

forms such as leasing or factoring have been promoted as conducive to easing financing constraints of SMEs, as they are based on the underlying assets and cash flows rather than borrowers' financial history (Berger and Udell, 2006). On the other hand, banks, particularly large banks, have also shown increased interest in SME financing, exploiting scale economies and technology (Beck, Demirguc-Kunt and Martinez Peria, 2011a). The question on the size of financial institutions – often intertwined with the ownership question – is directly related to entry barriers and minimum capital requirements imposed by policy makers in developing countries to foster a specific market structure (Beck et al., 2011b; Beck et al., 2011c and World Bank, 2011).

This paper uses a unique and confidential dataset to shed light on the relationship between the structure of the financial system and the size of its institutions, on the one hand, and access to financial services by enterprises, on the other hand. Specifically, using data from the World Bank and IMF's Financial Sector Assessment Program (FSAP), we are able to compute both the relative importance of different segments of the financial system that cater to low-end customers, such as small and medium-size enterprises, as well as the average size of institutions within this segment. We then match these country-level indicators to firm-level indicators from the World Bank's Enterprise Surveys on financing obstacles and actual use of deposit and loan services by enterprises in developing and emerging countries. In addition, we examine the relationship between financial structure and firms' access to finance across countries at different levels of GDP per capita, across firms of different sizes, and across industries with different needs of external finance, to thus take explicitly into account the potential cross-county, cross-firm and cross-industry heterogeneity in the effect of financial structure on firms' access to finance.

Our research speaks to several literatures. First, the financial structure literature has discussed the implications of bank- vs. market-based financial systems for firm, industry and GDP per capita growth[2], but has not considered the importance of other segments of the financial system, including specialized lenders such as leasing, finance or factoring companies or low-end financial institutions such as cooperatives, credit unions and microfinance institutions. This paper is the first, to our knowledge, that explores the relationship between the importance of

[2] For the relationship between the degree to which a country is bank- or market-based and firm, industry and GDP per capita growth, see Demirguc-Kunt and Maksimovic (2002), Beck and Levine (2002) and Levine (2002), respectively.

these two segments focused on SME lending, for access to finance by enterprises. Theory and literature offer different predictions on the effect of importance of these segments on firms' access to finance. On the one hand, specialized lenders can exploit their expertise in specific lending products such as leasing and factoring to improve firms' access to external finance. Similarly, low-end financial institutions might have an advantage in working with smaller and less formal enterprises than banks, as they are closer to the client and might have more adequate organizational structures, such as flat hierarchies, and lending techniques, such as group lending.[3] On the other hand, banks have a larger scale and technical capacity to cater to a large number of low-end clients (De la Torre, Martinez Peria and Schmukler, 2010). They might be therefore in a better position to invest in technology and risk management systems than other financial institutions.

Second, our research speaks to a large literature on the effects of the size of financial institutions on firms' access to financial services (Berger, Hasan and Klapper, 2004). This literature has focused mostly on the size of banks, but has not come to an unambiguous result. On the one hand, smaller banks might be closer to the client and can use relationship lending to effectively serve small and medium-sized enterprises. On the other hand, larger banks might have an advantage in using transaction-based lending techniques such as leasing or factoring. While this literature has focused on banks, we expand it to consider the relationship between the average size of low-end financial institutions, specialized lenders and access to finance by enterprises. Similar arguments as for banks can be made for non-bank institutions. On the one hand, smaller institutions might be closer to the client; on the other hand, larger institutions might serve these clients more effectively by exploiting their scale.

Our results suggest that the dominance by banks in most financial systems of developing markets is associated with lower use of financial services by firms of all sizes. To the contrary, a larger share of low-end financial institutions and specialized lenders is associated with higher use of financial services in low-income, but not necessarily in middle-income countries. Large financial institutions, on the other hand, are not necessarily associated with lower use of financial services. To the contrary, larger specialized lenders and larger banks might actually ease small firms' financing constraints, while large low-end financial institutions seem to impede access to

[3] See Armendariz and Morduch (2005) for a survey.

financial institutions only for medium-sized and large enterprises. And larger low-end financial institutions might actually be better in easing access to finance in low-income countries.

Before proceeding, an important caveat is due. Our results derive from cross-sectional variation across countries and although we control for an array of firm and country characteristics, we can therefore not completely exclude the possibility of omitted variable bias. We mitigate this concern, however, by testing for the differential relationship between financial structure and average size of financial institutions, on the one hand, and access to external finance by firms in countries at different levels of GDP per capita, firms of different sizes and firms in industries with different financing needs. It is important to stress, however, that we do not interpret our findings as causal relationships.

The remainder of the paper is structured as follows. The next section discusses the data sources and variables we use. Section 3 presents methodology and section 4 our results. Section 5 concludes.

2. Data

We use data from two main sources to construct our sample. We use the Financial Sector Assessment Program (FSAP) reports, which are jointly prepared by the IMF and World Bank[4], to construct our measures of the importance and average size of different segments of the financial system and firm-level data from the World Bank's Enterprise Surveys to measure firms' access to and use of financial services. Since there is limited overlap between the two datasets, we end up with a total of 54 sample countries and up to 50 countries per regressions. All our countries are developing or emerging countries, with 19 countries in Europe and Central Asia, 10 countries in Latin America, 23 countries in Sub-Saharan Africa, and 2 countries in East Asia and Pacific. The level of economic development, as measured by GDP per capita (in constant 2000 USD), varies significantly across our sample countries, ranging from 134 USD in Malawi to 7,229 USD in Uruguay.

Established in 1999, the FSAP is a comprehensive and in-depth analysis of a country's financial sector. Historically, full FSAP updates take place about every four to seven years in any

[4] To be exact, FSAP is a joint undertaking of the World Bank and the IMF in developing and emerging market countries and of the IMF alone in advanced economies.

given country. Among other things, the reports generally include a table that reports on the country's financial structure broken down into institutional categories such as banks or pension funds. The aggregation level of institutional categories varies across reports. There is no standardized categorization of institutions; while one report may have "banks" as one institutional category, another report may have "private banks" and "state-owned banks" as institutional categories instead, which combined would be equivalent to the category "banks" in the former report. The table typically provides the following information for each institutional category: number of institutions, assets in (mostly) local currency units, assets as a percentage of total financial sector assets and assets as percentage of GDP. Note that not all reports report data in all four categories and while reports generally include a couple of years of historic data they may record data in one category for one year but not the next and often data just for one or two years are reported.[5] Using this financial structure information, we build a database from all financial structure information reported in table form in FSAP reports from the beginning of the program until mid 2009.

For some countries, more than one FSAP report is available. Unfortunately, the reporting structure is almost never the same as in the previous report(s) for the same country and cross-checks of the data revealed that the reported information is not even necessarily consistent across reports for the same country. We therefore assume that the most recent report contains the most accurate information and only keep observations from the most recent report available. Our final database consists of an unbalanced panel for 89 countries over the years 1995-2008. We convert any variables in local currency units into 2000 constant US dollars using exchange rates from the IMF's International Financial Statistics.

While we have data available for a broader array of institutions, we focus on three types. First, low-end financial institutions which include credit unions, building societies, community banks, cooperatives, microfinance institutions, cash lenders, mutual banks, postal banks, rural banks, savings and loans institutions, and thrift banks. This category is supposed to capture non-bank institutions that serve the low-end of the market, including small and medium-sized enterprises. Second, specialized non-bank financial institutions which comprise – among others – finance companies, factoring companies, banks specialized in housing, merchant banks, and

[5] See Appendix Table 1 below for data availability across countries and categories.

special credit institutions. This category is supposed to capture non-bank financial institutions that specialize in certain lending activities that might be more attractive for small and medium-sized enterprises, such as leasing and factoring. The final category is deposit-taking or commercial banks.

We use the FSAP data to construct two indicators. The **asset share** is calculated as each type's assets relative to the sum of low-end financial institutions, specialized non-bank financial institutions and commercial bank financial assets gauges the importance of each segment within the financial system by dividing the total assets of each category by total financial assets of these three segments in the country. The three asset shares add up to 100.[6] The **average size** is computed by dividing the total amount of assets per category by the number of institutions per category.

Both indicators vary widely across our sample countries. The share of banks varies from almost 99% in Ukraine to 61% in Colombia. The share of specialized lenders varies from 38% in Colombia to less than one percent in Senegal, Ukraine, Bolivia, and Madagascar. The share of low-end financial institutions varies from 21% in Burkina Faso to less than one-half percent in Chile and Latvia. The average size of banks in USD ranges from 3.5 billion in Turkey to 10 million in Guinea-Bissau. The average size of specialized lenders varies from 350 million USD in Chile to less than one million in Mongolia. The average size of low-end financial institutions varies from 800 million in Turkey to less than one million in Mongolia.

We combine the financial structure data with data from the World Bank/IFC Enterprise Surveys. The Enterprise Surveys collect firm level-data from key manufacturing and service sectors in over 120 countries since 2002.[7] Countries are surveyed every three to four years but not simultaneously. To ensure data consistency and inter-country comparability we only use data from countries in the standardized dataset 2006-2010 which contains data for 100 countries.[8] The number of firms surveyed in each country depends on the size of the economy with more firms

[6] There are other categories such as insurance companies or pension funds that we do not include in our analysis.
[7] Only private sector firms are surveyed; fully state-owned firms are excluded.
[8] Due to changes in the questionnaire data from the earlier years cannot be easily compared to data collected in the more recent years. In the six instances where multiple years of data are available for a given country, we keep only the most recent year of data.

being surveyed in larger economies and is chosen to make each country's sample representative of the non-agricultural private economy.

From the Enterprise Survey we construct the following four access to and use of financial services indicators: (i) *access to finance* is an indicator variable ranging from 1-5 with 1 indicating access to finance is "no obstacle" to the operation of firm to 5 indicating a "very severe obstacle"; (ii) *account* is a dummy variable equal to one if the firm has an account at the time of the survey and zero otherwise; (iii) *overdraft* is a dummy variable equal to one if the firm has an overdraft facility at the time of the survey and zero otherwise; (iv) *loan* is a dummy variable equal to one if the firm has a line of credit or loan from a financial institution at the time of survey and zero otherwise.

We match the two samples by building a cross-sectional dataset that matches the firm characteristics with the average of the available data from the FSAP reports. Maximum country overlap between the two data sources is 54 countries with over 25,000 firm level observations. Appendix Table A1 lists the countries in our sample, a breakdown of the firm distribution by country, and by-country summary statistics of the FSAP variables we will use in the subsequent analysis. Table 1 provides descriptive statistics and Table 2 correlations on the country-level.

The descriptive statistics in Table 1 show that over 90% of firms in our sample have an account. This percentage, however, varies significantly across countries. While in the Slovak Republic, 20.8% of firms have an account, 99.8% do so in Croatia. Almost 50% of firms have an overdraft facility and 45% have a loan. Behind this average, however, are again large cross-country variations. While only 1.3% of firms have an overdraft facility and 3.1% a loan in Guinea-Bissau, 87.5% and 74.5%, respectively, do so in Chile.

We also use information from the Enterprise Surveys to control for firm-level characteristics that might affects a firm's ease of access to financial products. In particular, we construct dummy variables for firm size (small, up to 19 employees; medium, 20-99 employees; large, 100 or more employees), being a subsidiary, and being publicly listed, and control for the percentage of the firm owned by private foreign owners and the percentage of a firm owned by the state, as well as the firm's age. The descriptive statistics in Table 1 show that 47.4% of all firms are small, 34.3% are medium-sized and 18.3% large. 13% are subsidiaries of other firms,

and 6.2% are publicly listed. The foreign ownership share is, on average, 10.7%, while the average government ownership is 0.7%. On average, firms are 17.5 years old.

Finally, we control for industry-level variation in the need for external finance. Specifically, we use the Rajan and Zingales (1998) indicator on the fraction of investment that cannot be financed through internal cash flows, computed over the 1980s for listed firms in the U.S. The underlying assumption in Rajan and Zingales and our work is that for technological reasons some industries depend more heavily on external finance than others and that this industry variation does not differ across countries. We use the self-reported industry categorization by firms in the Enterprise Surveys to match with the Rajan and Zingales classification. Since this variable is only available for manufacturing industries, we lose about a half of our sample. The average fraction of external need for finance across our sample is 0.29, varying from -0.45 (tobacco) to 1.14 (plastic products).

The correlations in Table 2 suggest that there is no systematic relationship between the country-level metrics of financial segment size. Not surprisingly, however, the average asset size of some of the institutional categories is positively and significantly correlated. The log of GDP per capita is, as expected, positively and significantly correlated with the mean asset size of all institutional categories except low-end NBFIs. There are no significant correlations between the asset shares of the different segments of the financial system and access to finance. There are, however, significant correlations between the average size of financial institutions and access to finance. Countries with larger banks have a higher share of firms with loans and overdraft and firms that complain less about financing obstacles. Countries with larger specialized lenders also have more firms with overdraft facilities or loans. Many of the firm characteristics are also correlated with each other. Countries with more small firms, for instance, have fewer listed and younger firms. Our access indicators are also significantly correlated with our industry indicator of external dependence, with firms in industries more reliant on external finance reporting lower financing obstacles and a higher probability of having an account, a loan or an overdraft.

3. Methodology

To estimate the effect of the mean asset size and assets as share of total assets of different types of financial institutions on obstacles to and the use of financial services we use the following empirical baseline specification:

$$\begin{aligned}\text{Financial Services}_{ij} = \alpha &+ \beta_1 \text{ Medium Firm}_{ij} + \beta_2 \text{ Large Firm}_{ij} + \beta_3 \text{ Subsidiary}_{ij} \\ &+ \beta_4 \text{ Public Firm}_{ij} + \beta_5 \text{ Foreign-Owned}_{ij} + \beta_6 \text{ State-Owned}_{ij} \\ &+ \beta_7 \text{ Firm Age}_{ij} + \beta_8 \text{ Firm Sector}_{ij} + \beta_9 \text{ GDP per capita}_{j} \\ &+ \beta_{10} \text{ Financial Sector Indicator}_{j} + e_{ij}\end{aligned}$$

where *Financal Services* indicates one of our four dependent variables measuring access to and use of financial services of firm *i* in country *j*. Because our dependent variables have different data structures, we use different and data-structure appropriate econometric models to estimate the effect on each. We use ordered probit when the dependent variable is *access to finance* and probit when it is *account, overdraft,* or *loan*. *Financial Sector Indicator* is our independent variable of interest that varies across regressions: average size or assets as share of financial sector assets per the institutional categories low-end financial institutions, specialized lenders, and banks. Standard errors are clustered at the country level in all specifications so that we allow for correlation of error terms across firms within a country but not across countries. It is important to note that our regressions imply empirical associations, but not necessarily causality.

In a second step, we want to assess whether the relationship between financial structure and access to financial services varies across countries with different levels of economic development, across firms of different sizes and across industries with different needs for external finance. We therefore interact, in separate regressions, the *Financial Sector Indicator* with GDP per capita, with dummy variables indicating that the firm is small, medium or large size, or with the Rajan and Zingales (1998) indicator of external dependence. In the case of interactions with size dummies, we do not include the financial service indicator by itself, while in the case of interaction regressions with external dependence we include both external dependence and its interaction with the financial service indicator. Since Ai and Norton (2003)

have shown that it might be difficult to interpret the marginal effects of interaction terms in non-linear models, we run these regressions with OLS.

4. Results

Tables 3 and 5 report our main results using Asset Share and Average Size as financial sector indicators, respectively, while Tables 4 and 6 report the regressions with interaction terms. In the case of Tables 4 and 6, Panel A reports the coefficient estimates, while Panel B reports the partial effects at the 25th, 50th and 75th percentiles of GDP per capita and the external dependence ratio. In the interest of space and readability, we report regression coefficients of all variables in Table 3, while in all subsequent tables report just the coefficients of interest, namely the coefficients of the *Financial Sector Indicator* and interaction terms. Due to data limitations on the average size variables the country sample and the number of firms do not stay constant across specifications in Tables 5 and 6.[9]

4.1 Asset Share across Different Segments

The results in Table 3 suggest that there is a marginally positive relationship between the importance of low-end financial institutions or specialized lenders and firms' access to financial services. Specifically, firms in countries with a larger share of low-end financial institutions are more likely to have an account or a loan and firms in countries with a higher share of specialized lenders are more likely to have an overdraft, though these relationships are significant only at the 10% level. We also find that a larger share of banks in total financial assets is associated with lower use of financial services by enterprises. The share of bank assets in total financial assets enters negatively and significantly at the 10% level in the regression of overdraft and negatively and significantly at the 5% level in the regression of loans. None of the financial sector shares is significantly associated with financing obstacles.

The coefficient estimates on our control variables are largely as expected and hold across the three categories of financial institutions. Firms in countries with higher GDP per capita as well as medium and large firms are more likely to have an account, overdraft facility, and loan and report fewer obstacles to access to finance. Firms that are subsidiaries are more likely to

[9] The dependent variables in tables 3 and 5 allow for a balanced panel across countries by construction.

have an account and an overdraft facility, while there appears to be no significant relationship between a firm being publicly listed and its access to and use of financial services. As the percentage of foreign ownership in a firm increases firms are less likely to encounter obstacles to access to finance and are more likely to have an account. However, they are also less likely to have to have a loan. Firms are also less likely to have a loan as the percentage of state ownership in a firm increases suggesting that in both cases alternative financing options might be available to such firms. Finally, the older firms are the more likely they are to have an account and overdraft facility.

The results of Table 4 show that the relationship between the importance of low-end financial institutions, specialized lenders and access to finance varies significantly across countries. While the asset share of low-end financial institutions enters positively and significantly in the regressions of financing obstacles, account and overdraft, its interaction with GDP per capita enters negatively and significantly. When we calculate the partial effects (Panel B) for the share of low-end financial institutions at the 25^{th}, 50^{th}, and 75^{th} percentile of GDP per capita in our sample we find that there is no statistically significant relation between the share of low-end financial institutions and financing obstacles for countries at the 25^{th} percentile of GDP per capita (equivalent to the GDP per capita of Mongolia). However, there is a significantly negative relation at the 50^{th} and 75^{th} percentile of GDP per capita (equivalent to the GDP per capita of Guatemala and Brazil, respectively). When we look at the outcome of having an account or a loan only the partial effect for countries at the 25^{th} percentile of GDP per capita is significant and positive, while the relation between the share of low-end financial institutions and the share of firms with overdraft is not significant at any level of GDP per capita. Firms in countries with a higher share of low-end financial institutions thus report lower financing obstacles only in lower-middle and middle-income countries, while they benefit – in terms of better access to financial services – only in low-income countries.

Neither the level of the share of specialized financial institutions nor its interaction with GDP per capita enters significantly. The partial effects calculations in Panel B suggest that the importance of specialized financial institutions has no statistically significant impact except in the case of overdrafts for countries at the 50^{th} percentile of GDP per capita where the impact is significant and positive. Finally, the relationship between banks' importance and firms' use of

overdrafts and loans is negative and significant only in countries at the 25th and 50th percentile of GDP per capita. The negative effect of bank dominance is thus concentrated in low and lower-middle income countries.

When interacting the relative importance of different segments of the financial system with the external dependence across different sectors, the interaction term suggests that a more prominent role of low-end financial institutions reduces financing obstacles for industries that rely more on external finance. The percentile calculations, however, indicate that combined with the level effect there is no significant relationship. None of the other interaction terms of asset share with external dependence, enters significantly at the 5% level, suggesting that the relationship between the relative size of different segments of the financial system and access to finance by enterprises does not vary across sectors with different needs for external finance.

When interacting the financial sector indicators with firm size dummies, we cannot find any significant relationship between the relative importance of low-end financial institutions or specialized lenders and access to finance and no differential effect across firms of different sizes, with one exception. Specifically, the likelihood of having an account increases with a higher share of low-end financial institutions for medium and large firms, while none of the other firm-size interactions enters significantly at the 5% level. In the case of specialized lenders, the likelihood of having an overdraft is significant only for small and medium, but not for large firms. Finally, we find that a more prominent role for banks is associated with a lower likelihood of obtaining an overdraft facility or loan for small and medium-sized firms, while the relationship is not significant at the 5% level for large firms.

4.2 Average Size of Financial Institutions

The Table 5 regressions suggest that smaller low-end financial institutions are associated with higher financing obstacles as reported by firms, but also a higher probability of having an account and a loan. On the other hand, having larger specialized lenders is associated with a higher probability of having an overdraft facility and loan. The average size of banks, on the other hand, is not associated with access to finance.

The coefficient estimates in the regression reported in Table 6 show a non-linear relationship between the average size of different financial institutions and access to finance across countries at different levels of GDP per capita, across firms of different sizes, and across different external financing needs. Larger low-end financial institutions are associated with lower financing obstacles and a higher likelihood of use of an overdraft facility across all countries although the partial effects diminish as the GDP per capita increases. While the coefficient on average size enters negatively (positively) and significantly, its interaction enters positively (negatively) and significantly in the regressions of financing obstacles (loans and overdrafts). Assessing the partial effects, we find that the average size of low-end institutions has a negative (positive) relationship with financing obstacles (likelihood of having an overdraft) at all levels of GDP per capita, but decreasingly so as we move up the ladder of economic development. The negative effect of average size is significant only for low and lower-middle-income countries in the case of loans. We do not find any significant relationship between the average size of low-end institutions and the likelihood of having an account at any level of GPD per capita. The negative relationship of the average size of low-end financial institutions with financing obstacles and the use of accounts holds across firms of all sizes, though it is strongest for small enterprises. The negative relationship of the size of low-end financial institutions with the use of loans only holds for medium-sized and large enterprises. The interaction regressions with the external dependence variable suggest that the relationship between larger low-end financial institutions and the likelihood of receiving a loan is stronger in industries with a higher need for external financing. This relationship is significant at the 1% level for all three percentile calculations.

A larger average size of specialized lenders continues to be positively associated with the likelihood of having an overdraft or loan across all countries, while there is no significant relation with financing obstacles and the use of accounts. This positive relationship holds for firms of all sizes and is strongest for small firms, with the exception of being insignificant for large firms in the loan column. The coefficient of the interaction term with the external dependence ratio is never significant suggesting there is no differential effect of the average size of specialized lenders across industries with different external financing needs.

Larger banks are associated with lower financing obstacles in poorer countries (at the 25th percentile level of GDP per capita), while the relationship turns insignificant in middle-income countries. Similarly, we find a positive relation of average size of banks with the likelihood of having an account at the 25th and 50th percentiles of GDP per capita, but not at the 75th percentile. We also find evidence that larger banks are associated with a higher likelihood of overdrafts and loans for small firms, though the relationship with loans is significant only at the 10% level. The interaction with external finance is significant at the 5% level for likelihood of having an account and an overdraft facility. However, when combined with the level effect we see from the results in Table 6 Panel B that the overall effect of banks is insignificant across the different percentiles of the external dependence ratio.

4.3 Robustness Tests

In unreported robustness tests, we gauge the sensitivity of the interaction regressions of Tables 4 and 6 to the estimation technique. Specifically, we find that our main findings hold when using non-linear estimation techniques as in Tables 3 and 5. We also re-ran our financing obstacles regressions including dummy variables indicating whether a firm has an account, a loan or an overdraft. The loan dummy enters positively and significantly, consistent with findings by Beck, Demirguc-Kunt and Maksimovic (2008), but the results do not change.

5. Conclusions

Using unique data on financial structure and the average size of different financial institutions, this paper explores the implications of the relative importance and average size of institutions that cater specifically to SMEs compared to the importance of banks and their average size.

Our results indicate that the dominance of banks in the financial systems of most developing countries is rather detrimental for firms' access to financial services. We do not find any evidence that smaller institutions – be they banks, specialized lenders or low-end financial institutions are better in providing access to finance for enterprises. Critically, however, we find that "one size does not fit all." Low-end financial institutions and specialized lenders seem especially appropriate to ease access to finance in low-income countries. Similarly, larger low-end financial institutions and banks seem to ease access to finance only at low levels of GDP per

capita. We also find variation across firm sizes, not so much in the importance of different segments of the financial system, but rather in the relationship with the average size. We do not find that larger low-end financial institutions hurt small firms' access to credit. Even more important, larger specialized lenders and banks are actually associated with a greater likelihood of loan and overdraft use by small firms. We also find that some of our effects are stronger for industries more reliant on external finance.

Our results, while tentative, send important policy messages. First, the dominance of banks in most financial systems across the developing world is indeed associated with the limited access to financial services by enterprises. This calls for diversification and more competition within the financial system, including from low-end financial institutions and specialized lenders. Second, smaller financial institutions are not necessarily better equipped to improve access to financial services by enterprises. While certainly not a call for consolidation, this again implies a diversified financial system with institutions of different sizes.

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Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
A. Firm-level Characteristics					
Access to finance (1 no obstacle - 5 very severe obstacle)	24228	2.72173	1.42283	1	5
Dummy==1 if firm has account	24531	0.90445	0.29398	0	1
Dummy==1 if firm has overdraft facility	23952	0.48910	0.49989	0	1
Dummy==1 if firm has loan	24336	0.44740	0.49724	0	1
Dummy==1 if firm size small	24659	0.47423	0.49935	0	1
Dummy==1 if firm size medium	24659	0.34263	0.47460	0	1
Dummy==1 if firm size large	24659	0.18314	0.38679	0	1
Dummy==1 if subsidiary	24659	0.13046	0.33682	0	1
Dummy==1 if publicly listed	24659	0.05746	0.23273	0	1
% of firm owned by foreign investor	24659	10.72816	29.16649	0	100
% of firm owned by government	24659	0.73624	6.90089	0	100
Firm age in years	24659	17.51482	16.07393	0	310
B. Industry-level Characteristics					
External dependence ratio	28	0.28714	0.36799	-0.45	1.14
C. Country-level Characteristics					
GDP per capita (log)	54	6.96505	1.21735	4.89472	8.88592
Mean asset size, low-end NBFI (in constant 2000 bn USD)	36	0.03224	0.13567	0.00001	0.81750
Mean asset size, specialized NBFI (in constant 2000 bn USD)	33	0.05781	0.09034	0.00041	0.35550
Mean asset size, banks (in constant 2000 bn USD)	50	0.54188	0.76335	0.00993	3.46442
Asset share, low-end NBFI (%)	33	4.38904	5.22834	0.05639	21.77177
Asset share, specialized NBFI (%)	33	6.52460	7.59618	0.27273	38.08210
Asset share, banks (%)	33	89.08637	8.56548	61.17335	98.89384

Table 2: Correlations

		1	2	3	4	5	6	7	8	9	10
1	Access to finance	1.000									
2	Account	-0.189	1.000								
3	Overdraft facility	-0.219	0.344**	1.000							
4	Loan	-0.499***	0.345**	0.673***	1.000						
5	Dummy==1 if firm size small	0.527***	-0.267*	-0.440***	-0.710***	1.000					
6	Dummy==1 if firm size medium	-0.482***	0.248*	0.437***	0.627***	-0.888***	1.000				
7	Dummy==1 if firm size large	-0.468***	0.234*	0.359***	0.652***	-0.913***	0.623***	1.000			
8	Dummy==1 if subsidiary	0.002	0.276**	0.160	-0.112	-0.118	0.059	0.150	1.000		
9	Dummy==1 if publicly listed	-0.129	0.045	-0.027	0.205	-0.384***	0.382***	0.314**	-0.077	1.000	
10	% of firm owned by foreign investor	-0.017	0.124	-0.139	-0.372***	0.089	-0.076	-0.085	0.644***	-0.131	1.000
11	% of firm owned by government	-0.023	0.030	-0.125	0.061	-0.131	-0.001	0.225	0.083	0.418***	-0.009
12	Firm age in years	-0.286**	0.302**	0.604***	0.628***	-0.516***	0.508***	0.426***	0.160	0.144	-0.116
13	External dependence ratio	-0.320**	0.278**	0.407***	0.383***	-0.520***	0.408***	0.522***	0.198	0.097	0.024
14	GDP per capita (log)	-0.586***	0.176	0.416***	0.649***	-0.496***	0.359***	0.525***	0.123	-0.004	-0.041
15	Asset share, low-end NBFI	0.114	0.158	0.032	-0.070	0.018	0.030	-0.056	0.038	-0.014	0.032
16	Asset share, specialized NBFI	-0.106	-0.035	0.186	0.109	0.200	-0.078	-0.265	-0.228	-0.274	-0.064
17	Asset share, banks	0.024	-0.065	-0.184	-0.054	-0.188	0.051	0.270	0.179	0.252	0.037
18	Mean asset size, low-end NBFI	-0.272	-0.020	0.227	0.195	-0.242	0.143	0.253	-0.091	-0.141	-0.183
19	Mean asset size, specialized NBFI	-0.080	0.198	0.536***	0.428**	-0.040	0.185	-0.078	0.066	-0.191	-0.178
20	Mean asset size, banks	-0.385***	0.056	0.467***	0.481***	-0.413***	0.288**	0.435***	0.121	-0.193	-0.183
		11	12	13	14	15	16	17	18	19	20
12	Firm age in years	-0.019	1.000								
13	External dependence ratio	0.022	0.348***	1.000							
14	GDP per capita (log)	0.022	0.409***	0.427***	1.000						
15	Asset share, low-end NBFI	-0.009	0.070	0.078	-0.267	1.000					
16	Asset share, specialized NBFI	0.021	-0.124	-0.034	0.158	-0.147	1.000				
17	Asset share, banks	-0.013	0.068	-0.017	0.023	-0.480***	-0.797***	1.000			
18	Mean asset size, low-end NBFI	-0.141	0.085	0.130	0.232	-0.088	-0.051	0.105	1.000		
19	Mean asset size, specialized NBFI	-0.310*	0.352**	0.137	0.502***	-0.311	0.575***	-0.302	-0.035	1.000	
20	Mean asset size, banks	-0.113	0.354**	0.440***	0.634***	-0.196	0.070	0.070	0.592***	0.506***	1.000

Note: *** p<0.01, ** p<0.05, * p<0.1

Correlations are at the country-level with firm-level variables averaged by country.

Table 3: Asset Shares and Access to Finance

	Access to Finance	Account	Overdraft	Loan	Access to Finance	Account	Overdraft	Loan	Access to Finance	Account	Overdraft	Loan
	oprobit	probit	probit	probit	oprobit	probit	probit	probit	oprobit	probit	probit	probit
	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se
GDP per capita (log)	-0.195***	0.175**	0.357***	0.356***	-0.175***	0.141*	0.319***	0.318***	-0.174***	0.145**	0.349***	0.331***
	(0.059)	(0.073)	(0.073)	(0.053)	(0.063)	(0.072)	(0.083)	(0.050)	(0.061)	(0.072)	(0.079)	(0.049)
Dummy==1 if firm size medium	-0.141***	0.471***	0.504***	0.505***	-0.145***	0.478***	0.526***	0.516***	-0.147***	0.482***	0.519***	0.516***
	(0.037)	(0.066)	(0.060)	(0.039)	(0.038)	(0.067)	(0.059)	(0.040)	(0.039)	(0.065)	(0.063)	(0.040)
Dummy==1 if firm size large	-0.294***	0.602***	0.715***	0.852***	-0.295***	0.609***	0.751***	0.868***	-0.301***	0.621***	0.744***	0.872***
	(0.052)	(0.122)	(0.104)	(0.069)	(0.053)	(0.121)	(0.103)	(0.069)	(0.055)	(0.117)	(0.107)	(0.070)
Dummy==1 if subsidiary	-0.047	0.189**	0.184***	0.022	-0.046	0.201**	0.201***	0.031	-0.050	0.206**	0.200***	0.034
	(0.060)	(0.096)	(0.066)	(0.043)	(0.061)	(0.094)	(0.061)	(0.042)	(0.059)	(0.094)	(0.062)	(0.042)
Dummy==1 if publicly listed	0.038	-0.021	-0.032	0.116	0.040	-0.013	0.001	0.128	0.033	0.001	0.002	0.137*
	(0.077)	(0.114)	(0.084)	(0.075)	(0.084)	(0.112)	(0.085)	(0.081)	(0.086)	(0.113)	(0.085)	(0.075)
% of firm owned by foreign investor	-0.003***	0.003**	-0.001	-0.004***	-0.003***	0.003**	-0.001	-0.004***	-0.003***	0.003**	-0.001	-0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
% of firm owned by government	0.002	0.000	-0.002	-0.006***	0.002	-0.000	-0.003	-0.007***	0.002	-0.000	-0.003	-0.007***
	(0.002)	(0.004)	(0.002)	(0.002)	(0.002)	(0.004)	(0.002)	(0.002)	(0.002)	(0.004)	(0.002)	(0.002)
Firm age in years	-0.001	0.005***	0.005***	0.001	-0.002	0.005***	0.006***	0.002	-0.002	0.005***	0.005***	0.001
	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
NBFI, low-end	-0.013	0.025*	0.006	0.015*								
	(0.016)	(0.015)	(0.018)	(0.008)								
NBFI, specialized					0.001	0.004	0.018*	0.007				
					(0.004)	(0.008)	(0.010)	(0.006)				
Banks									0.003	-0.011	-0.017*	-0.010**
									(0.005)	(0.007)	(0.009)	(0.005)

Constant		2.815***	-8.177***	1.049**		3.119***	-7.921***	1.365**		4.132***	-6.525***	2.250***
		(1.030)	(0.601)	(0.532)		(0.663)	(0.728)	(0.533)		(0.897)	(1.210)	(0.604)
Cutpoint 1	-2.034***				-1.848***				-1.599*			
	(0.520)				(0.540)				(0.831)			
Cutpoint 2	-1.613***				-1.427***				-1.179			
	(0.509)				(0.530)				(0.821)			
Cutpoint 3	-1.041**				-0.857				-0.607			
	(0.513)				(0.534)				(0.822)			
Cutpoint 4	-0.382				-0.199				0.051			
	(0.514)				(0.534)				(0.822)			
N	17,708	17,879	17,542	17,686	17,708	17,879	17,542	17,686	17,708	17,879	17,542	17,686
# countries	33	33	33	33	33	33	33	33	33	33	33	33
Pseudo Adj. R-squared	0.020	0.083	0.131	0.124	0.019	0.076	0.139	0.124	0.019	0.080	0.140	0.126

Note: *** p<0.01, ** p<0.05, * p<0.1

Regressions include unreported industry dummies. Standard errors are clustered at the country level.

Source: Authors' analysis based on data from FSAP reports, Enterprise Surveys, and WDI as described in the text.

Table 4 Panel A: Asset share and access to finance – cross-country and cross-firm heterogeneity

	Access to Finance			Account			Overdraft			Loan		
	OLS	OLS	OLS	OLS	OLS	OLS	OLS		OLS	OLS		OLS
	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se		coef/se	coef/se		coef/se
NBFI, low-end	0.325***	-0.022		0.027**	0.003		0.092**	0.001		0.033		0.008**
	(0.094)	(0.018)		(0.010)	(0.002)		(0.038)	(0.008)		(0.024)		(0.003)
x GDP per capita (log)	-0.053***			-0.004**			-0.014**			-0.004		
	(0.016)			(0.002)			(0.006)			(0.004)		
x External Dependence		-0.033***			-0.001			-0.011			-0.008	
		(0.009)			(0.002)			(0.010)			(0.005)	
NBFI, low-end x small			-0.004			0.004			0.001			0.005*
			(0.022)			(0.003)			(0.006)			(0.003)
NBFI, low-end x medium			-0.026			0.004**			0.001			0.004
			(0.020)			(0.002)			(0.008)			(0.003)
NBFI, low-end x large			-0.035			0.005**			0.006			0.005
			(0.022)			(0.002)			(0.009)			(0.005)
N	17,708	10,070	17,708	17,883	10,166	17,883	17,544	9,973	17,544	17,690	10,050	17,690
# countries	33	33	33	33	33	33	33	33	33	33	33	33
Adj. R-squared	0.082	0.054	0.061	0.050	0.038	0.047	0.181	0.174	0.169	0.160	0.155	0.159
NBFI, specialized	-0.066	-0.001		-0.015	0.001		0.010	0.006***		0.019	0.004**	
	(0.054)	(0.005)		(0.011)	(0.001)		(0.027)	(0.002)		(0.020)	(0.002)	
x GDP per capita (log)	0.009			0.002			-0.001			-0.002		
	(0.007)			(0.001)			(0.004)			(0.003)		
x External Dependence		0.016*			0.001			0.000			-0.000	
		(0.008)			(0.002)			(0.004)			(0.002)	
NBFI, specialized x small			-0.003			0.000			0.007**			0.003
			(0.005)			(0.002)			(0.003)			(0.002)
NBFI, specialized x medium			0.007			0.000			0.006**			0.003*

			(0.006)			(0.001)			(0.003)			(0.002)
NBFI, specialized x large			0.002			0.000			0.002			0.000
			(0.007)			(0.001)			(0.004)			(0.002)
N	17,708	10,070	17,708	17,883	10,166	17,883	17,544	9,973	17,544	17,690	10,050	17,690
# countries	33	33	33	33	33	33	33	33	33	33	33	33
Adj. R-squared	0.057	0.044	0.056	0.044	0.036	0.042	0.178	0.187	0.179	0.160	0.155	0.159
Banks	-0.011	0.005		-0.007	-0.001		-0.024	-0.007***		-0.024**	-0.006***	
	(0.068)	(0.006)		(0.009)	(0.001)		(0.019)	(0.002)		(0.011)	(0.001)	
x GDP per capita (log)	0.002			0.001			0.002			0.003		
	(0.009)			(0.001)			(0.003)			(0.002)		
x External Dependence		0.005			-0.000			0.006			0.004	
		(0.010)			(0.001)			(0.005)			(0.002)	
Banks x small			0.003			-0.001			-0.006**			-0.004**
			(0.007)			(0.001)			(0.003)			(0.002)
Banks x medium			0.001			-0.002*			-0.006*			-0.004**
			(0.006)			(0.001)			(0.003)			(0.002)
Banks x large			0.011			-0.002*			-0.003			-0.002
			(0.009)			(0.001)			(0.004)			(0.002)
N	17,708	10,070	17,708	17,883	10,166	17,883	17,544	9,973	17,544	17,690	10,050	17,690
# countries	33	33	33	33	33	33	33	33	33	33	33	33
Adj. R-squared	0.056	0.045	0.057	0.045	0.037	0.044	0.181	0.185	0.179	0.164	0.159	0.162

Note: *** p<0.01, ** p<0.05, * p<0.1

Regressions control for the unreported variables log of GDP per capita, dummy variables for size (medium and large), the firm being a subsidiary, the firm being publicly listed, the percentage of the firm owned by foreign investors, the percentage of the firm owned by the state, and the firm age in years as well as industry dummies. Regressions with external dependence interaction term also include unreported level effect. Standard errors are clustered at the country level.

Source: Authors' analysis based on data from FSAP reports, Enterprise Surveys, and WDI as described in the text.

Table 4 Panel B: Asset share and access to finance – cross-country and cross-firm heterogeneity, Partial Effects

	Access to Finance			Account			Overdraft			Loan		
GDP per capita (log) at:	p25	p50	p75	p25	p50	p75	p25	p50	p75	p25	p50	p75
	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se
NBFI, low-end	-0.006	-0.053**	-0.113***	0.005***	0.002	-0.002	0.005	-0.008	-0.023	0.006**	0.001	-0.003
	(0.012)	(0.023)	(0.039)	(0.002)	(0.003)	(0.004)	(0.004)	(0.009)	(0.016)	(0.003)	(0.005)	(0.008)
GDP per capita (log)	-0.351***	-0.351***	-0.351***	0.022*	0.022*	0.022*	0.103***	0.103***	0.103***	0.118***	0.118***	0.118***
	(0.073)	(0.073)	(0.073)	(0.012)	(0.012)	(0.012)	(0.025)	(0.025)	(0.025)	(0.019)	(0.019)	(0.019)
NBFI, specialized	-0.011	-0.003	0.007	-0.002	-0.001	0.002	0.007	0.006**	0.006	0.006	0.004	0.001
	(0.011)	(0.006)	(0.008)	(0.002)	(0.001)	(0.001)	(0.005)	(0.003)	(0.004)	(0.004)	(0.002)	(0.003)
GDP per capita (log)	-0.221***	-0.221***	-0.221***	0.023**	0.023**	0.023**	0.115***	0.115***	0.115***	0.112***	0.112***	0.112***
	(0.078)	(0.078)	(0.078)	(0.011)	(0.011)	(0.011)	(0.029)	(0.029)	(0.029)	(0.018)	(0.018)	(0.018)
Banks	0.001	0.003	0.005	-0.002	-0.002	-0.001	-0.008**	-0.006**	-0.004	-0.007***	-0.004**	-0.001
	(0.014)	(0.007)	(0.008)	(0.002)	(0.001)	(0.001)	(0.003)	(0.003)	(0.005)	(0.002)	(0.002)	(0.003)
GDP per capita (log)	-0.227***	-0.227***	-0.227***	0.022**	0.022**	0.022**	0.124***	0.124***	0.124***	0.116***	0.116***	0.116***
	(0.079)	(0.079)	(0.079)	(0.011)	(0.011)	(0.011)	(0.026)	(0.026)	(0.026)	(0.016)	(0.016)	(0.016)

	Access to Finance			Account			Overdraft			Loan		
External dependence at:	p25	p50	p75	p25	p50	p75	p25	p50	p75	p25	p50	p75
	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se
NBFI, low-end	-0.025	-0.028	-0.031	0.003	0.003	0.003	0.001	0	-0.002	0.008**	0.007**	0.006
	(0.018)	(0.019)	(0.020)	(0.002)	(0.002)	(0.002)	(0.008)	(0.008)	(0.009)	(0.003)	(0.003)	(0.004)
External dependence	-0.114***	-0.114***	-0.114***	0.043***	0.043***	0.043***	0.062*	0.062*	0.062*	0.063***	0.063***	0.063***
	(0.040)	(0.040)	(0.040)	(0.012)	(0.012)	(0.012)	(0.032)	(0.032)	(0.032)	(0.023)	(0.023)	(0.023)
NBFI, specialized	0	0.001	0.003	0.001	0.001	0.001	0.006***	0.006***	0.006**	0.004**	0.004**	0.003**
	(0.005)	(0.005)	(0.006)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)
External dependence	-0.156*	-0.156*	-0.156*	0.047***	0.047***	0.047***	0.059	0.059	0.059	0.066**	0.066**	0.066**
	(0.086)	(0.086)	(0.086)	(0.011)	(0.011)	(0.011)	(0.048)	(0.048)	(0.048)	(0.026)	(0.026)	(0.026)
Banks	0.005	0.006	0.006	-0.001	-0.001	-0.001*	-0.006**	-0.006**	-0.005	-0.005***	-0.005***	-0.005***
	(0.006)	(0.006)	(0.007)	(0.001)	(0.001)	(0.001)	(0.003)	(0.003)	(0.003)	(0.001)	(0.001)	(0.001)
External dependence	-0.184*	-0.184*	-0.184*	0.045***	0.045***	0.045***	0.05	0.05	0.05	0.063**	0.063**	0.063**
	(0.096)	(0.096)	(0.096)	(0.011)	(0.011)	(0.011)	(0.055)	(0.055)	(0.055)	(0.029)	(0.029)	(0.029)

Note: *** p<0.01, ** p<0.05, * p<0.1

Table reports partial effects of ordinary least square regressions that control for the unreported variables log of GDP per capita, dummy variables for size (medium and large), the firm being a subsidiary, the firm being publicly listed, the percentage of the firm owned by foreign investors, the percentage of the firm owned by the state, and the firm age in years as well as industry dummies. Regressions with external dependence interaction term also include unreported level effect. Standard errors are clustered at the country level.

Source: Authors' analysis based on data from FSAP reports, Enterprise Surveys, and WDI as described in the text.

Table 5: Average size and access to finance

	Access to Finance	Account	Overdraft	Loan
	oprobit	probit	probit	probit
	coef/se	coef/se	coef/se	coef/se
NBFI, low-end	-0.594***	-0.707***	0.007	-0.191**
	(0.150)	(0.152)	(0.206)	(0.094)
N	18,403	18,641	18,237	18,444
# countries	36	36	36	36
Pseudo Adj. R-squared	0.018	0.074	0.110	0.107
NBFI, specialized	0.996	1.091	2.984***	1.153***
	(0.634)	(0.736)	(0.816)	(0.407)
N	17,794	17,997	17,565	17,798
# countries	33	33	33	33
Pseudo Adj. R-squared	0.018	0.060	0.133	0.106
Banks	-0.039	-0.013	0.143	0.019
	(0.110)	(0.088)	(0.099)	(0.051)
N	22,252	22,553	21,982	22,353
# countries	50	50	50	50
Pseudo Adj. R-squared	0.017	0.050	0.104	0.107

Note: *** p<0.01, ** p<0.05, * p<0.1

Regressions control for the unreported variables log of GDP per capita, dummy variables for size (medium and large), the firm being a subsidiary, the firm being publicly listed, the percentage of the firm owned by foreign investors, the percentage of the firm owned by the state, and the firm age in years as well as industry dummies. Standard errors are clustered at the country level.

Source: Authors' analysis based on data from FSAP reports, Enterprise Surveys, and WDI as described in the text.

Table 6 Panel A: Average size and access to finance – cross-country and cross-firm heterogeneity

	Access to Finace			Account			Overdraft			Loan		
	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS
	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se
NBFI, low-end	-42.776**	-0.793***		3.633	-0.107***		15.722*	-0.056		15.354**	-0.135***	
	(16.079)	(0.212)		(4.681)	(0.017)		(8.218)	(0.069)		(7.115)	(0.036)	
x GDP per capita (log)	4.975**			-0.440			-1.859*			-1.824**		
	(1.901)			(0.553)			(0.974)			(0.842)		
x External Dependence		0.164			-0.015			-0.075			0.092**	
		(0.147)			(0.014)			(0.073)			(0.037)	
NBFI, low-end x small			-0.839***			-0.093***			0.085			0.007
			(0.181)			(0.020)			(0.074)			(0.039)
NBFI, low-end x medium			-0.598***			-0.091***			-0.036			-0.071*
			(0.202)			(0.014)			(0.074)			(0.038)
NBFI, low-end x large			-0.752***			-0.079***			-0.029			-0.134***
			(0.223)			(0.013)			(0.074)			(0.033)
N	18,403	10,283	18,403	18,646	10,398	18,646	18,240	10,173	18,240	18,449	10,282	18,449
# countries	36	36	36	36	36	36	36	36	36	36	36	36
Adj. R-squared	0.055	0.047	0.052	0.037	0.040	0.036	0.146	0.150	0.143	0.142	0.140	0.139
NBFI, specialized	-6.058	0.895		0.925	0.165		2.584	0.867***		3.213	0.431**	
	(10.011)	(0.848)		(1.805)	(0.102)		(3.452)	(0.264)		(2.572)	(0.167)	
x GDP per capita (log)	0.890			-0.100			-0.201			-0.340		
	(1.266)			(0.216)			(0.414)			(0.309)		
x External Dependence		1.110			-0.116			-0.088			-0.094	
		(0.701)			(0.078)			(0.236)			(0.149)	
NBFI, specialized x small			1.163			0.131			1.066***			0.521***
			(0.830)			(0.106)			(0.285)			(0.161)
NBFI, specialized x medium			1.435			0.091			0.968***			0.438**
			(0.850)			(0.079)			(0.275)			(0.165)

NBFI, specialized x large			1.087			0.068			0.578**			0.178
			(1.005)			(0.077)			(0.248)			(0.123)
N	17,794	10,131	17,794	18,002	10,235	18,002	17,568	10,005	17,568	17,803	10,119	17,803
# countries	33	33	33	33	33	33	33	33	33	33	33	33
Adj. R-squared	0.054	0.041	0.053	0.030	0.032	0.029	0.167	0.175	0.168	0.139	0.141	0.138
Banks	-2.394*	-0.073		0.519**	-0.002		-0.499	0.030		0.132	-0.004	
	(1.378)	(0.145)		(0.225)	(0.016)		(0.688)	(0.037)		(0.373)	(0.022)	
x GDP per capita (log)	0.281*			-0.062**			0.066			-0.015		
	(0.161)			(0.027)			(0.082)			(0.044)		
x External Dependence		0.040			-0.021**			-0.053**			-0.023	
		(0.039)			(0.009)			(0.021)			(0.023)	
Banks x small			-0.093			0.012			0.086**			0.034*
			(0.140)			(0.015)			(0.037)			(0.020)
Banks x medium			-0.014			-0.009			0.047			0.009
			(0.138)			(0.011)			(0.036)			(0.019)
Banks x large			-0.050			-0.012			0.007			-0.023
			(0.143)			(0.009)			(0.030)			(0.017)
N	22,252	11,734	22,252	22,563	11,869	22,563	21,985	11,587	21,985	22,359	11,751	22,359
# countries	50	50	50	50	50	50	50	50	50	50	50	50
Adj. R-squared	0.060	0.043	0.053	0.039	0.037	0.030	0.139	0.150	0.139	0.139	0.148	0.140

Note: *** p<0.01, ** p<0.05, * p<0.1

Regressions control for the unreported variables log of GDP per capita, dummy variables for size (medium and large), the firm being a subsidiary, the firm being publicly listed, the percentage of the firm owned by foreign investors, the percentage of the firm owned by the state, and the firm age in years as well as industry dummies. Regressions with external dependence interaction term also include unreported level effect. Standard errors are clustered at the country level.

Source: Authors' analysis based on data from FSAP reports, Enterprise Surveys, and WDI as described in the text.

Table 6 Panel B: Average size and access to finance – cross-country and cross-firm heterogeneity, Partial effects

	Access to Finance			Account			Overdraft			Loan		
GDP per capita (log) at:	p25	p50	p75	p25	p50	p75	p25	p50	p75	p25	p50	p75
	mx2	mx3	mx4	mx6	mx7	mx8	mx10	mx11	mx12	mx14	mx15	mx16
	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se
NBFI, low-end	-11.811***	-6.103***	-1.168***	0.893	0.388	-0.049	4.150*	2.016*	0.172*	4.003**	1.910**	0.101
	(4.250)	(2.073)	(0.263)	(1.238)	(0.603)	(0.056)	(2.158)	(1.042)	(0.101)	(1.876)	(0.911)	(0.082)
GDP per capita (log)	0.118	0.118	0.118	0.004	0.004	0.004	0.015	0.015	0.015	0.011	0.011	0.011
	(0.115)	(0.115)	(0.115)	(0.033)	(0.033)	(0.033)	(0.057)	(0.057)	(0.057)	(0.049)	(0.049)	(0.049)
NBFI, specialized	0.052	0.5	1.316	0.238	0.188	0.096	1.203*	1.102**	0.917***	0.880*	0.674**	0.397***
	(1.485)	(0.983)	(0.893)	(0.330)	(0.226)	(0.075)	(0.650)	(0.464)	(0.250)	(0.462)	(0.286)	(0.123)
GDP per capita (log)	-0.235***	-0.235***	-0.235***	0.007	0.007	0.007	0.058	0.058	0.058	0.071**	0.071**	0.071**
	(0.080)	(0.080)	(0.080)	(0.020)	(0.020)	(0.020)	(0.040)	(0.040)	(0.040)	(0.028)	(0.028)	(0.028)
Banks	-0.696*	-0.325	-0.067	0.141**	0.058**	0.001	-0.102	-0.015	0.045	0.043	0.024	0.01
	(0.419)	(0.231)	(0.148)	(0.063)	(0.028)	(0.010)	(0.196)	(0.091)	(0.035)	(0.106)	(0.049)	(0.019)
GDP per capita (log)	-0.01	-0.01	-0.01	-0.02	-0.02	-0.02	0.119**	0.119**	0.119**	0.091***	0.091***	0.091***
	(0.125)	(0.125)	(0.125)	(0.027)	(0.027)	(0.027)	(0.060)	(0.060)	(0.060)	(0.034)	(0.034)	(0.034)

	Access to Finance			Account			Overdraft			Loan		
External dependence at:	p25	p50	p75	p25	p50	p75	p25	p50	p75	p25	p50	p75
	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se
NBFI, low-end	-0.780***	-0.771***	-0.748***	-0.108***	-0.109***	-0.111***	-0.062	-0.066	-0.077	-0.128***	-0.122***	-0.109***
	(0.214)	(0.217)	(0.224)	(0.017)	(0.016)	(0.015)	(0.070)	(0.070)	(0.073)	(0.035)	(0.035)	(0.034)
External dependence	-0.159	-0.159	-0.159	0.040***	0.040***	0.040***	0.043	0.043	0.043	0.054**	0.054**	0.054**
	(0.100)	(0.100)	(0.100)	(0.011)	(0.011)	(0.011)	(0.052)	(0.052)	(0.052)	(0.027)	(0.027)	(0.027)
NBFI, specialized	0.984	1.095	1.206	0.156	0.144	0.133	0.860***	0.851***	0.842***	0.424***	0.414***	0.405***
	(0.857)	(0.873)	(0.894)	(0.100)	(0.098)	(0.096)	(0.266)	(0.271)	(0.278)	(0.163)	(0.159)	(0.157)
External dependence	-0.135	-0.135	-0.135	0.043***	0.043***	0.043***	0.053	0.053	0.053	0.058**	0.058**	0.058**
	(0.082)	(0.082)	(0.082)	(0.011)	(0.011)	(0.011)	(0.047)	(0.047)	(0.047)	(0.027)	(0.027)	(0.027)
Banks	-0.069	-0.067	-0.061	-0.004	-0.005	-0.008	0.025	0.022	0.015	-0.006	-0.008	-0.011
	(0.145)	(0.144)	(0.144)	(0.016)	(0.016)	(0.015)	(0.037)	(0.037)	(0.037)	(0.021)	(0.021)	(0.019)
External dependence	-0.137	-0.137	-0.137	0.055***	0.055***	0.055***	0.061	0.061	0.061	0.063**	0.063**	0.063**
	(0.095)	(0.095)	(0.095)	(0.011)	(0.011)	(0.011)	(0.046)	(0.046)	(0.046)	(0.026)	(0.026)	(0.026)

Note: *** p<0.01, ** p<0.05, * p<0.1

Table reports partial effects of ordinary least square regressions that control for the unreported variables log of GDP per capita, dummy variables for size (medium and large), the firm being a subsidiary, the firm being publicly listed, the percentage of the firm owned by foreign investors, the percentage of the firm owned by the state, and the firm age in years as well as industry dummies. Regressions with external dependence interaction term also include unreported level effect. Standard errors are clustered at the country level.

Source: Authors' analysis based on data from FSAP reports, Enterprise Surveys, and WDI as described in the text.

Appendix 1

Country	Asset Share			Mean Assets in bn USD (constant)			Number of Firms
	low-end NBFI	specialized NFBI	Banks	low-end NBFI	specialized NFBI	Banks	
Belarus						0.430	273
Benin						0.115	150
Bolivia	15.12	0.34	84.54	0.024	0.021	0.410	613
Bosnia and Herzegovina	2.19	3.24	94.58	0.003	0.039	0.099	361
Botswana	0.55	12.47	86.98	0.001	0.156	0.511	342
Brazil	0.83	5.52	93.64	0.003	0.180	2.668	1802
Bulgaria					0.017	0.665	288
Burkina Faso	21.77	3.24	74.99	0.001	0.010	0.100	394
Cameroon	4.66	10.64	84.70				363
Chile	0.45	1.52	98.03	0.004	0.355	2.481	1017
Colombia	0.74	38.08	61.17	0.024	0.327	0.931	1000
Cote d'Ivoire	1.51	3.73	94.76				526
Croatia				0.026		1.054	633
Czech Republic						1.356	250
Ecuador	4.78	5.89	89.32	0.009	0.013	0.217	658
Gabon	5.49	5.01	89.49	0.005	0.010	0.187	179
Georgia						0.029	373
Ghana	3.35	4.34	92.31	0.000	0.004	0.129	494
Guatemala					0.016	0.385	522
Guinea-Bissau						0.010	159
Honduras	6.31	1.67	92.02	0.072	0.006	0.174	436
Hungary	6.01	11.79	82.21	0.015	0.034	1.325	291
Kazakhstan					0.016	0.093	544
Kenya	17.09	3.09	79.82	0.000	0.042	0.127	657
Kyrgyz Republic				0.000		0.016	235
Latvia	0.06	6.07	93.87	0.000	0.040	0.616	271
Macedonia, FYR	1.27	1.51	97.21	0.003	0.005	0.147	366
Madagascar	5.33	0.27	94.40	0.007	0.002	0.171	445
Malawi	2.88	1.97	95.15	0.000	0.007	0.060	150
Mali						0.138	490
Mauritius	0.68	5.20	94.12	0.022	0.160	0.396	398
Moldova				0.000		0.027	363
Mongolia	0.79	3.49	95.73	0.000	0.000	0.086	362
Montenegro				0.008		0.050	116
Mozambique	2.64	14.21	83.15	0.008	0.075	0.225	479
Namibia				0.000		0.565	329
Niger						0.041	150
Paraguay	11.43	7.86	80.71	0.001	0.012	0.137	613

Peru	3.39	4.36	92.25	0.018	0.086	1.239	632
Philippines	10.34	3.15	86.51	0.007	0.023	1.274	1326
Poland				0.010		1.886	455
Rwanda	5.96	23.35	70.69				212
Senegal	2.05	0.65	97.30				506
Serbia					0.011	0.145	388
Sierra Leone						0.024	150
Slovak Republic						1.584	275
Tajikistan				0.000		0.032	360
Tanzania	0.89	7.06	92.05	0.000	0.013	0.109	419
Togo						0.064	155
Turkey	1.94	3.03	95.03	0.818	0.033	3.464	1152
Uganda	0.98	4.33	94.68	0.000	0.008	0.078	563
Ukraine	0.64	0.46	98.89	0.000	0.002	0.133	851
Uruguay	1.66	15.13	83.21	0.070	0.181	0.833	621
Zambia	1.03	2.64	96.33	0.000	0.003	0.059	484
							25641

Source: Authors' analysis based on data from FSAP reports and Enterprise Surveys as described in the text.